Dunn-Rite Food Products Ltd. Environmental Assessment of Upgraded Food-Processing Facility

FINAL REPORT

Prepared for:
Dunn-Rite Food Products Ltd.

Prepared by:
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111440256

November 4, 2014

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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

Dunn-Rite Food Products Ltd. has owned and operated a poultry-processing plant in Winnipeg for decades. The original family-owned business began in 1940 (Manitoba Chicken Producers 2014). Dunn-Rite was acquired in 2012 by Sunrise Farms. The facility as it operates is capable of processing up to 75,000 live chickens into market-ready products on a daily basis (~300,000 birds per week). The facility specializes in the slaughter of live chickens, processing of fresh or frozen whole, and portioned, marinated and non-marinated chicken. The facility has not been operated pursuant to nor regulated by the provincial *Environment Act*. A recently-announced Upgrade and expansion of the existing plant included provisions for a sophisticated industrial pre-treatment plant for processing raw wastewater prior to its discharge to the City of Winnipeg sewer system for subsequent secondary treatment. Manitoba Conservation and Water Stewardship subsequently deemed, pursuant to s. 16 of *The Environment Act* and consistent with MR 164/88 ("Classes of Development Regulation"), that the upgraded facility should be licenced under the statute as a "Class 1 development". Stantec was retained by Dunn-Rite to develop this Environmental Impact Assessment to support its application for an *Environment Act* licence.

For purposes of licensing under the statute, the applicant and the prospective licencee is Dunn-Rite Food Products Ltd. rather than Sunrise Farms.

1.2 ENVIRONMENTAL ASSESSMENT PROCESS

The following sets out the character of the impact assessment process in the context of the major factors driving the scoping and schedule for the assessment.

1.2.1 Manitoba Conservation and Water Stewardship Determination for Licensing

On April 25, 2014, a public news article and various media releases from industry groups (e.g. Manitoba Chicken Producers) noted that Dunn-Rite Food Products Ltd. (Dunn-Rite) would receive a $1.5 M joint federal-provincial grant towards installation of a $4.5 M state-of-the art wastewater pre-treatment system as part of its ongoing plant Upgrade, renovation and expansion project. The grant was provided pursuant to the "Growing Forward Fund", a five-year federal-provincial-territorial policy framework to advance the agriculture industry (Manitoba Chicken Producers 2014). Manitoba Conservation and Water Stewardship (Manitoba Conservation) advised Dunn-Rite by letter dated May 8, 2014, that its meat-processing facility was deemed to be a Class 1 Development under the *Classes of Development Regulation (M.R. 164/88)* and that Manitoba Conservation required licensing under the (Manitoba) *Environment*

*Act (*Bridges pers. comm. 2014). Manitoba Conservation indicated an *Environment Act* application would be required by June 30, 2014.

On June 16, 2014, Stantec Consulting Ltd. (Stantec) was retained by Dunn-Rite to provide environmental-assessment services in support of an application for *Environment Act* licensing of its existing expanded and upgraded facility. The facility is located at 199 Hamelin Street ("the facility"), Winnipeg, Manitoba (Figure 1-1). In part, Stantec's retainer related to its highly relevant experience (when operating as the legacy company TetrES Consultants Ltd. in 2002) with the assessment and licensing process completed in respect of a plant Upgrade undertaken by Granny's Poultry Co-Operative Ltd. at its major processing plant in Blumenort (Tetr*ES* Consultants Inc. 2002).

After Stantec was retained, a formal request letter for extension of the submission date to October 31, 2014, was prepared by Stantec on behalf of Dunn-Rite. Manitoba Conservation accepted the revised submission date by letter dated October 1, 2014 (Labossiere pers. comm. 2014).

Dunn-Rite has instructed Stantec to provide Manitoba Conservation with information required to support its licensing application under the *Environment Act* within this report.

1.2.2 Dunn-Rite Food Products Ltd. Capital Investment Program/R & D Program

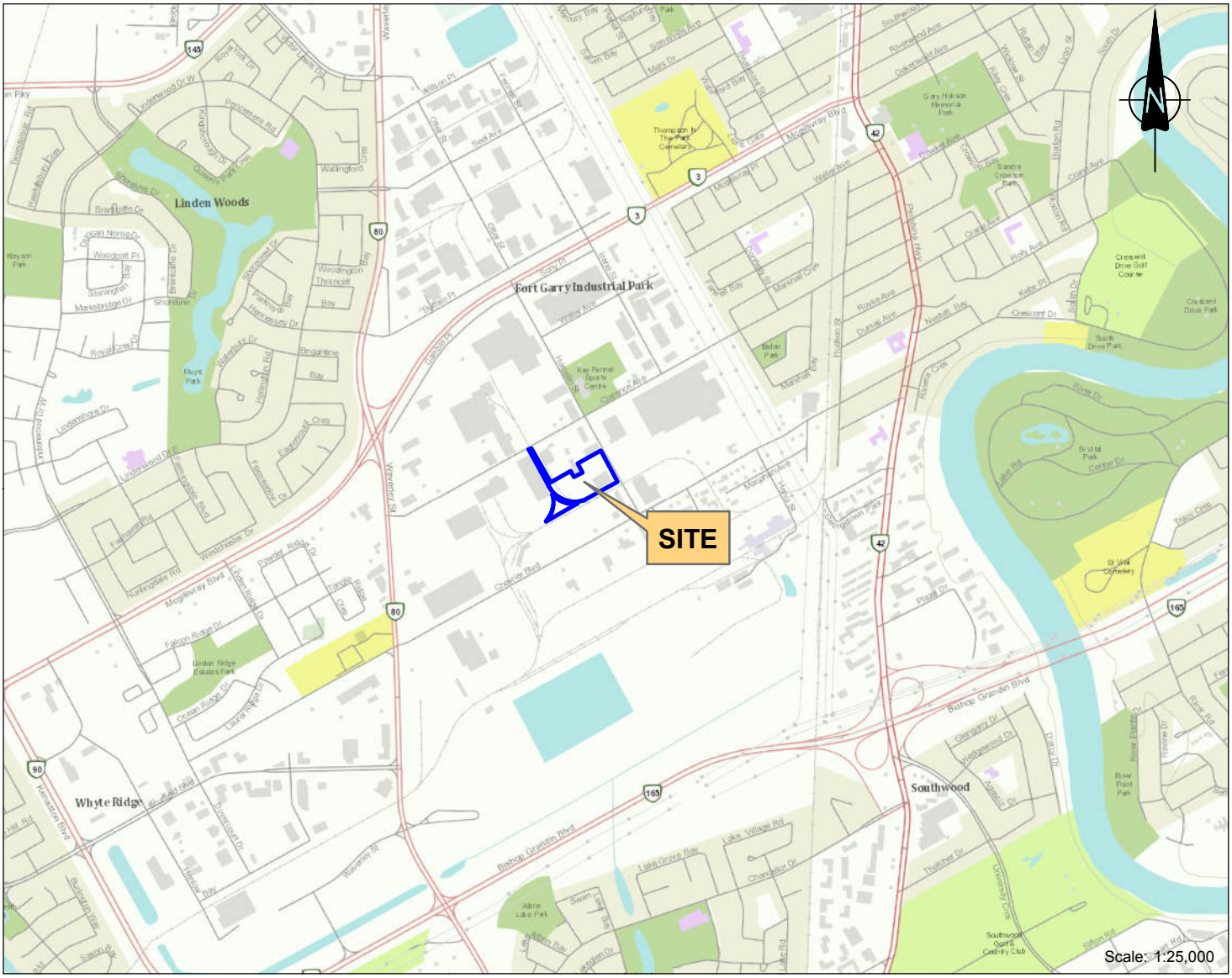
Over the years, Dunn-Rite Food Products has sought ways to enhance its processes, both to speed up production, and to decrease its environmental impact. Stantec is advised that this has usually been achieved by installing more efficient and state-of-the-art processing equipment. The existing plant will be expanded or altered in ways which accommodate new processing, control and waste-management technologies to meet these goals.

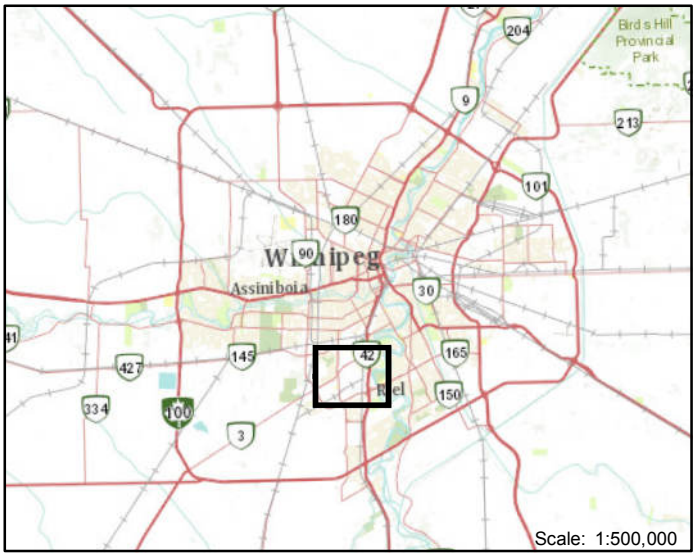
Since 2012, Dunn-Rite's facility has been in the process of a $26-million renovation and expansion project to respond to opportunities in the growing meat-processing sector in Manitoba. Several of the noteworthy initiatives having significant environmental benefits that were achieved through the ongoing upgrading of the plant include:

- 2013 – Overall plant expansion incorporating the most energy-efficient processes available to reduce plant runtime (by ~30%), and energy consumption, while accomplishing desired production goals.

- 2013 – Installation of a Taifun® dry vacuum system, which uses air pressure instead of water, to deliver production wastes from the kill and evisceration departments to the outbound-shipment bay, thereby greatly reducing production of wastewater requiring treatment.

- 2012 and 2013 – Installation of two high-efficiency boilers in the plant's expanded production area and in the existing plant, thereby reducing natural gas consumption and particulate and greenhouse-gas emissions.





REF: ESRI Canada Topo Map

NOTE:THIS DRAWING ILLUSTRATION SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LIMITED REPORT AND MUST NOT BE USED FOR OTHER PURPOSES,

SITE LOCATION PLAN

ENVIRONMENTAL ASSESSMENT AND LICENCING FOR
UPGRADED FOOD PROCESSING FACILITY

199 HAMELIN STREET, WINNIPEG, MANITOBA

Client: DUNN-RITE FOOD PRODUCTS LTD.

Job No.:	111440256
Scale:	AS SHOWN
Date:	26-Aug-2014
Original Drawing By:	SS
Updated By:	AC

Figure No.: 1-1

Stantec

G:\GIS Project Folder\111440256

- 2009 – Installation of Magikist® instantaneous high-pressure hot-water heaters to reduce natural gas consumption.

- Continuous facility improvements which incorporate Best Practices and technologies from across the globe.

1.2.3 Relevant Food-Processing Accreditation

The Dunn-Rite facility holds the following certificates and/or demonstrations of its compliance with applicable standards and regulations for protecting public health (see Appendix A):

- Government of Canada Food Inspection Agency (CFIA) – Achievement of HACCP (Hazard Analysis Critical Control Point) system.

- CFIA – Licence to Operate a Registered Establishment under the Canadian *Meat Inspection Act* and its regulations.

- National Sanitation Foundation (NSF International) – Audit and achievement in Food Safety and Quality Systems Gold Standard.

2.0 CONSULTATION AND ENGAGEMENT

Dunn-Rite was informed about the regulatory requirements for public engagement during the course of impact assessments intend to secure licensing under *The Environment Act*. Dunn-Rite advised Stantec that this regulatory need was consistent with its public consultation and engagement policies and goals. Accordingly, Stantec was instructed to design and execute a practical process to advise the neighbouring public about the plant Upgrade, and the opportunity for public expressions of interest or concern.

Accordingly, Stantec executed a broad regional public-consultation plan to gain input from the surrounding community in Winnipeg about the facility-upgrading process. The combined outreach/feedback mechanism consisted of a two-stage advertisement posted in the *Sou'wester* regional newspaper, which included a clip-out, mail-back form pre-addressed to Stantec. Stantec had used the same concept, and virtually the same form, when engaging with the public in respect of another planned Upgrade to another poultry-processing plant in 2001 that was approved by Manitoba Conservation (then Manitoba Environment)((Tetr*ES* Consultants Inc. 2002).

The advertisement was designed for two purposes: 1) to notify the public that Dunn-Rite was proceeding with a formal environmental assessment of their existing facility, and would be submitting the assessment to Manitoba Conservation for determining whether to approve continued operations of the upgraded facility, and; 2) to solicit expression of public concerns that Stantec could address in the assessment or that Dunn-Rite could address in the Upgrade-design process. The advertisements were posted in *The Sou'wester* newspaper on the August 27 and September 10, 2014 (Figure 2-1) issue dates. The *Sou'wester* newspaper services areas within a large catchment area of southwest Winnipeg including Tuxedo, River Heights, Fort Rouge, Lindenwoods, Fort Garry, Whyte-ridge, Fort Garry, Waverley Heights, University Heights, Fort Richmond, Richmond West and St. Norbert.

Neither posting resulted in any comments or questions received by Stantec. Dunn-Rite also indicated that to its knowledge, it had not received any complaints about its operations from the surrounding community, although it acknowledged occasional social media (Flickr) postings by an animal-rights activist (i.e., in Aug 2008 and May 2009).

No comments or concerns were expressed to either Stantec or Dunn-Rite about either past operations or the current Upgrade. Accordingly, there were no specific or implied directions to either Stantec or Dunn-Rite that could affect the design, construction or operation of the upgraded facility, or the scope of the assessment.

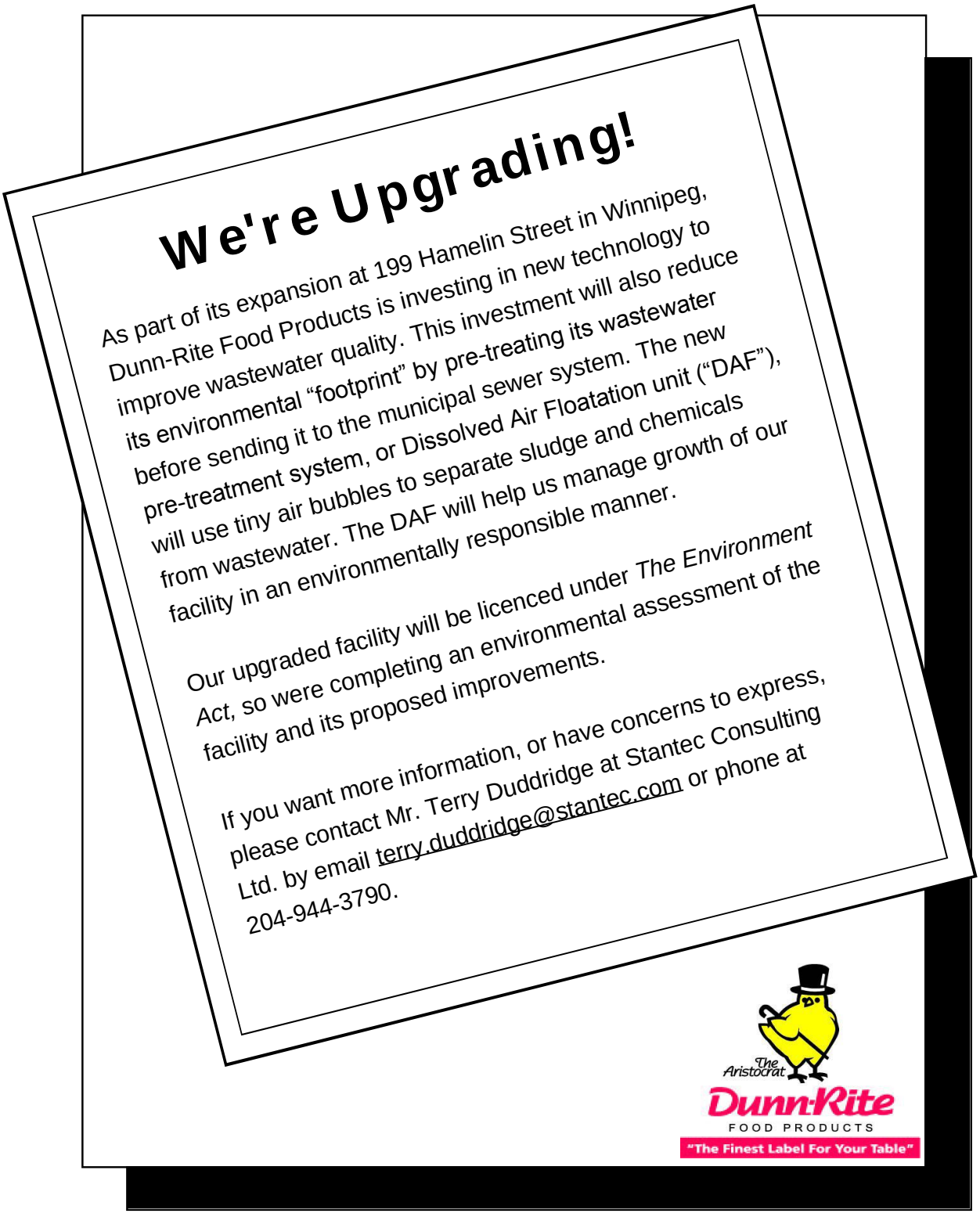


Figure 2-1: Public Consultation Advertisement

3.0 REGULATORY FRAMEWORK

The central elements of the relevant regulatory framework are grouped by jurisdiction and described below. The contributions by both governments totaling $1.5 M (Winnipeg Free Press 2014) mean that the environmental regulatory requirements of both jurisdictions' must be met.

3.1 GOVERNMENT OF CANADA

3.1.1 *Canadian Environmental Assessment Act* (CEAA)

The upgrade and expansion is not anticipated to require federal an environmental impact assessment pursuant to the provisions of the *Canadian Environmental Assessment Act*, due to the absence of a Federal Authority or other trigger identified under the *Act*.

3.2 PROVINCE OF MANITOBA

3.2.1 *The Environment Act*

The Environment Act provides for the environmental assessment of projects, or "developments" which are likely to have significant effects on the environment. Meat processing has the potential to affect air, land or water. As a meat-processing facility, Dunn-Rite's facility operations are defined by the *Classes of Development Regulation (MR 164/88)* as a "Class 1 Development." The facility therefore requires licensing pursuant to the statute.

3.3 CITY OF WINNIPEG

3.3.1 Sewer Bylaw

The City of Winnipeg *Sewer By-Law No. 92/2010*, Part 7 restricts discharges of "*…substances with concentrations that exceed the limits set out in Schedule B…."* of the bylaw to the City's sewer system. The bylaw allows for the generator's discharges to exceed concentrations outlined in Schedule B if allowed by provisions of an Over-strength Discharge Licence received from the City of Winnipeg. The Over-strength Discharge Licence may provide limits or conditions for specific substances associated with the generator's facility.

Dunn-Rite's current wastewater discharges do not meet the required concentrations of substances as indicated in Schedule B in the *By-Law*. However, they are compliant with the By-law because Dunn-Rite currently holds a City of Winnipeg Over-strength Discharge Licence for its 2011-2015 operating years (Appendix B).

City of Winnipeg over-strength surcharges are billed to generators using the following rates:

- $0.85/kg of total suspended solids (TSS) in excess of 350 mg/L.
- $1.12/kg of biochemical oxygen demand (BOD) in excess of 300 mg/L.
- $1.00/kg of total nitrogen (TN) in excess of 60 mg/L.
- $2.00/kg of total phosphorus (TP) in excess of 10 mg/L.

4.0 PROJECT DESCRIPTION

Dunn-Rite is seeking an *Environment Act* Licence for its upgraded and expanded meat-processing facility in order to bring operations of the upgraded facility into compliance with the *Act.* Specific aspects of the development as they relate to the licence application are described below.

4.1 NEED FOR EXPANSION AND UPGRADING

To meet the growing demands of Manitoba's chicken producers, and to supply its markets with high-quality food products, Dunn-Rite has invested substantially over recent years in upgrading and expanding its meat-processing facility. Dunn-Rite anticipates that through these investments, its facility will grow in production capability from approximately 75,000 chickens to 100,000 chickens daily.

Expansion of the facility requires upgrades to critical pieces of internal infrastructure, including installation of a wastewater pre-treatment system, in order to manage projected increased loadings of effluent to the municipal sewer and treatment system and to meet substance concentration requirements of the City of Winnipeg's Sewer Bylaw, while reducing water use.

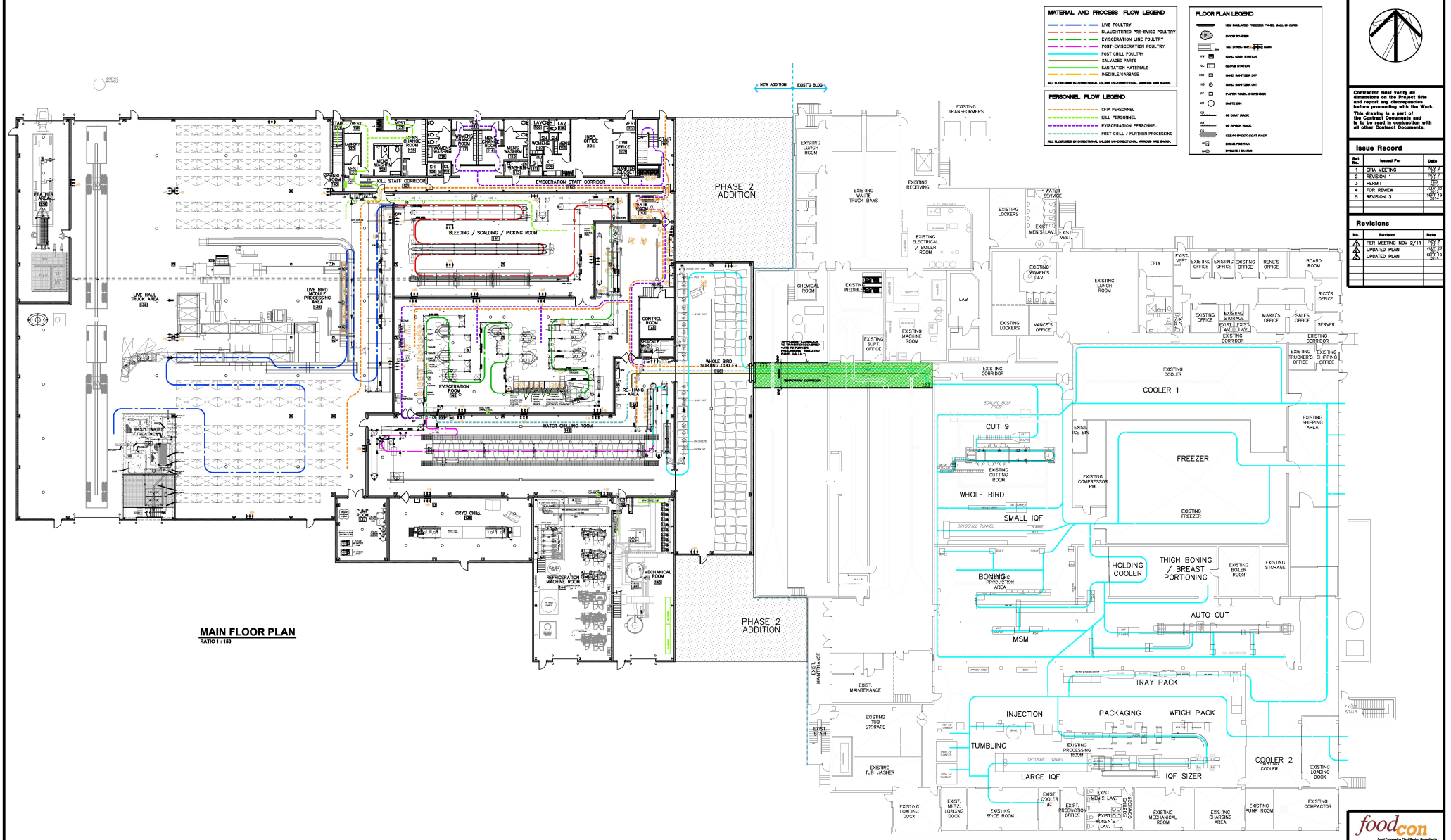
4.1.1 Existing Development

Dunn-Rite currently processes and packages 75,000 live chickens each day, drawing on a workforce of ~300 employees within a facility footprint of 165,000 ft². A site plan of the facility is illustrated in Figure 4-1 which shows the general layout, major production areas, and personnel, material and process flows. Photos illustrating the existing operations are included in Appendix C.

The facility's production areas are divided into two major components: 1) live haul, slaughter, evisceration, chill and 2) deboning, final processing, packaging, cold storage and shipping. Production areas are described in detail below.

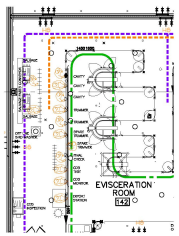
4.1.2 Process Description

The process (Figure 4-2) begins with the arrival of live birds in shipping modules at the upgraded live-bird handling area. The area is designed to minimize human interaction with the chickens to reduce stress, injuries, and improve final product quality. Once unloaded from the trucks, the modules containing live birds are moved by forklift to the conveyor and transported to the live handling platform. Employees remove birds from the modules and hang them inverted by their feet onto the overhead conveyor system. The overhead conveyor system then transports the birds to the kill area, where the birds are first stunned (the head of the bird makes contact with electrically-charged water) and then immediately killed by automated transport through a



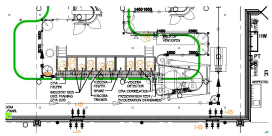
MAIN FLOOR PLAN

RATIO 1 : 150



PART-FLOOR PLAN BLOW-UP

SCALE 1:75



PART-FLOOR PLAN BLOW-UP

SCALE 1:75

Figure 4-1: Site Plan

Contractor must verify all dimensions on the Project Site and report any discrepancies before proceeding with the Work.

This drawing is a part of the Contract Documents and is to be read in conjunction with all other Contract Documents.

Issue Record

Set No.	Issued For	Date
1	CFIA MEETING	NOV 7 2011
2	REVISION 1	NOV 7 2011
3	PERMIT	TBA
4	FOR REVIEW	AUG 29 2014
5	REVISION 3	NOV 19 2014

Revisions

No.	Revision	Date
1	PER MEETING NOV 2/11	NOV 7 2011
2	UPDATED PLAN	AUG 29 2014
3	UPDATED PLAN	NOV 19 2014

foodcon

Food Processing Plant Design Consultants Project Management

P.O. Box 247 Paris Ontario Canada N3L 3G2
Tel. (519) 442-4911 Fax. (519) 442-1629
www.foodcon.com
Division of Donald T. Plumstead Project Management Ltd.

Project Title

PROPOSED ADDITION TO

DunnRite Processing Ltd.

ESTABLISHMENT No. 281

199 HAMELIN STREET,
WINNIPEG, MANITOBA. R3T 0P2

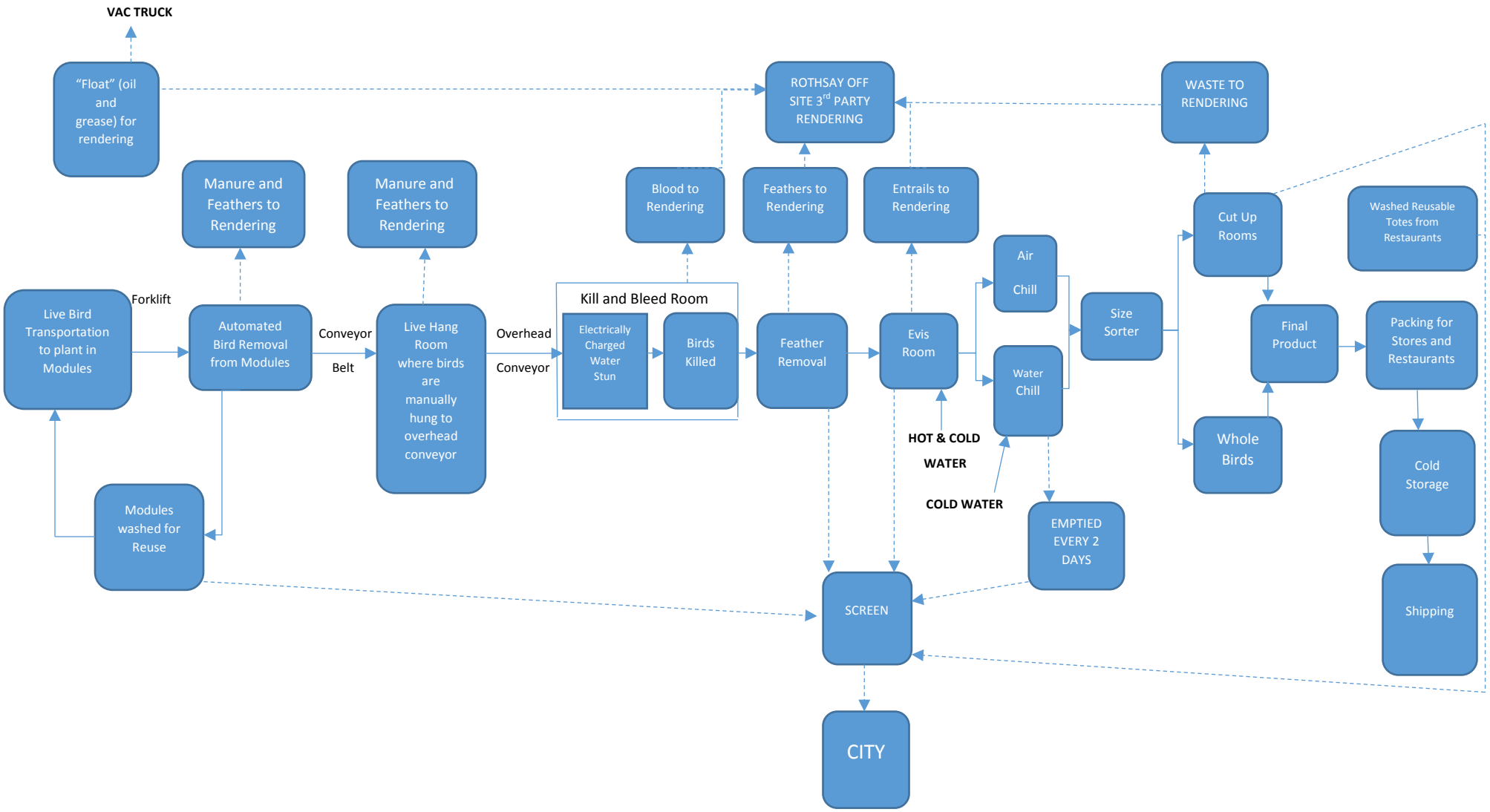
Design	Plot Date
D T P	SEPT 19 2014
Checked	Drawn
N C	DTP / KD

Drawing Title

CFIA FLOW PLAN

Project No.	Drawing No.
	1.5

Figure 4-2: DUNN-RITE FOOD PRODUCTS PRODUCTION PROCESS



Revised/Authorized: V.Rempel..25July14..Supercedes..

machine which decapitates the bird. Instances where a bird was not successfully killed by machine, an employee is positioned to finish killing of birds manually with a knife.

The overhead conveyor then transports birds through the bleeding room's trough, which uses heated water and a mechanical picking process to remove feathers and blood. Discard materials are drained through a sub-floor trough and collected into a concrete rendering tank located in the out-bay.

The birds are then transported through head-puller and foot-removing machines and transferred to an evisceration overhead conveyor where the birds are eviscerated, inspected, necks removed, and rinsed. Discard materials are suctioned by the Taifun® and delivered to the out-bay. Birds are then conveyed to the chill room where they are sterilized with 'Cecure' and directed to the spin chill basin (110,000-litre capacity) or tunnel freezers. Chilling water is recycled several times during this process and is monitored for quality and safety by onsite CFIA officers.

After chilling, the birds are manually rehung on an overhead sizing conveyor, weighed, and sorted by mass using automated scales and either transported in bins to be packaged as whole birds or conveyed to the cooled cut-up room where they are dropped at various workstations. At the workstations, a combination of machine and manual processing produces wings, drums, breasts, seasoning-injected products, etc. The products are then transferred to packaging and placed in the appropriate cooler storage area or sent directly for shipping. The facilities' expanded plant uses ammonia as a refrigerant, while the original plant maintains the use of Freon in its cooling systems.

Chemicals used in production include:

- 12% Sodium Hypochlorite(bleach) – used for cleaning by the sanitation contractor
- 'Laundri Prep' – used for removing the tag in tub wash
- 'Fluff 2000' – used for laundry
- 'Fisan Brite' – used for cleaning our MSM(Mechanically Separated Meat) equipment
- 'Benefit' – used for cleaning our tub wash(returnable plastic tubs) and spin chill
- 'Spectrum' – used by sanitation contractor for general cleaning
- SU 393-wipes – used by the QA lab
- 'Fatsolve' – used for the central foaming system(e.g., boot foamers at doors)
- 'Cecure' – sprayed on the chicken to kill bacteria

4.1.2.1 Production

The facility processes an average of 75,000 live birds per day. This number is expected to increase in the near future as a result of the recent expansion and upgrading, and is expected to reach 100,000 live birds processed daily.

During the 2013-2014 fiscal year, the facility processed a total of 15.5 million birds with an average weight of 1.77 kilograms. The total weight of birds received in 2013-2014 was 27.5 million kilograms, which yielded 17.8 million kilograms of finished meat products. It took approximately 17 litres of water to process each bird. Since introduction of the Taifun® dry vacuum system, which greatly reduced both wastewater generation and colloidal solid wastes requiring landfilling, continuous-improvement programs continue to seek ways to reduce the unit production-rate use of water in the process.

The facility operates its production period weekly Monday to Friday for about 8-10 hours per day. There is a variety of employee positions within the facility and presently includes a total workforce of 294 individuals. An employee position breakdown is found below in Table 4-1.

Table 4-1: Employee Position Breakdown

Employee Breakdown – Total 294	
Admin (Front Office) – 8	Maintenance – 17
Quality Control – 12	Plant Manager & Floor Supervisors – 4
Delivery – 7	Shipping – 16
Scaling – 4	Live Receivals – 19
Evisceration – 23	Cryo Chill – 4
Packing – 19	Cut 9 – 12
Boning – 54	Tray Pack – 27
Cleaning – 7	MSM – 2
Box Room – 2	Individual Quick Frozen (IQF) – 9
Deli Birds – 7	Floaters – 6
Auto Cut – 17	Fork Lift – 3
Portioning – 6	Part-timers (Saturday) – 9

4.1.3 Wastewater and Related Solid Wastes

The facility requires significant volumes of water to be consumed and discharged within the City of Winnipeg's water and sewer system. In the 2013 fiscal year, 273,695 measured kilolitres of municipal water were used for production and discharged to the sewer for treatment.

During this time, the City's Water and Waste Department conducted routine effluent-quality checks at the facility to monitor discharge quality in comparison with the *Sewer By-Law's* requirements for concentration limits. As a result of the continual monitoring process, the City concluded that Dunn-Rites' effluent quality could not continually meet the *By-Law's* concentration requirements and therefore over-strength wastewater surcharges have been issued to (and paid by) Dunn-Rite. A summary of Dunn-Rite's wastewater discharge volumes and effluent quality is shown in Table 4-2 below.

In 2012, Dunn-Rite contracted Diversey Inc. to review water usage throughout the facility's production streams. Diversey produced a report intended to deliver efficiency strategies for overall reduction of water use. This led to Dunn-Rite proceeding with reorganization of selective production components and investment in new technologies (Diversey 2012).

Recent elements of the current ongoing Upgrade program have reduced the total volume of water required for annual production. The plant is considered state-of-the-art in North America for its emphasis on reduced wastewater and related waste sludge generation (Rempel pers. comm. 2014). One example is the recent installation of a Taifun dry-vacuum system that reduces the need for water use in the evisceration department. Wastes are removed from the working area automatically by vacuum and no waste is left to accumulate near the equipment. Wastes are transported through isolated tunnels to the truck bay on the north side of the building (Figure 4-1). Isolation of these wastes from production areas provides for improved hygiene of the facility while reducing the need to transport wastes with water pressure.

Another key way in which environmental considerations have been incorporated with production capacity increases and changes to facility infrastructure is the planned installation of an industrial wastewater-treatment system to achieve increases in production while also securing reductions of effluent concentrations. Seeking to create compliance with the City's *Sewer By-Law*, and prevention of over-strength discharge penalties, Dunn-Rite is planning to install a Dissolved Air Flotation (DAF) module as the key element of the planned industrial wastewater pre-treatment system. Existing rotary-mesh screens will intercept solids in the raw wastewater conveyed to the new DAF, to improve its performance and to divert solids capable of rendering (Rempel pers. comm. 2014). An overview of system is provided in Section 4.1.5.

Table 4-2: 2013 City of Winnipeg Facility Effluent Monitoring Data Summary

Date	pH		TSS				BOD				TN				TP				No. of Samples	Consumption (KL)
	Min	Max	Min	Max	Average	Excess Mass Discharged*	Min	Max	Average	Excess Mass Discharged*	Min	Max	Average	Excess Mass Discharged*	Min	Max	Average	Excess Mass Discharged*		
Quarter 1: Dec 5/2012 to Feb 27/2013	6.51	8.9	238	495	413	4,289	376	1320	842	36,902	82	157	115	3,745	9.1	18.8	15.6	381	14	68,084
Quarter 2: Mar 4/2013 to May 22/2013	6.28	9.72	206	654	406	4,061	464	936	727	30,963	64	186	96	2,610	7.7	20.4	13.7	268	16	72,512
Quarter 3: Jun 5/2013 to Aug 27/2013	6.1	9.23	320	737	518	11,744	444	1030	732	30,200	60	124	100	2,796	8.3	19.5	14.9	343	12	69,907
Quarter 4: Sept 3/2013 to Nov 27/2013	6.19	9.63	380	835	599	15,735	618	993	810	32,228	70	125	100	2,528	11.1	17	13.7	234	13	63,192
Average	6.27	9.37	286	680	484		476	1070	778		69	148	103		9.1	18.9	14.5			
*Note: Mass in excess of concentration limits for discharges to the wastewater system under the *By-law*																				

4.1.4 Waste Management

Dunn-Rite seeks to incorporate sustainable practices throughout its operations, including responsible management of solid wastes. Care is taken when managing the diversion of solids from the facility's various waste streams by contracting third-party handlers with experience in responsible disposal methods. The facility typically manages three varieties of solid waste: blood and offal, cardboard, and generic solid waste. Each category requires a specific type of waste handler who carries the expertise, technologies, and facilities to adequately handle and dispose of Dunn-Rite's special wastes associated with the processing of live chickens.

Rothsay Waste Management provides pickup and rendering services of Dunn-Rite's biological wastes including blood, fats, grease and feathers. In 2013, approximately 17,600 metric tons of biological wastes were delivered to Rothsay's rendering facility.

Waste Management of Canada Corporation delivers the facility's generic solid wastes to the Brady Road landfill. In 2013, approximately 300 metric tons of such generic wastes were relocated to landfill.

Cardboard recycling services are provided by Cascades Recovery Inc., and in 2013 approximately 18 metric tons were diverted from landfill and processed at Cascade's facility, for a diversion rate of about 5% of the facilities generic solid wastes

Of the total mass of biological and non-biological solids generated in 2013 (~17,920 tonnes), about 98% is diverted for processing and some form of reuse.

4.1.5 Industrial Pre-Treatment System

As noted in Section 4.1.3, Dunn-Rite's facility produces a significant amount of wastewater which consistently exceeds the City of Winnipeg's concentration requirements for discharges to the sewer. Currently there is a series of three consecutive rotary mesh (0.02-inch) screens built into the facility's wastewater pipe, upstream from the discharge point to the City's sewer. The screens provide primary end-of-pipe filtering of effluent to remove solid materials. This however does not currently provide adequate treatment of wastewater to achieve desired concentrations required by the City's limits.

During the current Upgrade in 2013, Dunn-Rite contracted Nijhuis Water Technology to plan and design a suitable industrial pre-treatment system to manage the facility's wastewater with the overall goals of securing compliance with the City's *Sewer Bylaw* while achieving cost savings by eliminating over-strength surcharges. The cost of the pre-treatment system, at an estimated $4.5 M, is a very significant component of the $26 M Upgrade Program (Winnipeg Free Press 2014).

The Nijhuis plan centers on the use of the DAF to achieve Dunn-Rite's effluent requirements (Nijhuis Water Technology 2014). The use of DAF technology in industrial pore-treatment plants in meat-processing facilities is well-established, including in Manitoba (TetrES Consultants Inc. 2002).

Installation and commissioning of the system is expected this fall. The new treatment system will be located at the southwest corner of the live-haul department. The system will provide pre-treatment of wastewater downstream from the rotary screens prior to end-of-pipe discharge to the City's sewer (pers. comm. Rempel Sept 24 2014).

4.1.5.1 Treatment Process

The Nijhuis system design utilizes the facility's existing two-level equalization pit, having a volume of approximately 45,000 gallons (Nijhuis Water Technology 2014). The new system will provide a two-step treatment process:

1) Wastewater is pumped from the equalization pit into a flocculator and receives timed doses of CESCO flocculant-polymer, which binds to target pollutants.

2) Wastewater is pumped into the flotation unit where separation of water from sludge is accelerated by aeration, a process where tiny air bubbles promote sludge buoyancy and accumulation at the surface where it can be easily separated and removed. Treated wastewater (i.e. effluent) can then be released to the City sewer.

Both the flocculator and flotation units have a design capacity of 300 gallons of influent wastewater per minute (68 m^3/hr).

The chemicals added to the DAF treatment process in order to effectively skim solids for rendering will all be CFIA-approved. The presence of the chemicals in the flocculant sludge means, however, that these skimmed solids cannot be included in the waste stream diverted for rendering (Rempel pers. comm. 2014).

See Appendix D for additional DAF design drawings and Appendix E for MSDS information.

4.1.5.2 Design and Performance

Design parameters for the DAF were based on information provided by Dunn-Rite, including type of wastewater, quantity of wastewater, flow rate, and measured wastewater concentrations. See Appendix D for system and performance information.

Nijhuis provided Dunn-Rite with the following DAF Design Parameters (Nijhuis Water Technology 2014), based on the facility's wastewater-concentration characteristics:

- Type of wastewater: poultry processing
- Quantity of wastewater: approximately 234,000 gallons (900 m³) per day
- Loading timeframes: 1 shift (8 hours) + 5 hours of cleaning, 6 days per week
- Wastewater flow rate: 300 gallons per minute (68 m³/hr)
- Influent concentrations*:

Parameter	Average Concentration	Maximum Concentration
BOD	740 mg/l	2,270 mg/l
TSS	592 mg/l	1,060 mg/l
Fats, oil and grease (FOG)	235 mg/l	539 mg/l
TKN	101 mg/l	318 mg/l
P	15 mg/l	45 mg/l
*note: effluent concentration values are based on samples collected by Dunn-Rite on April 30 and May 1, 2014.		

Nijhuis has provided an estimate for wastewater-treatment performance based on the parameters discussed above and its experience with design of DAF systems previously sited at similar clients' food-processing facilities. According to Nijhuis, Dunn-Rite's DAF performance is expected to achieve the following effluent-concentration characteristics after the flocculation and flotation treatment process (Nijhuis Water Technology 2014):

- TSS: ≤350 mg/l
- Fats, Oils and Grease (FOG): ≤100 mg/l (excluding dissolved oil and grease)
- pH: 6-9
- Biochemical Oxygen Demand (BOD): ≤300 mg/l (with the *caveat* noted that overall reduction is difficult to predict due to high variability of influent-sample concentrations)
- Phosphorus (P): performance has not been estimated
- Total Kjeldahl Nitrogen (TKN): performance has not been estimated

A review of the Nijhuis design-basis information ((Nijhuis Water Technology 2014) completed by Stantec (Basu pers. comm. 2014) identified a number of uncertainties which were

communicated to Dunn-Rite for consideration with Nijhuis and discussed with Dunn-Rite on September 24, 2014.

4.1.5.3 Commissioning and Maintenance

A five-day commissioning period will be conducted by a joint Nijhuis/Dunn-Rite commissioning team, led by an experienced Nijhuis representative. Congruently, Dunn-Rite's maintenance staff will be trained in the proper operation, maintenance, monitoring and troubleshooting of the new system. In the event an upset beyond a designated limit occurs, Nijhuis will be available to assist with further troubleshooting if required (Nijhuis Water Technology 2014). Surveillance of the DAF's performance will occur by reviewing results from the City of Winnipeg's sewer-discharges sampling program and supplemented by Dunn-Rite's periodic sampling events. A follow-up visit by Nijhuis six months from the initial commissioning period will occur to review overall system performance, to troubleshoot possible issues, to receive feedback on system performance, to review on-site operational practices, and to re-evaluate system performance, if required (Rempel pers. comm. 2014).

Sludge which has been separated from the wastewater (e.g., the accumulated 'float') will be added to the waste stream described in Section 4.1.4. Dunn-Rite anticipates these wastes will be removed by BFI Canada Inc. and delivered to their private landfill.

4.1.6 Health and Safety

Dunn-Rite maintains a health and safety program which provides a work environment supporting the welfare of its employees. There are several key elements of the program including a policy framework, a workplace hazardous materials information system (WHMIS), a Workplace Safety and Health Committee, an Emergency Response Plan, health and safety bulletin boards, and Health and Safety Standard Operating Procedures (SOPs).

The policy framework establishes Dunn-Rite's health and safety program and clearly explains the commitments, roles and responsibilities of management, supervisors, lead hands, workers, and the Workplace Safety and Health Committee.

The Workplace Safety and Health Committee provides a critical role in supporting the program through collaboration between management and workers. Committee representation includes members from management and workers and union representatives from the United Food and Commercial Workers of Canada (UFCW). The Committee meets once per month to review safety-related incidents, corrective actions, results of inspections and investigations, worker or management safety concerns, and the overall status of the program. The Committee also plays an important role in promoting Dunn-Rite's safety culture to workers at all levels of authority.

Additional details on Dunn-Rite's health and safety program including the policy framework, WHMIS program, Emergency Response Plan, and SOPs are found in Appendix F. A summary of

chemicals used in Dunn-Rite's processes are discussed in section 4.1.2, and associated MSDS sheets are included in Appendix E.

4.1.6.1 Food Safety

There are several mechanisms in place to support food safety at Dunn-Rite's facility which includes third-party certification, audits, and in-house federal food inspectors.

Dunn-Rite currently holds registration and a Gold Standard certification for food safety with the National Sanitation Foundation (NSF). The certification was achieved through an independent third-party audit and is valid until April 28, 2015.

Additional third-party audits, which include review of animal-welfare conditions related to guidelines set by the National Chicken Council (NCC), have been conducted at the facility. Dunn-Rite has received a certificate acknowledging their conformance with guidelines for animal welfare according to the NCC. Copies of the noted certificates are found in Appendix A.

The Canadian Food Inspection Agency (CFIA) oversees production at Dunn-Rite's facility and has appointed full-time inspectors at the facility to enforce their mandate for compliance with the Canadian *Meat Inspection Act* and associated regulations as a federally licenced meat-processing establishment. The dedicated inspectors are present at the facility during all hours of operation and provide additional supervision of all production activities.

5.0 SETTING AND EXISTING CONDITIONS

The Upgrade Project occurs at an existing facility, operating for decades in the middle of an extensive Industrial park, with the nearest residence more than a half-mile away from the plant.

Current operations result in consistently over-strength discharges to City sewers, accommodated within the parameters of a City-issued permit, and non-regulated and non-problematic emissions of fine particulate and steam to the atmosphere, and solid wastes delivered for disposal at a licenced landfill.

There is no record of persistent accidents, odour nuisances, or complaints from adjoining businesses or regional residences.

One key element of the 'Project Setting' is Dunn-Rite's track record of responding to City concerns about the overstrength discharges to the City's sewers, and the degree of responsiveness to the City's suggestions for performance improvement. In this regard, Stantec is mindful that:

- Dunn-Rite took corrective action when the City noted a concern about Total Suspended Solids (TSS) in the discharge to the sewer (Rempel pers. comm. 2014).

- Dunn-Rite also responded positively to the concerns about plugging of a downstream lift station in the sewer system, installing the rotary screens to address this problem that remain key elements of the pre-treatment system (Rempel pers. comm. 2014).

Another aspect of the Project Setting is the degree of uncertainty noted by Nijhuis when providing its DAF design about the variability of the BOD of the raw wastewater to be treated by the DAF. Nijhuis noted (Nijhuis Water Technology 2014) that its design might require 'reconsideration' if the mean BOD values used to underpin its design are actually more than 5% variable. This *caveat* underscores the need for monitoring set out in Section 8.1 – Monitoring.

6.0 ASSESSMENT METHODS

This assessment departs from broadly accepted environmental assessment methods because;

- The Upgrade Project is incremental to the physical existence and decades of operation of the existing facility, and is thus incremental in character.
- The historic operations of the facility have apparently resulted in no reported environmental or socioeconomic impact or expressions of concern.
- There has never been an accident creating biophysical or socioeconomic impacts from the existing facility.
- The nature of the Upgrade Project is to reduce the potential for current and future environmental impact.

These facts have truncated the range of probable interactions between elements of the receiving environment and elements (and time phases) of the Upgrade. As a consequence, the range of potential adverse effects of the Upgrade is also relatively narrow.

Because of the abbreviated range of possible environmental impacts, and because of the absence of public concerns, the scope of the assessment is also substantially narrowed. "Valued Components" of the ambient biophysical and socioeconomic environment are identified (Section 7) for which there is reasonable potential that the Project could cause effects of concern. "Mitigation Measures" are considered to avoid or reduce potential effects, and the resulting "Residual Effects" are characterized by their 'significance'. The significance of the Project-related environmental effects is determined based on predefined effects criteria or thresholds of effect where this is possible.

Determinations of the significance of residual effects are then made for both Project and cumulative effect (the Project's effect in combination with past, present, and reasonably foreseeable projects), where and if appropriate. The determination for each residual effect is based, where possible, on an evaluation of whether a quantitative threshold of acceptable change is exceeded. Uncertainties about the strength of data addressed in the assessment are considered in relation to the judgments made and/or the recommendations for additional monitoring.

6.1 SCOPE OF THE EIS

The scope of the Upgrade Project for the purposes of the assessment includes the construction, operation and maintenance, and decommissioning of the following components:

- Recent expansion and continuing upgrades of the facility.
- Installation, commissioning and operation of the industrial pre-treatment system, especially the DAF.

The scope of the assessment includes the anticipated effects of the Project components on the biophysical and socioeconomic elements of the ambient environment, given the environmental design features, intended operations (and reliance on existing and future SOPs), mitigation measures and the VCs of the ecological or socio-cultural and economic environments (by themselves or in combination with other past, present and reasonably foreseeable future developments). Additionally, monitoring and follow-up programs to be established with respect to identified potential environmental effects on identified VCs are included in the conduct of the assessment summarized in Table 8-1.

VCs were selected in consideration of their susceptibility to change (especially negative change) as a consequence of the Upgrade Project and/or as a result of cumulative environmental effects. The benefits of the Project are identified and considered in this process.

The approach to the assessment is outlined below. The approach is consistent with the requirements of the provincial EA process and, to some extent, other relevant jurisdictions. Further, the assessment is based on a structured approach that:

- Focuses on issues of greatest concern.
- Considers that no issues were raised by the public during the assessment-related consultation process or at any time in the plant's operating history.
- Considers Dunn-Rite's engineering designs, SOPs and programs for mitigation and monitoring as core elements of a comprehensive environmental planning and management process.

Monitoring measures that are required to verify the environmental effects predictions, or to assess the effectiveness of the planned mitigation or to give effect to corporate commitments (e.g., ongoing R&D) are considered in the assessment, where applicable. The existing commitment to, or expected requirements for, DAF-system-effluent monitoring have been considered in the evaluation summarized in Table 8-1.

Dunn-Rite is committed to incorporating life-of-Project environmental management approaches and strategies into Project planning and execution so that not only is the Upgrade Project compliant with provincial and federal regulatory requirements, but benefits and positive effects

are enhanced and optimized. Dunn-Rite will use a variety of tools for environmental management, including:

- Integration of impact- prevention or mitigation measures into ongoing and any future project design and operations.
- Environmentally sensitive facility-management procedures.
- Environmental monitoring.
- Emergency prevention and response planning, including contingency plans for preventing or managing accidents and malfunctions.
- Waste-management planning.
- Water-management planning.

These commitments and systems have been considered in the assessment documented in Table 8-1.

7.0 VALUED COMPONENTS SELECTED FOR IMPACT ASSESSMENT

Precedent for many environmental assessments has established 19 environmental and socio-economic elements that are usually worthy of consideration. For each, a determination is made of the Upgraded Project's potential to cause an effect of concern. For those elements with no potential for an effect of concern, further consideration in section 8 is not warranted.

'Valued Components' are environmental or socio-economic components that the Upgrade Project could potentially substantially affect and be of primary concern to interested parties. Table 7-1 identifies those elements that may be affected by the Upgrade Project and Table 7-2 provides justification of which elements are being carried forward in the assessment summarized in section 8, as Valued Components, and which are not.

Table 7-1: Project Upgrade Elements/Phases interactions with Biophysical and Socio-economic Elements

Project Component and Physical Activities	Physical\ meteoro-logical environment	Soil and soil productivity	Vegetation	Water quality and quantity	Fish and fish habitat	Wetlands	Wildlife and wildlife habitat	Species at risk or of special status	Air emissions	Green- house gas (GHG) emissions	Acoustic environment	Human occupancy and resource use	Heritage resources	Navigation and navigation safety	Traditional land and resource use	Social and cultural well-being	Human health and aesthetics	Infrastructure and services	Employment and economy
Construction	✓	✓								✓	✓					✓		✓	✓
Operation	✓			✓					✓	✓		✓				✓		✓	✓
Decommissioning	✓									✓	✓					✓		✓	✓

NOTES:
"✓" = Potential interactions that might cause an effect.

Table 7-2: Designation of Valued Components

Component Name	Included/ Excluded	Valued Component	Rationale for Exclusion or Inclusion, Designation, and Project Potential Effect	Presentation in Assessment
Physical and meteorological environment	Excluded	No	Loadings to airshed either acceptable, fully mitigable, or immeasurable.	N/A
Soil and soil productivity	Excluded	No	Soils already compromised by prior construction.	N/A
Vegetation	Excluded	No	All vegetation removed by prior construction.	N/A
Water quality and quantity	**Included**	**Yes**	**Substantial water use, wastewater generation and loadings to city sewers for treatment at SEWPCC.**	**s.8**
Fish and fish habitat	Excluded	No	Not applicable. No habitat present.	N/A
Wetlands	Excluded	No	Not applicable. No wetlands present.	N/A
Wildlife and wildlife habitat	Excluded	No	Not applicable. No wildlife habitat present.	N/A
Species at risk (SAR) or of special status and related habitat	Excluded	No	Not applicable. No designated SAR species or habitat present.	N/A
Air emissions	Included	No	New loadings are consistent with previous loadings at a minor increment.	N/A
Green- house gas (GHG) emissions	Included	No	New loadings are consistent with previous loadings at a minor increment.	N/A
Acoustic environment	Excluded	No	Incremental noise arising only during construction, diminishing to acceptable levels during operations.	N/A
Human occupancy and resource use	Excluded	No	Not relevant	N/A

Table 7-2: Designation of Valued Components

Component Name	Included/ Excluded	Valued Component	Rationale for Exclusion or Inclusion, Designation, and Project Potential Effect	Presentation in Assessment
Heritage resources	Excluded	No	Site significantly impacted by previous construction and prior industrial history.	N/A
Navigation and navigation safety	Excluded	No	Not relevant. No watercourses present.	N/A
Traditional land and resource use	Excluded	No	Not relevant	N/A
Social and cultural well-being	Included	No	No potential for adverse significant interaction with socio-cultural systems in community or workforce. Intense CFIA presence/monitoring to prevent health risk to food products or workers.	N/A
Human health and aesthetics	Excluded	No	Effects are modest and incremental in an existing industrial area, with no immediate proximity to residences.	N/A
Infrastructure and services	**Included**	**Yes**	**Incremental uses of power and water, but more significant loadings to city sewers.**	**s. 8**
Employment and economy	**Included**	**Yes**	**Effects are positive, not negative, and of substantial magnitude (increases in employment related to construction and expanded workforce payroll).**	**s. 8**

8.0 ASSESSMENT OF POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC EFFECTS

The prior review of potential interactions between elements of the receiving environment and activities/phases of the Project Upgrade identified that only three potential interactions were likely to create an effect of substantial magnitude or interest to regulators or the public. This section uses a standardized analytical framework to assist in the evacuation of the types, magnitude, spatial extent, frequency, duration or persistence, reversibility (or "mitigability") and significance of these effects when considering whether and how effectively negative effects ("impacts") can be mitigated. The meanings of these analytical terms are set out below:

- **Type –** the ultimate long-term trend of the environmental effect (i.e., positive or adverse).
- **Magnitude –** the amount of change in a measurable parameter or variable relative to existing conditions, defined for each VC as 'low,' 'moderate' or 'high.'
- **Geographic Extent –** the area where an environmental effect of a defined magnitude occurs, defined for each VC, based on definitions of 'local', or 'regional', as appropriate.
- **Frequency –** the number of times during the Project Upgrade or a specific Project phase or activity that an environmental effect might reasonably be expected to occur (e.g., 'one time' or 'multiple times') in a specified time period.
- **Duration –** the estimated period of time required until the VC returns to its baseline condition or the environmental effect can no longer be measured or otherwise perceived (e.g., 'short-term,' 'mid-term,' 'long-term,' or in some cases 'permanent').
- **Reversibility –** the likelihood that a measureable parameter will fully recover from an environmental effect, including through active management techniques (e.g., reclamation); the impacts ability to be mitigated (i.e., "mitigability").

Table 8-1 summarizes the application of this analytical framework and the results of the evaluation process.

Only two of the potential effects on Valued Components (VC) are considered to be negative, and the third probable effect is clearly positive. The magnitudes and mitigabilities of both impacts are assessed as "Almost immeasurable," and "high," respectively, resulting in judgments that residual (post-mitigation) impacts for these two VCs are "not significant."

The magnitude of the third effect, on local and regional economies and employment is considered of "modest magnitude." Clearly, there is no need for 'mitigation' of this effect.

Table 8-1: Evaluation of Effects on Valued Components

	Water Quality and Quantity	Infrastructure and Services	Employment and Economy	Comments
Regulatory and Policy Setting	City of Winnipeg Sewer ByLaw; policy-based design capacity and SOPs for SEWPCC	City of Winnipeg Sewer ByLaw; policy-based design capacity and SOPs for SEWPCC	Provincial (and federal) economic development strategy "Growing Forward Fund" (MCP 2014)	Province has goal of establishing value-added food industry worth $5B by 2020 (WFP 2014)
Potential Effects, Measurable Parameters, and Significance Thresholds	Increased hydraulic loadings to City WWTP; significant if >2% of annual flow loads	Increased organic loadings to City WWTP; significant if >2% of annual loadings	Increases in construction and operations-related employment; significant if construction costs >$20M or if payroll increment >20%	All potential effects occur during Operations phase; capital-investment effect occurs only during construction phase
Spatial Boundaries	As far downstream as SEWPCC	As far downstream as SEWPCC	City of Winnipeg boundary	Loadings are cumulative within the catchment but immeasurable
Analytical Assessment Techniques	Estimated annual DAF discharge as % of annual flow to SEWPCC	Estimated annual DAF effluent BOD load as % of annual BOD loading to SEWPCC	Estimated total capital and construction cost; estimated % increase in annual gross payroll	Total capital and construction cost is reported at $26M
Assumptions comprising Conservative Approach	Plant operates 360 days/yr., at maximum nominal capacity	Plant operates 360 days/yr., at maximum nominal capacity; incremental loadings of Total Phosphorus and Total Nitrogen attributable to DAF discharge can be measured at SEWPCC intake	All construction cost budgets exceeded by 5%; all new hires remain employed	Estimation of total project Upgrade costs complicated by effects of lengthy construction period, government supports, etc.
Assessment of Effects	**Negative**; Persistent; Almost immeasurable; **Mitigable**	**Negative**; Persistent; Almost immeasurable; **Mitigable**	**Positive**; Persistent; modest magnitude;	Effluent monitoring from DAF must be consistent, as must diligent proactive system operation

Table 8-1: Evaluation of Effects on Valued Components

	Water Quality and Quantity	Infrastructure and Services	Employment and Economy	Comments
Impact Mitigation	Optimized DAF operation; Incremental flows can be accommodated within unused hydraulic capacity of SEWPCC	Optimized DAF operation; Incremental loadings can be accommodated within unused treatment capacity of SEWPCC	N/A (effects are positive)	Preventative maintenance, regular updating of SOPs, operator training and consistent operations documentation are important
Characterization of Residual Environmental Effect	**NOT SIGNIFICANT**	**NOT SIGNIFICANT**	**SIGNIFICANT**	Capital cost ($26M) exceeds 'significance' threshold of $20M
Uncertainties and/or Monitoring Needs	Monitoring needed of flows; all Over-strength Permit parameters, plus TP and TKN, at minimum; and organic loadings	Nijhuis design qualified by uncertainties about BOD dataset. Monitoring of flows needed; all Over-strength Permit parameters, plus TP and TKN, at minimum; and organic loadings		Monitoring data should be provided to Manitoba Conservation to satisfy licence conditions, and with the City

8.1 MONITORING

There is uncertainty about the peak-to-mean ratio of the raw wastewater-quality data provided to Nijhuis to support its specification of the DAF performance (Nijhuis Water Technology 2014, Basu pers. comm. 2014), especially with regards to the BOD and FOG parameters. Regular and sustained monitoring for these parameters will be important to maintain and should be undertaken.

As well, the concentrations of TP and TKN that will be released from the industrial pre-treatment system are not known at this time. Monitoring for these parameters should be included in the ongoing surveillance of the plant, and the data should be shared with the City of Winnipeg. All other monitoring data should be made available to the City, as part of Dunn-Rite's efforts to demonstrate the effectiveness of the pre-treatment system, and the improved compliance with the City's Sewer ByLaw. Other monitoring (e.g., 'compliance monitoring' to fulfill conditions of

formal approvals or legal permits; conditions of the *Environment Act* licence), may also be sharable with the City, as applicable and appropriate.

8.2 SATISFACTION OF MANITOBA'S PRINCIPLES AND GUIDELINES OF SUSTAINABLE DEVELOPMENT

The project's satisfaction of Manitoba's Principles and Guidelines of Sustainable Development include the following:

- Integration of Environmental and Economic Decisions:
  - The design of the Dunn-Rite plant ensures that a maximum amount of the production byproducts are recovered for use by a rendering company (Rothsay). The cost of effluent pre-treatment is offset over time by the significant reduction in penalties paid for the over-strength discharges. All new technologies that assist higher throughput per unit amount of energy, time, space or raw materials result in reduced unit consumption of water and power, and lower unit rates of atmospheric emissions and solid waste.
- Stewardship:
  - Over 98 % of the live mass of the birds processed and of the solid waste produced by the plant is utilized by the plant or by secondary processors. Waste generation has thus been greatly minimized.
- Shared Responsibility:
  - Dunn-Rite is collaborating with the Nijhuis and the City of Winnipeg to design and develop a new industrial wastewater pre-treatment system that shares the responsibilities for treating the wastewater loadings either by Dunn-Rite, at its plant, or by the City, at the South End Water Pollution Control Centre.
- Prevention/Conservation and Waste Minimization:
  - Over 98% of the live mass of the birds processed and the solid wastes generated from production is utilized in poultry products or products from commodity rendering.

8.3 CONCLUSIONS

The existing poultry-processing plant has not created significant adverse effects of operations on the environmental and socio-economic elements of the ambient environment over the years, and expansion and upgrading of the facility will not result in any new significant unmitigated impacts.

On the basis of the design of the Industrial Pre-Treatment System component of the Upgrade Program, and the substantial reputation for such work enjoyed by its designers (Nijhuis), it is anticipated that the **diligent operation of the upgraded and expanded processing plant should satisfy all applicable provincial (and federal) regulatory requirements**. Presuming that the pre-treatment system meets the performance parameters specified by the system designers, **the plant should not require reliance upon the provisions of its Over-Strength Discharge Permit beyond its expiry in 2015**. Diligent application of plant SOPs and other operating procedures, and operations-supportive monitoring, should contribute to the facility achieving the regulatory compliance it seeks.

The effectiveness of nutrient removal by the new DAF is not known, nor is the certainty with which the BOD performance target will be met. These uncertainties require attention by Dunn-Rite. **A consistent program of industrial effluent-quantity and -quality monitoring that includes the BOD, FOG, TP and TKN parameters should be implemented by Dunn-Rite to assist its management of the new pre-treatment system and to ensure regulatory compliance**.

The presence of procedures for anticipating and managing adverse/upset operating conditions should preclude, or minimize the effects from, any emergency. The ERP should assist Dunn-Rite to prevent or manage any upset conditions with effectiveness and low risk to its neighbours.

There are no evident impediments to the upgraded facility being licenced under *The Environment Act*.

9.0 RECOMMENDATIONS

The concentrations of TP and TKN that will be released from the industrial pre-treatment system are not known at this time (Nijhuis Water Technology 2014). Because Nijhuis has not prescribed nor quantified the performance parameters of the DAF for removal of TP and TKN (Section 4.1.5.2), there is uncertainty whether there will be consistent measurable nutrient loadings from this facility to the SEWPCC. **Monitoring for these parameters should be included in the ongoing surveillance of the plant. During commissioning and for the first six months thereafter, monitoring should occur on a weekly frequency for all key operating parameters.** While the testable hypotheses in this case is that these Upgrade-specific nutrient loadings are likely to be *immeasurable* at the SEWPCC, there is value in Dunn-Rite committing to monitoring of DAF-effluent quality for these parameters, and sharing the data with the City.

In addition, there is uncertainty about the peak-to-mean ratio of the raw wastewater-quality data provided to Nijhuis to support its specification of the DAF performance ((Nijhuis Water Technology 2014; Basu pers. comm. 2014), especially as regards the BOD and FOG parameters. **Regular and sustained monitoring for these parameters will be important to maintain and should be undertaken. These and all other pre-treatment plant monitoring data should be made available to the City, as part of Dunn-Rite's efforts to demonstrate the effectiveness of the pre-treatment system, and the improved compliance with the City's Sewer ByLaw**. Other monitoring (e.g., 'compliance monitoring' to fulfill conditions of formal approvals or legal permits, like conditions of the *Environment Act* licence), may also be sharable with the City, as applicable and appropriate.

10.0 REFERENCES AND CITATIONS

10.1 CITATIONS

Diversey Inc. 2012. *AquaCheck Dunn-Rite Foods.* Winnipeg, Manitoba.

Manitoba Chicken Producers (MCP). 2014. "Dunn-Rite gets grant for upgrades". Media release. Winnipeg. April 25 2014.

Nijhuis Water Technology Inc. 2014. "Order Conformation 148033E". Unpublished report to Dunn-Rite Foods. Feb 26 2014. Chicago. 10 pp. c/w graphics.

Tetr*ES* Consultants Inc. 2002. Initial Environmental Assessment, Granny's Poultry Co-Operative, Blumenort, Manitoba. 37 pp, c/w 5 appendices.

Winnipeg Free Press (WFP). 2014. "Dunn-Rite undertakes $4.5M in upgrades". Print edition. Winnipeg. April 26, 2014.

10.2 PERSONAL COMMUNICATIONS

Basu, S. 2014. Internal 6-page Stantec email from Senior Process Engineer to Terry Duddridge entitled "Dunn-Rite Foods, Winnipeg DAF Package review". Winnipeg. September 8, 2014.

Bridges, S. 2014. "Requirement for Dunn-Rite Foods to Apply for Licensing Pursuant to *The Environment Act".* One-page emailed letter from the Environment Officer, Environmental Compliance and Enforcement to Mr. Vance Rempel, Operations Manager, Dunn-Rite Food Products requesting the filing of an Environment Act proposal application by June 30, 2014. Winnipeg. May 8, 2014.

Labossiere, D. 2014. "Dunn-Rite Food Products Ltd. – Requirement to file for an Environment Act Licence". One-page emailed letter from the Director, Environmental Compliance and Enforcement to Mr. Vance Rempel, Operations Manager, Dunn-Rite Food Products, granting an extension of the requested filing to October 31, 2014. Winnipeg. October 1, 2014.

Rempel, V. Discussions between Dunn-Rite Plant Manager and J.M. McKernan and Terry Duddridge of Stantec Consulting Ltd. re: planned Upgrade, past performance in response to City concerns, corporate approach to industry "benchmarking", etc. Winnipeg. September 24, 2014.

Appendix A CERTIFICATES

Government of Canada / Gouvernement du Canada

Canadian Food Inspection Agency / Agence canadienne d'inspection des aliments

DATE: November 16, 1998 / 16 novembre 1998

ACHIEVEMENT OF HACCP / RÉALISATIONS DE L'HACCP

As set out in our letter of November 12, 1998, the Hazard Analysis Critical Control Point (HACCP) system, developed and implemented in the registered establishment described below, was reviewed by the Canadian Food Inspection Agency (CFIA) and found on November 12, 1998 to have met its criteria for HACCP systems.

Comme indiqué dans sa lettre du 12 novembre 1998, l'Agence canadienne d'inspection des aliments (ACIA) a passé en revue le système d'analyse des dangers et de maîtrise des points critiques (HACCP) mis au point et appliqué à l'établissement enregistré indiqué ci-dessous, et a conclu, le 12 novembre 1998, qu'il satisfaisait à ses critères en ce qui concerne les systèmes HACCP.

Dunn-Rite Food Products Ltd.
199 Hamelin Street
Winnipeg, Manitoba R3T 0P2
(Reg. Est. 281)
(Meat Inspection Regulations)

The CFIA wishes you every success in the maintenance and operation of your HACCP system.

L'ACIA vous souhaite beaucoup de succès dans l'application et le maintien de votre système HACCP.

A. Fraser

Dr./Dre Ann D.E. Fraser
A/Executive Director / Directrice intérimaire
Policy, Planning & Coordination Directorate /Direction des politiques, de la planification et de la coordination

Canada

CFIA / ACIA 0021 (97/04)

Certificate of Conformity

Audit Date
26 June 2014

Next Audit Due
(Jun 20, 2015 - Jul 18, 2015)

Certificate Expiry Date
29 August 2015

Certificate Number
C0161488-BRC2

BRC Reference No
6479192

BRC Auditor No
233033

Date of Issue
24 July 2014

Dunn-Rite Food Products
199 Hamelin St Winnipeg Manitoba R3T0P2 Canada

Has been audited by NSF International #0216 and found to meet the requirements of

Standard:
Global Standard for Food Safety
Issue 6 July 2011

Scope of Certification:
The slaughter of live birds and processing of whole and portioned fresh and frozen marinaded and nonmarinaded poultry.
Exclusions: None.

And has been found to meet its requirements for category:
2: Raw Poultry
Grade Achieved: B

ANSI Accredited Program
PRODUCT CERTIFICATION
#0216

Signed on behalf of NSF International

Robert Prevendar
Global Managing Director, Supply Chain Food Safety

NSF International, 789 N. Dixboro Rd., Ann Arbor, MI 48105

Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

LICENCE TO OPERATE A REGISTERED ESTABLISHMENT

CERTIFICAT D'AGRÉMENT D'EXPLOITANT

No: 281-1286-14775

This licence is issued under the authority of the

Ce certificat est émis en vertu de la

Meat Inspection Act and Regulations/Loi et du Règlement sur l'inspection des viandes

and authorizes

et autorise

SUNRISE POULTRY PROCESSORS LTD.

to operate the establishment described below unless this license is not renewed, suspended or cancelled.

à exploiter l'établissement décrit ci-dessous à moins de non-renouvellement, suspension ou annulation du présent certificat.

Establishment Registration Number > 281 < Numéro d'agrément de l'établissement

located at / situé à

199 HAMELIN STREET
WINNIPEG, MANITOBA, R3T 0P2

DIRECTOR, MEAT PROGRAMS DIVISION
DIRECTEUR, DIVISION DES PROGRAMMES DE VIANDES

November 13, 2012

Date of Issue of Licence
Date d'émission du certificat d'agrément

Canada

Statement of Completed Audit

This document acknowledges that

Dunn-Rite Food Products

Winnipeg, Manitoba, Canada

Has participated in a ***Food Safety and Quality Systems Audit*** to assist their organization in evaluating and identifying ways to manage and further improve their Food Safety Practices and Responsibilities.

Gold Standard

This certificate is valid until April 28 2015.

NSF GFTC

Tom Chestnut

Vice President

Supply Chain Food Safety & Quality

NSF - GFTC GOLD

The services are in no way a guarantee about food safety and/or sanitation, and are not a substitute for *Dunn-Rite Food Products* obligations regarding food safety and sanitation. No testing was conducted as part of this audit.

Dunn-Rite Food Products is solely responsible for providing all food safety notices, warnings, or information learned from Services performed by NSF to any regulatory agency or to the general public as may be required by law, including recalling product as necessary.

This agreement is for the benefit of the parties hereto and is not entered into for the benefit of any other person or entity.

2014 Poultry Animal Welfare Audit

This establishment was assessed using audit criteria based on NCC Guidelines.

Dunn-Rite Food Products

EXCELLENT

April 14 - 15, 2014
Hazlehurst, MS

Process Management Consulting

Robert W. Thrash

Head Process Coach

Government of Canada / Gouvernement du Canada

Canada

Canadian Food Inspection Agency

Home > Food > Meat and Poultry Products

Search the List of Federally Registered Meat Establishments and their Licensed Operators

Last Update : 2014/09/24
New Search

Telephone numbers:
Ending with /F = Fax Number.
Ending with /I = Inspection Number.
Not ending with anything = Location Number.

* at the end of the operator's name means the establishment is temporarily inactive.

The licensed operator of a registered establishment has a HACCP system (prerequisite programs and HACCP plans) in place that meets FSEP requirements as required by section 29 of the *Meat Inspection Regulations*, 1990

Registration Number	Name of the Operator Address(s)	Function Codes	Telephone Number(s)
281	**SUNRISE POULTRY PROCESSORS LTD.** **Also Doing Business As Name :** DUNN-RITE FOOD PRODUCTS --- **Location Address: :** 199 HAMELIN STREET, WINNIPEG, MB, R3T 0P2	1fi, 3f, 6f, 11ADGIV,	(204) 452-8379 (204) 284-2862/F (204) 284-3725/I
This search found 1 establishment(s).			

Key To Function Codes:

1. Slaughter a) Cattle b) Calves c) Sheep, lambs and goats d) Swine e) Horses f) Poultry g) Rabbits h) Others

1. Ritual Slaughter i) Halal j) Kosher

2. Canning f) Poultry Meat x) Red Meat g) Rabbit Meat

3. Boning and Cutting f) Poultry Meat x) Red Meat g) Rabbit Meat

4. Edible Rendering

5. Casing Preparation

6. Other Processing f) Poultry Meat x) Red Meat g) Rabbit Meat

7. Packaging, Labelling and Storing

8. Inedible Rendering

9. Facilities for inspection of detained or imported meat products A) Cooked, frozen, boneless beef from South America. B) Other than cooked, frozen, boneless beef from South America. C) Not requiring refrigeration. US) From the United States of America.

10. Storage Only A) Cold Storage B) Dry Storage

11. Establishments approved for export to specified markets. Please be advised that the approval of the establishments may be limited to specific products and/or that restrictions may apply. For details on the eligibility status of the establishment click on the following link and consult **the applicable section on the market of destination of chapter 11**:
http://www.inspection.gc.ca/english/fssa/meavia/man/ch11/11.7e.shtml

A) Mexico C) Japan D) United States F) Australia G) South Africa H) European Union* & Switzerland I) Ukraine J) Argentina K) Brazil L) Hong-Kong O) Malaysia P) Indonesia R) Russia S) China B) Saudi Arabia M) Singapore Q) Peru V) Vietnam

*With the exception of St-Pierre et Miquelon

12. Trichina Treatment Facilities

Date modified: 2013-08-16

Appendix B OVERSTRENGTH LICENCE

Winnipeg

Water and Waste Department • Service des eaux et des déchets

File Number: 040-17-03-04-14

December 13, 2010

Mr. Dong Phung
Dunn - Rite Food Products Ltd.
199 Hamelin Street
Winnipeg MB
R3T 0P2

RE: 2011 - 2015 OVERSTRENGTH DISCHARGE LICENCE

Dear Mr. Phung:

Please find enclosed your completed 2011-2015 Overstrength Discharge Licence, from the City of Winnipeg's Water and Waste Department.

You must keep this approved original licence on file for your reference. We have a copy in our file.

If you have any questions about the conditions of your 2011-2015 Overstrength Discharge License please contact me at 986-4818.

Yours truly,

Nancy Crawford
Industrial Waste Services Technician

\nc
encl.

Winnipeg

Water and Waste Department • Service des eaux et des déchets

2011- 2015 Overstrength Discharge Licence

Sewer By-law No. 92/2010

File Number: **040-17-03-04-14**

Company and Contact Information

Company Name: **Dunn - Rite Food Products Ltd.**
Location: **199 Hamelin Street, Winnipeg MB, R3T 0P2**
Contact: **Mr. Dong Phung, or Mr. Mario Bertschinger, President**
Phone Number: **(204) 452-8379**
Fax Number: **(204) 284-2862**
Email:

Licence Information

Licence Number: **DUNN – 2015**
Date Processed: **November 9, 2010**

Effective date: **January 1, 2011**
Valid Until: **December 31, 2015**

Conditions of Agreement

- **Dunn - Rite Food Products Ltd.** is granted permission to discharge overstrength wastewater into the **Sewer** located at **199 Hamelin Street.**
- The wastewater must not contain any substances set out in Schedule A of By-law 92/2010.
- The wastewater must not exceed the concentration limits for substances set out in Schedule B of By-law 92/2010, except those select substances to which overstrength surcharges apply.
- The licence holder must pay any applicable surcharges on substances that exceed the limits set out in Schedule B.
- The licence holder must comply with the conditions specified on this licence and all clauses of the City of Winnipeg Sewer By-law No. 92/2010. See back of licence for reference.
- This Overstrength Discharge Licence is issued for a maximum of **five** calendar years and is renewable annually by January 1st.
- In the event that a licence holder does not meet the requirements of the Overstrength Discharge Licence, the licence shall be subject to suspension or cancellation by the City of Winnipeg.
- This licence may be cancelled or suspended if it is determined that the overstrength wastewater cannot be accommodated and treated within the wastewater system.
- The licence holder must notify the Water and Waste Department of any changes to the information contained in their licence application within ten business days.

Specific Conditions/Restrictions

Signature: _____
Mr. Dong Phung
or Mr. Mario Bertschinger, President
Dunn - Rite Food Products Ltd.

Date: Nov. 18/2010

Recommended By: M. Marsland
Ms. Meghan Marsland
Supervisor,
Industrial Waste Services Branch

Approved by: _____
Mr. Kelly J. T. Kjartanson, P.Eng.
Manager,
Environmental Standards Division

Appendix C PRODUCTION PHOTOGRAPHS

Photo 1: Location of future DAF industrial wastewater pre-treatment system

Photo 2: Process wastewater

Photo 3: Defeathering process

Photo 4:110,000 litre spin chill basin.

Photo 5: Cecure used to sterilize birds during chilling process.

Photo 6: Chilled whole chickens are re-hung on conveyors and brought to sorting cooler

Appendix D DAF DESIGN DETAILS

VISION ON SUSTAINABILITY

Order confirmation

Dunn-Rite Foods

High Noon Corporation

Winnipeg, MB

Order confirmation 148033E

Regional Sales Manager- Canada
Puya Vakili-Zad
puya@nijhuis.us

Nijhuis Water Technology, Inc.
560 West Washington Blvd, Suite 320
Chicago, IL 60661

Phone: 312-466-9900
Fax: 312-300-4105

QUOTATION 148033E

FOR THE SUPPLY OF A WASTEWATER TREATMENT SYSTEM

Contents:

Nijhuis Water Technology Inc | 560 West Washington Blvd, Unit 320 | Chicago, IL 60661
Phone: (312) 466-9900 Fax: (312) 300-4105 | info@nijhuis-water.com www.nijhuis-water.com

Project Dunn-Rite Foods
Location Winnipeg, Canada

Quotation 148033E

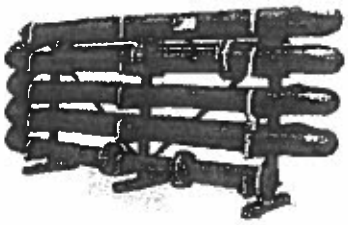
Date2/26/2014

1. PROCESS & EQUIPMENT DESIGN

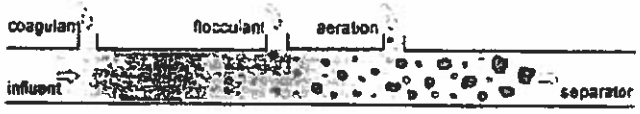
According to our experience and the information we received from you, we propose the following design for your waste water treatment system:

- Flocculation
- Flotation

Flocculator
The chemicals will be dosed into a pipe flocculator. This pipe flocculator is equipped with special mixing pipes which take care of perfect mixing of the chemicals with the waste water in such a way that dosing can be adjusted at an optimum. The pipe flocculator is designed specially for this type of waste water because mixing energies and mixing times are unique for different waste waters.



Other features of the Nijhuis Water Technology pipe flocculator are:
- due to accurate mixing energy and mixing time uniform flock growth is achieved
- no back mixing will occur
- no mixer is required, therefore no extra power is required
- chemical dosing is done in the middle of the pipe, so a minimum of chemicals will be dosed
- compact design, requires minimum of floor area.



Chemical dosing for the various chemicals is done by dosing pumps. The chemicals are injected in the flocculator through injection pieces. The dosing pumps are designed for double the actual dosing rate. This means that dosing is accurate and that there is flexibility for dosing less or more chemicals if necessary.

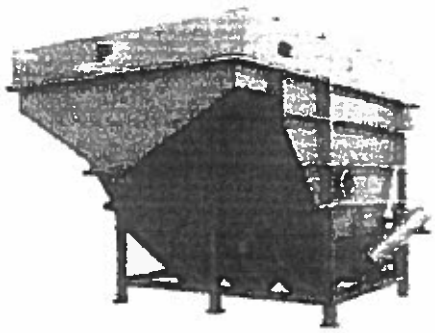
SOLID SOLUTIONS IN A FLUID WORLD

Nijhuis Water Technology Inc | 560 West Washington Blvd, Unit 320 | Chicago, IL 60661
Phone: (312) 466-9900 | Fax: (312) 300-4105 | info@nijhuis-water.com | www.nijhuis-water.com

Project	Dunn-Rite Foods
Location	Winnipeg, Canada
Quotation	148033E

Date2/26/2014

Flotation system, type IPF
After the flocculator the waste water will enter the flotation unit. The flocks will float to the surface and will automatically and continuously be removed by a scraper mechanism. The flotation unit is equipped with a lamella plate pack which increases the separation area and thus ensures that even the smallest flocks are removed from the waste water. The on-built recirculation/aeration system is equipped with patented non-clogging aeration devices and its unique design ensures formation of the very fine air bubbles required. The flotation unit includes a bottom scraper and automatic drain valves for removing any settled material.



Specific features of the Nijhuis Water Technology flotation are:

- compact built unit with a plate pack system which requires a minimum of floor area
- laminar flow through the flotation unit which assures maximum removal efficiency
- special designed aeration system which includes a special centrifugal pump and includes special patented aeration devices (clog free). Aeration devices are self cleaning and do not need any adjustments during operation (no throttling valves)
- unit is shipped pre-assembled so minimum of installation on site is required
- due to the optimal aeration system and the sludge thickening/scraper system a high dry solids content will be reached.

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Project Dunn-Rite Foods
Location Winnipeg, Canada

Quotation 148033E

Date2/26/2014

2. COMMERCIAL DETAILS

2.1. Price

Flocculation/flotation system consisting of:

Note: Client will use their current dry mount pumps to pump from inlet pit to the screen, level sensor provided by Nijhuis, dry mount pumps controlled by Nijhuis E-panel

- 2 Mixers for equalization tank (tank by client)
  - Type : submersible
  - Material : stainless steel/cast iron.

Note: Client will use the existing two (2) level pit with a volume of approx 45,000 gallons for equalization.

- 2 Feed pumps flocculator-flotation unit (1 duty/1 stand-by)
  - Type : submersible centrifugal
  - Capacity : 300 gpm (68 m^3/hr) at 23 ft TDH (7 mwc)
  - Material : cast iron
  - Including : - level controller
    - manual valves
- 1 Flow meter

- 1 Flocculator
  - Type : PFR 80
  - Material : HDPE PN6
  - Including : - mixing pipes
    - injection pieces
    - sample valves

- 1 Dosing unit for $FeCl_3$ (42%) : 0 - 150 l/hr

- 1 Dosing unit for NaOH (30%) : 0 - 150 l/hr

- 1 Flocculant dosing unit : 50 - 250 l/hr + post-dilute station

- 1 Automatic flocculant make-up station for liquid polymer
  - Type : NMA 3000 L
  - Capacity : 600 l/hr max. 0.1 – 0.5%
  - Including : - mixer
    - concentrated liquid polymer dosing pump
    - water armature
    - level switches

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Project Dunn-Rite Foods
Location Winnipeg, Canada

Quotation 148033E

Date2/26/2014

- 1 pH measuring and control device

- 1 Flotation unit

Type	: IPF 90 E
Capacity	: 300 gpm (68 m^3/hr)
Material	: stainless steel 304
Including	: - plate pack (GRP)
	- sludge skimmer for floating sludge
	- automatic sediment removal valves
	- 2 recirculation pumps (1 duty/1 stand-by)
	material : cast iron
	- aeration system
	- pneumatical control panel

- Electrical control panel based on Nijhuis Water standard
  - Standing cabinet with PLC and touch screen.
  - Based on electrical components available in USA/Canada.

- Engineering

- Documents and drawings provided according Nijhuis Water standard;
  - Lay-out
  - Dimensional drawings
  - P&ID
  - Equipment and valve list
  - Operation and maintenance manuals on CD-Rom

- Transport DDP Winnipeg, Canada

- Supervision during installation
  Based on 5 working days on site, in 1 visit, including travelling and accommodations costs.

- Start-up and training of operator
  Based on 5 working days on site, in 1 visit, including travelling and accommodations costs.

The price for the above mentioned operation system according to our specifications amounts to:

CAD. $

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2.2. Excluded items:

Excluded from our scope of supply, but not limited to, are:

- Local permits
- Any civil work such as foundations, concrete supports, pump pits, sediment trap, equalization tank, sludge tank etc.
- Filter system (solid particles > 1 mm should be removed)
- Feed pumps to screen and sludge pump (and level probes).
- Platform and ladder for flotation unit
- Any hoisting or lifting work during unloading and during installation
- All electrical work, like main cables, interconnecting wiring between control panel and various units and connection to main supply including wire identification for the internal wiring in the electrical control panel.
- Supply of compressed air and fresh water (including break tank)
- Influent and all discharge lines
- All interconnecting piping, fittings and manual valves
- Chemical storage tank(s)
- Insulation and heat tracing
- Ewon system
- CSA/UL rules and regulations including certification by notified body.

Unless specifically mentioned as part of the scope of supply of this quotation. Any client specific requirements are not included unless explicitly mentioned.

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Project Dunn-Rite Foods
Location Winnipeg, Canada

Quotation 148033E

Date2/26/2014

3. DELIVERY AND PAYMENT CONDITIONS

3.1. Prices

All prices mentioned are net, excluding applicable taxes.

3.2. Delivery time

To be agreed upon.
Delivery starts after receiving:
- a copy of the order confirmation signed by you
- the records such as approved lay-out and relevant permits and other necessary data required for commencement and performance of the work
- down payment

3.3. Terms of Delivery

All prices mentioned are DDP Winnipeg, Canada according Incoterms 2010.

3.4. Payments

- 30% on Purchase Order (Due Upon Receipt)
- 60% on Delivery of Equipment
- 10% after Start-up (No later than 90 days after delivery of equipment)

3.5. Warranty

The warranty period is 12 months.
Any claims shall only be entertained if you have adhered strictly to the instructions for use and maintenance received by you.
The period of warranty shall commence after commissioning but shall not exceed 18 months after delivery.
This warranty period can be extended upon your request, under the condition that a service contract will be agreed with Nijhuis Water Technology, or one of its Accredited Service Partners, for the duration of the complete extended warranty period.

3.6. Validity

This quotation is valid for 2 months from the above date.

3.7. Applicable Conditions & Laws

The terms and conditions of this quotation, including the Appendices, shall constitute the entire agreement between Purchaser and Supplier.
Applicable law is Illinois State Law.
Purchaser's General Purchase conditions shall not apply.

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Project Dunn-Rite Foods
Location Winnipeg, Canada

Quotation 148033E

Date2/26/2014

4. SYSTEM INFORMATION

4.1. Design parameters

The design of the system quoted is based on information obtained from the client and experience.

The client should inform Nijhuis Water Technology, if he feels that the design parameters listed below do not reflect the actual situation.

Type of waste water	: poultry processing	
Quantity	: approx. 234,000 GPD, depending on season (900 m^3/day) at 1 shift operation 8 hours/shift + additional 5 hours of cleaning 6 days/week	
Flow	: 300 gpm (68 m^3/hr)	
BOD	: 740 mg/l (average)	2,270 mg/l (maximum)
TSS	: 592 mg/l (average)	1,060 mg/l (maximum)
Oil and grease	: 235 mg/l (average)	539 mg/l (maximum)
TKN	: 101 mg/l (average)	318 mg/l (maximum)
P_{total}	: 15 mg/l (average)	45 mg/l (maximum)
Chlorides	: < 500 mg/l (assumed)	
pH	: 6 – 8 (assumed)	
Temperature	: 15 – 30 deg C (assumed)	

Note: pollution load values are based on analyzed samples collected from the "manhole" on the 30th of April and 1st of May 2014.

Pre-treatment system

Plant design capacity	: 300 gpm (68 m^3/hr) for flocculation/flotation system

General

Electricity	: 575 Volt +/- 5% 3 Phase 60 Hz.
Control voltage	: 24V DC

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4.2. Plant performance*

Based on and for the given design parameters and composition we will reach the following treated water parameters after flocculation/flotation:

TSS	: ≤ 350 mg/l
Oil and grease	: ≤ 100 mg/l (excluding dissolved oil and grease)
pH	: 6 – 9

Note: the overall performance on BOD reduction is hard to predict due to the large varieties. Only based on average BOD (< 740 mg/l) we expect to reach your requirements of < 300 mg/l.

* Representative lab samples were provided by Client, design based on those numbers. If the given influent parameters are more than 5 % off, the plant performance has to be reconsidered.

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4.3. Utility consumptions

Flocculation / Flotatuion system

Compressed air for recirculation system	: 0.84 cfm (24 Nl/min.), min.press. 102 psi
Compressed air for sludge pump	: to be determined
Installed power	: approx. 38 HP (28 kW)
Utility water	: 455 l/hr. (chemicals only), min. press. 29 psi (2 bar)
Wet sludge production	: approx. 4 – 9 gpm (1 – 2 m^3/hr) at 8 % dry solids

Chemicals

Coagulant type	: $FeCl_3$
Consumption	: 300 - 600 mg/l ≈ 68 l/hr @ 42%
Flocculant type	: polyelectrolyte
Consumption	: 4 - 6 mg/l ≈ 0.8 kg/hr (undilluted polymer)
Neutraliser	: NaOH
Consumption	: 200 - 300 mg/l ≈ 51 l/hr @ 30%

4.4. Other utilities

Power, water and air shall be sufficiently available at no cost and the place where the units are to be erected shall be within easy reach.

We will not be held responsible for the removal and disposal of the waste material.

The compressed air must be clean, dry and of suitable quality, and the required pressure is 100 psi. For acceptable Air Quality Standards, reference ISO 8573.1 Class 4.

4.5. Site conditions

The equipment, process and electrical control panel are designed for installation and operation in a frost free and dust free area, indoors.

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Optiflot - Flotation systems - IPF

Applications

Nijhuis Water Technology has developed a range of Optiflot flotation systems, type IPF, equipped with a lamella plate pack for the following applications:

- Suspended solids
- Oil and Greases
- Coagulated and flocculated particles

The Optiflot, type IPF can either be integrated in a total solution or offered as a single product for your waste water.

Advantages & Characteristics

- Compact built unit with plate pack
- Construction of stainless steel
- Standard range or tailor made
- Laminar flow through unit for optimal removal efficiency

Technical description

In the Nijhuis Water Technology flotation unit the separable particles will float to the surface. The floating particles will be removed automatically and continuously by a scraper mechanism. A lamella plate pack is installed to increase the separation area of the unit and ensures that even the smallest flocs are removed from the waste water. This makes the Optiflot IPF unit very compact.

The on-built recirculation system & aeration system is equipped with unique and patented non clogging aeration devices and will form very fine air bubbles who will support the separation of particles.

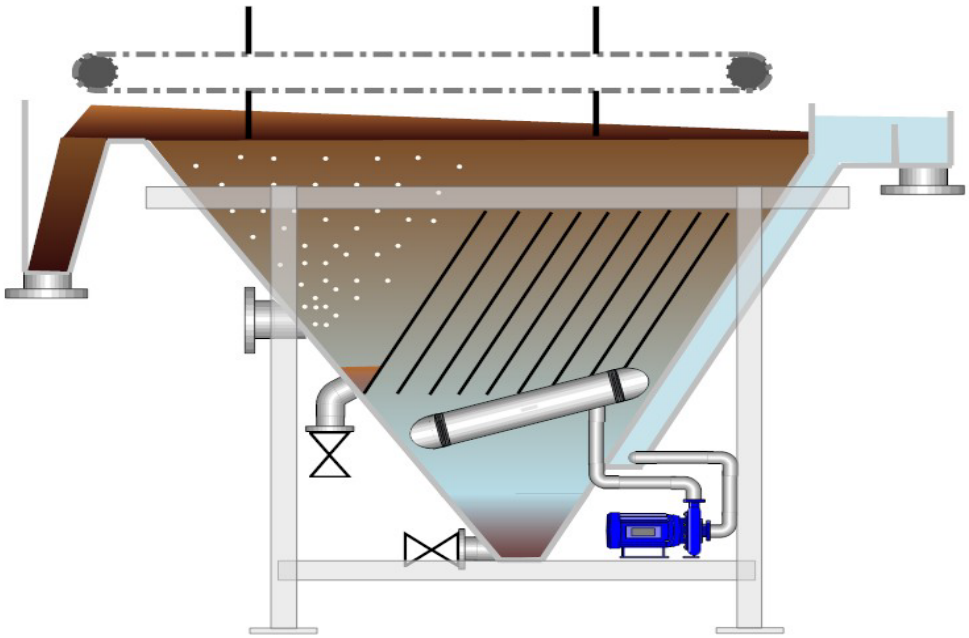
The unit is equipped with automatic sediment removal valves for removing any settled material. Unit selection is based on the type of waste water, the hydraulic and sludge handling capacity.

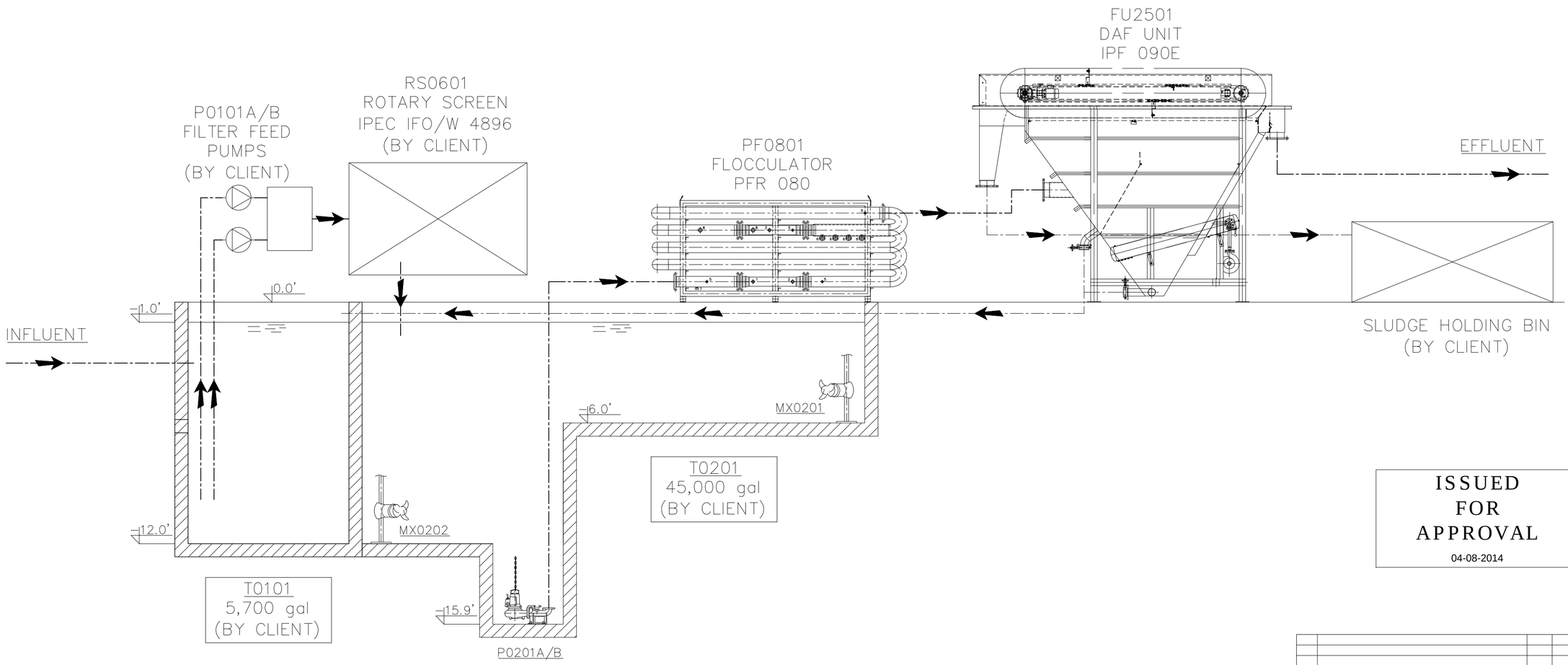
Optiflot - Flotation systems - IPF

Series

Type	Hydraulic capacity max. m3/hr	Sludge load m3/hr	Lenght mm	Width mm	Height mm	Weight Empty - Full	Power kW installed
IPF 005	5	0,2	2460	876	2056	660 - 1720	1,9
IPF 010	11	0,4	2460	1378	2056	860 - 2980	4,4
IPF 015	16	0,6	2460	1877	2056	960 - 4140	4,4
IPF 020	22	0,9	2460	2447	2056	1060 - 5300	5,9
IPF 025	30	0,6	3334	1497	3302	930 - 4460	4,2
IPF 025E	30	0,9	4334	1497	3297	1060 - 5300	5,7
IPF 045	45	0,7	3834	1497	3542	1100 - 5750	5,7
IPF 045E	45	1,0	4834	1497	3542	1260 - 6840	5,7
IPF 090	89	1,4	3834	2504	3542	1500 - 11000	7,7
IPF 090E	89	2,0	4834	2554	3542	1820 - 13200	7,7
IPF 135	134	2,1	3834	3600	3537	2450 - 16450	7,7
IPF 135E	134	3,0	4834	3454	3542	2450 - 19740	7,9
IPF 135EH	134	3,7	4834	3556	3972	3140 - 24500	11,4
IPF 180EH	178	4,2	4907	3827	3972	4050 - 32500	11,4

Unit selection is based on the type of waste water, use of chemicals, the hydraulic and sludge handling capacity, figures in this table are an indication





ISSUED
FOR
APPROVAL

04-08-2014

Rev.	Description	Drawn	Date	Checked Mech.Eng.	Approved Eng.
B	ADDED STAMP	MGE	04-08-2014	ET	VTB
A	REVISIONS PER INTERNAL REVIEW	ZK	29-07-2014	ET	VTB
0	FIRST ISSUE	ZK	25-07-2014	ET	VTB

REVISION

VISION ON SUSTAINABILITY

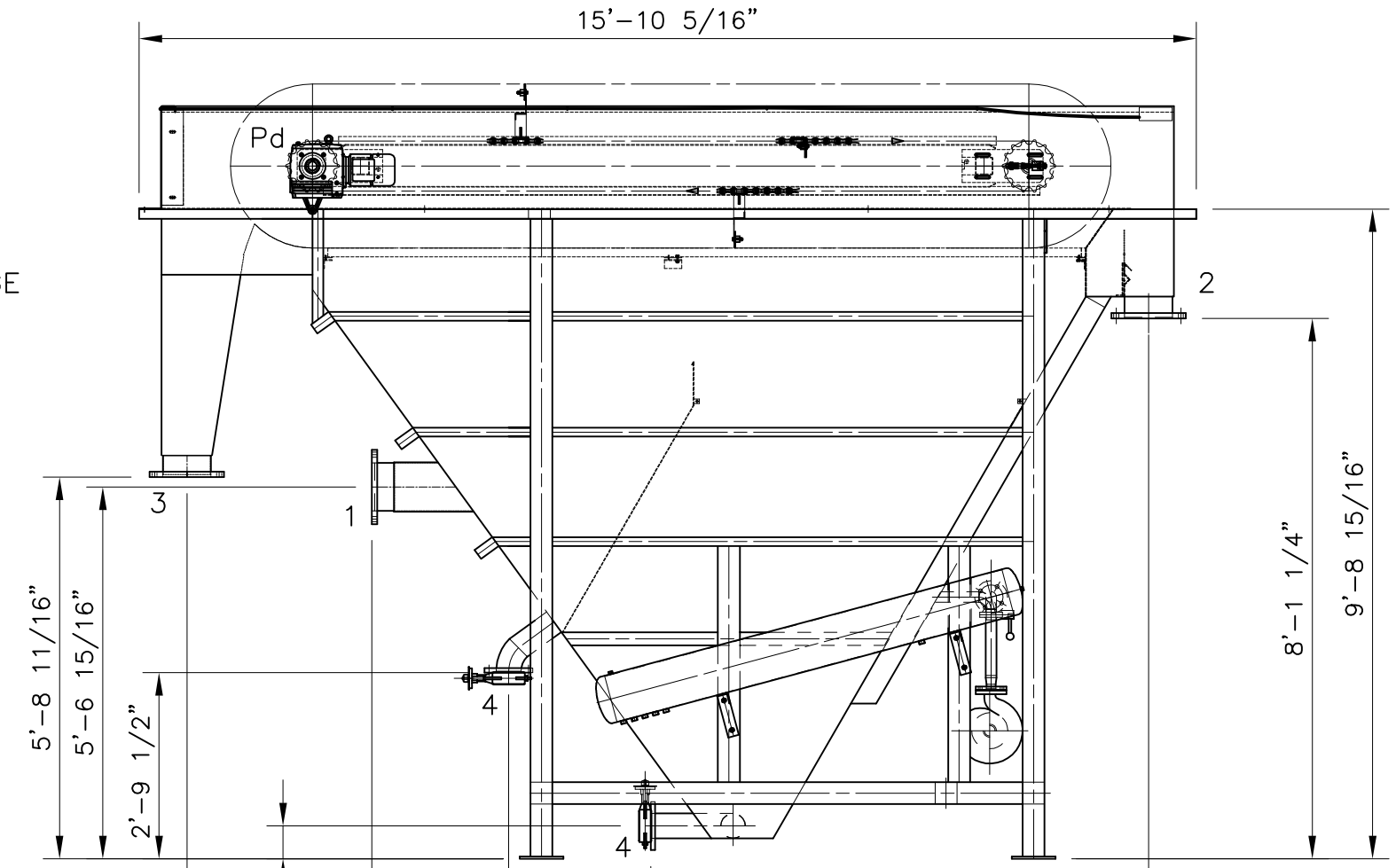
nijhuis WATER TECHNOLOGY

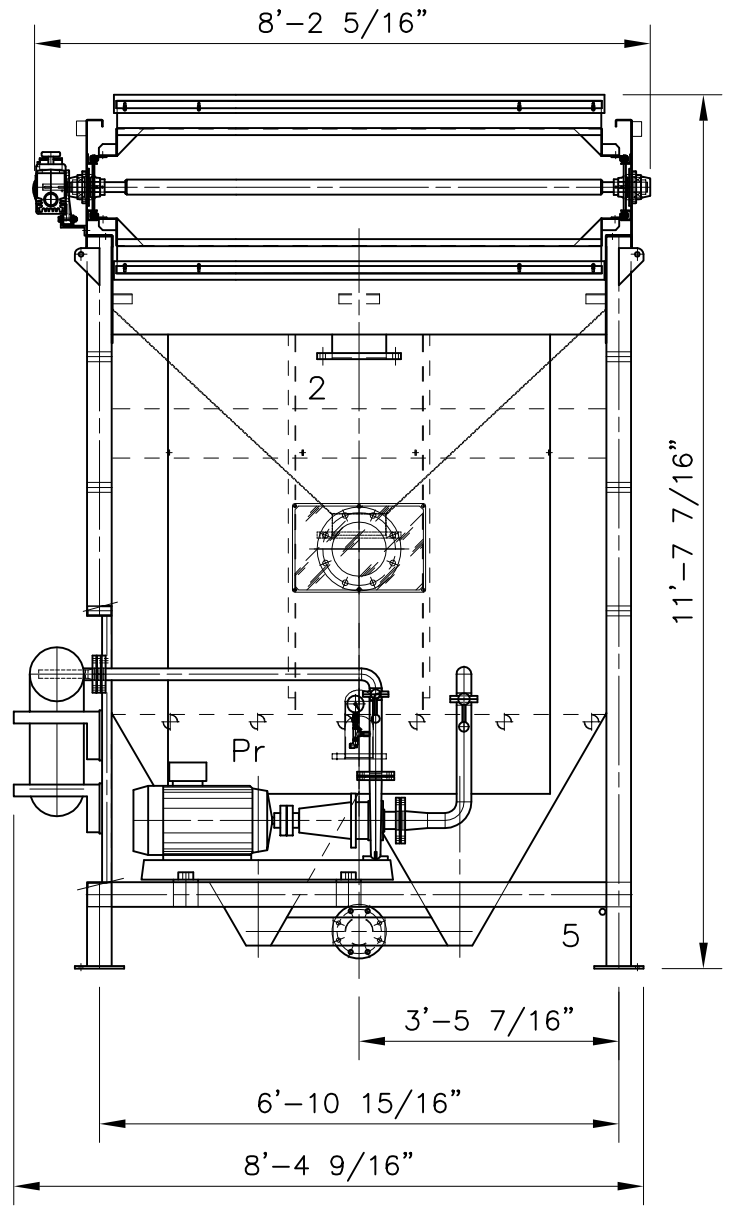
Title HYDRAULIC PROFILE

Project DUNN-RITE FOODS	**Size** A1	**Projection**	
Project Nº 114.059	**Sheet** 1	**Scale** N.T.S.	
Document Nº 102389	**Number of sheets** 1	**Unit** feet	

Nijhuis Water Technology bv | Dinxperlo - The Netherlands | www.nijhuis-water.com | T +31 (0) 315 655 466

1 INFLUENT
2 EFFLUENT
3 FLOTATION SLUDGE
4 SEDIMENT
5 AIR





CHANGES RESERVED

TYPE	1	2	3	4	5			Pd	Pr
IPF 090 E	8"	8"	8"	4"	1/4" G	4010 lb	29100 lb	0,25 hp	10,06 hp

Rev.	Description	Drawn	Date	Checked Mech.Eng.	Approved Eng.
D	ADDED FLOT. SLUDGE, SEDIMENT AND INFLUENT TO SIDEVIEW	DS	16–02–2007	RG	DS
C	TOP EDGE + SECURITY CORD	MPS	08–06–2006	RG	MPS
B	REV.DIM.STYLE/SCRAPER/INFLUENT	AWE	14–10–2003	RG	AWE
A	CONVERSION	JATD	07–06–1999	RG	JATD
0	FIRST ISSUE	RH	30–03–1995		

REVISION

NIJHUIS WATER TECHNOLOGY

Nijhuis Water Technology b.v.
Anholtseweg 32
P.O. Box 89
7090 AB DINXPERLO
Phone (31)315 655466
Fax (31)315 655494
E–mail : info@nijhuis–water.nl

Projection

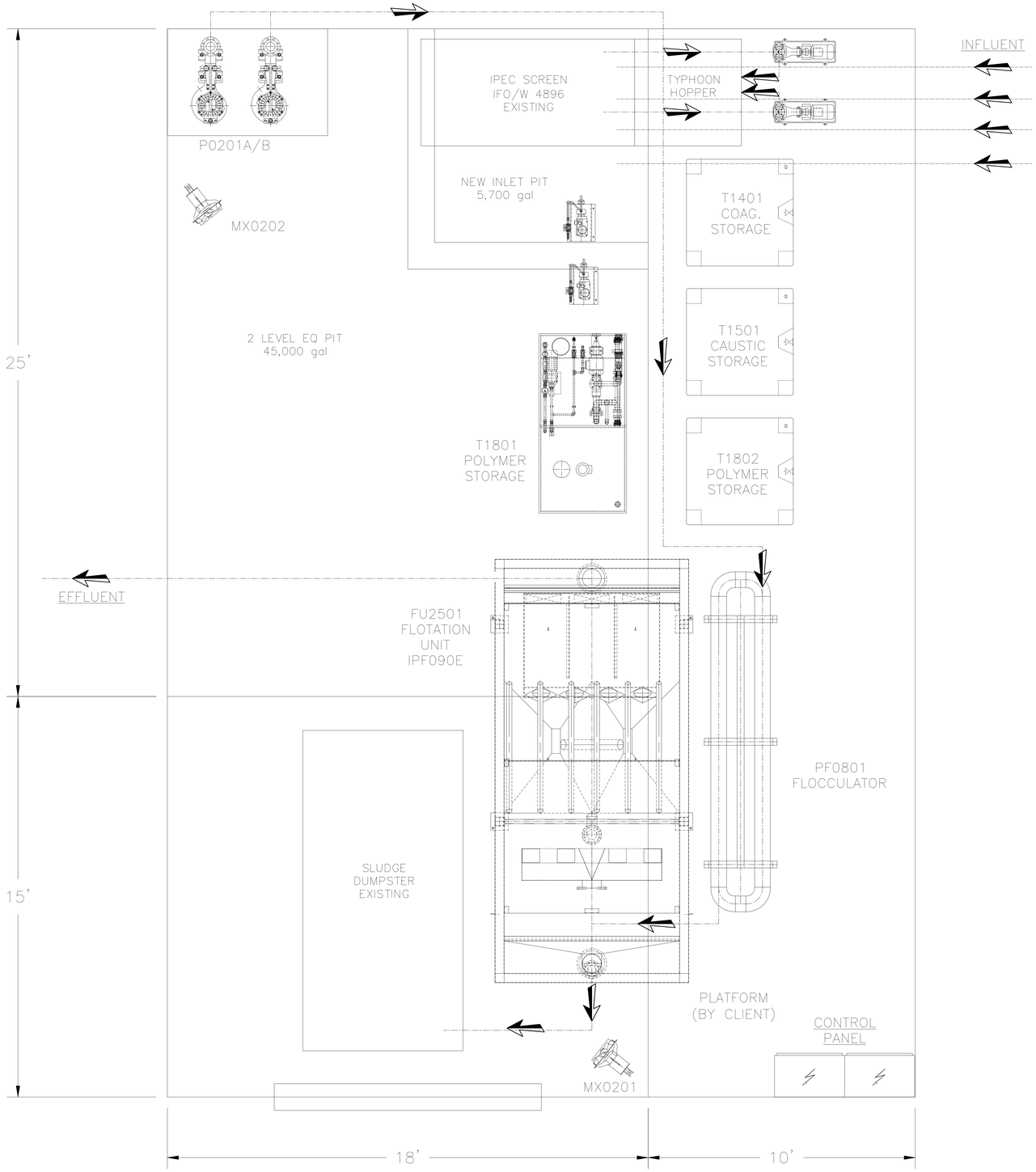
Scale: NTS
Do not scale
Unit : inch

TITLE : DIMENSIONED SKETCH

PROJECT : IPF 090 E

PROJECT N°. :

Size	Document number	Sheet	Number of sheets
A3	800113	1	2



ISSUED
FOR
APPROVAL
04-08-2014

VENTILATION PLAN
TREATMENT BUILDING: MINIMAL 10x VOLUME AN HOUR

Rev.	Description	Drawn	Date	Checked Mech.Eng.	Approved Eng.
H	REMOVED PLATFORM	MGE	04-08-2014	ET	VTB
G	REVISIONS ADDED SCREEN HOPPER	ZK	07-11-2014	ET	VTB
F	REVISIONS TO INFLUENT PUMPS	ZK	07-11-2014		
E	REVISIONS TO SCREEN DIMENSIONS	ZK	07-9-2014		
D	REVISIONS PER CLIENT REQUEST	ZK	07-8-2014		
0	FIRST ISSUE	ZK	05-16-2014		

REVISION

VISION ON SUSTAINABILITY

nijhuis WATER TECHNOLOGY

Title	LAY-OUT WASTE WATER TREATMENT SYSTEM		
Project	DUNN-RITE FOODS	**Size** A2	**Projection**
Project №	114059	**Sheet** 1	**Scale** NTS
Document №	102381	**Number of sheets** 1	**Unit** feet in

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TAG NO.	DESCRIPTION
T0101	PUMP PIT 5,700 GAL (BY CLIENT)
RS0601	ROTARY DRUM SCREEN IPEC IFO/W 4896 (EXISTING)
T0601	SCREENINGS BIN (BY CLIENT)
T0201	BALANCE TANK 45,000 gpl (BY CLIENT)
MX0201	MIXER
MX0202	MIXER
PF0801	FLOCCULATOR PFR 080
FU2501	DAF UNIT IPF 090E
SC2501	TOP SCRAPER
T1401	NEUTRALIZER STORAGE (BY CLIENT)
T1501	COAGULANT STORAGE (BY CLIENT)
T1801	FLOCCULANT STATION NMA 3000L
T1802	POLYMER STORAGE (BY CLIENT)
PD1801	POLYMER POST DILUTION CHAMBER

WATER
1805-1 1/4"-PVC
1807-SL-SL
1806-SL-SL
CLIENT NWT
V1814 V1812 V1813 V1811 V1810
PIC 1802
FI 1802
FS 1802
V1801 V1802 V1803
PIC 1801
FIC 1801
LS 1802
V1823
SL1801
T1802
1810-20-PVC
T1803
LS 1803
V1825
V1824
1805-15-PVC
1804-15-PVC
P1802
M
LIC 1801
MX1801
T1801
V1806
V1805
LI 1801
1817-1 1/4"-PVC
1816-32-PVC
NWT CLIENT
1802-3/4"-PVC
V1808
V1809
P1801
PD1801
LS 1401
SL1401
T1401
V1403
1405-SL-PA
A1402
V1422
CLIENT NWT
V1407
A1401
P1401
V1412
V1414
V1410
NWT CLIENT
LS 1501
SL1501
T1501
V1503
1505-SL-PA
A1502
V1522
V1507
A1501
P1501
V1512
V1514
V1510
1406-SL-PVC
1506-SL-PVC
1808-SL-PVC
EXISTING
HOT WATER
0602-SL-SL
PIC 0601
V0603 A0601 V0602 V0601
RS0601
T0601
(BY CLIENT)
0102A-SL-PVC
0102B-SL-PVC
0605-SL-PVC
EXISTING
V0101A V0102A
P0101A
V0101B V0102B
P0101B
RAW WATER
NWT
LIC 0101
0101A-SL-PVC
0101B-SL-PVC
T0101
0603-SL-PVC
NWT
LIC 0201
T0201
V0202B NWT
V0202A NWT
V0201A NWT
V0201B NWT
0201A-SL-PVC
0201B-SL-PVC
MX0201 NWT
MX0202 NWT
P0201A NWT
P0201B NWT
CLIENT NWT
V1815 V1816
IL1801
V1515 V1516
IL1501
V1415 V1416
IL1401
NWT
FIC 0801
0202-SL-PVC
V0803
V0804
QIC 0801 pH
V0807 V0806
CLIENT NWT
V0801 V0802
PF0801
2518-SL-SL
2510-SL-SL
2506-SL-SL
2564-SL-SL
V2509
V2528
2517-SL-SL
HEADER
SP2501
2502-SL-SL
V2521
PS 2501
PI 2502
PI 2501A
V2503A V2524A
P2501A
V2501A
PI 2501B
V2503B V2502B V2524B
P2501B
V2501B
2501-SL-SL
SC2501
FU2501
V2505
V2508
NWT CLIENT
2513-SL-SL
CLIENT NWT
2514-SL-SL
NWT CLIENT
2512-SL-PVC
SLUDGE
NWT CLIENT
2511-SL-PVC
EFFLUENT
COMPRESSED AIR
CLIENT NWT
2508-SL-SL
PS 2502
PIC 2501
FI 2501
V2512 V2513 V2515 V2514
3701-SL-PVC

NOMINAL PIPE SIZE (DN/ANSI)
PIPE NUMBER — MATERIAL
0000-25-PVC
CL = CLIENT
ST = NWT STANDARD
SL = WILL BE SPECIFIED LATER
PRESSURE CLASS DN FLANGES PN10
PRESSURE CLASS ANSI FLANGES 150LBS

ISSUED FOR APPROVAL
04-08-2014

TAG NO.	DESCRIPTION
P0101A/B	FILTER FEED PUMPS (EXISTING)
P0201A&B	FLOC FEED PUMP 300 gpm @ 23' TDH
P2501A/B	RECIRCULATION PUMP
P1401	NEUTRALIZER DOSING PUMP 150 L/HR
P1501	COAGULANT DOSING PUMP 150 L/HR
P1801	POLYMER DOSING PUMP 50 - 250 L/HR
P1802	POLYMER FEED PUMP

Rev.	Description	Drawn	Date	Checked Mech.Eng.	Approved Eng.
B	ADDED STAMP	MGE	04-08-2014	ET	VTB
A	CHEMICAL DOSING DETAILS CHANGED	ET	01-08-2014	RH	VTB
0	FIRST ISSUE	ZK	18-07-2014	ET	VTB

REVISION

Title	PIPING & INSTRUMENTATION DIAGRAM		
Project	DUNN-RITE FOODS	Size	A0
Project Nº	114.059	Sheet	1
Document Nº	401605	Number of sheets	1
Projection		Scale	N.T.S.
		Unit	N/A

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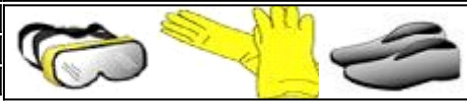
Appendix E MSDS SHEETS

BENEFIT

HMIS		NFPA	Personal protective equipment
Health	3	3	
Flammability	0	0	
Physical Hazard / Instability	0	0	

Version Number: 0

Preparation date: 2012-04-04

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: BENEFIT

MSDS #: MS0300640
Product Code: 57418010, 57418150, 57418280, 57418330
Recommended use: Food Processing. This product is intended to be diluted prior to use.

Manufacturer, importer, supplier:

US Headquarters
Diversey, Inc.
8310 16th St.
Sturtevant, Wisconsin 53177-1964
Phone: 1-888-352-2249
MSDS Internet Address: www.diversey.com

Canadian Headquarters
Diversey, Inc. - Canada
2401 Bristol Circle
Oakville, Ontario L6H 6P1
Phone: 1-800-668-3131

Emergency telephone number: 1-800-851-7145 (U.S.); 1-651-917-6133 (Int'l)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
DANGER. CORROSIVE. CAUSES SKIN AND EYE BURNS. HARMFUL OR FATAL IF SWALLOWED.

Principal routes of exposure: Eye contact. Skin contact. Inhalation.
Eye contact: Corrosive. Causes permanent eye damage, including blindness.
Skin contact: Corrosive. Causes permanent damage.
Inhalation: May cause irritation and corrosive effects to nose, throat and respiratory tract.
Ingestion: Corrosive. Causes burns to mouth, throat and stomach.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS #	Weight %	LD50 Oral - Rat (mg/kg)	LD50 Dermal - Rabbit	LC50 Inhalation - Rat
Sodium hydroxide	1310-73-2	10 - 20%	500	=1350 mg/kg	Not available
Sodium hypochlorite	7681-52-9	1 - 5%	5000	>10000 mg/kg	Not available

4. FIRST AID MEASURES

Eye contact: Immediately flush eyes with running water for 15-20 minutes, keeping eyelids open. Get medical attention immediately.
Skin contact: Immediately flush with plenty of water for 15-20 minutes . Get medical attention immediately.
Inhalation: If breathing is affected, remove to fresh air. Get medical attention immediately.
Ingestion: If swallowed, rinse mouth. Give a cupful of water or milk . THEN IMMEDIATELY CONTACT A PHYSICIAN OR POISON CENTER. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
Aggravated Medical Conditions: Individuals with chronic respiratory disorders such as asthma, chronic bronchitis, emphysema, etc., may be more susceptible to irritating effects

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: The product is not flammable. Extinguish fire using agent suitable for surrounding fire.
Specific hazards: Not applicable
Unusual hazards: Corrosive material (See sections 8 and 10).
Specific methods: No special methods required

Special protective equipment for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear
Extinguishing media which must not be used for safety reasons: No information available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment
Environmental precautions and clean-up methods: Clean-up methods - large spillage. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal. Use a water rinse for final clean-up.

7. HANDLING AND STORAGE

Handling:
Avoid contact with skin, eyes and clothing. Do not taste or swallow. Avoid breathing vapors or mists. Use only with adequate ventilation. Remove and wash contaminated clothing and footwear before re-use. Wash thoroughly after handling. Product residue may remain on/in empty containers. All precautions for handling the product must be used in handling the empty container and residue. FOR COMMERCIAL AND INDUSTRIAL USE ONLY.
Storage:
Protect from freezing. Keep tightly closed in a dry, cool and well-ventilated place. KEEP OUT OF REACH OF CHILDREN.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:
Good general ventilation should be sufficient to control airborne levels Respiratory protection is not required if good ventilation is maintained.

Personal Protective Equipment

Eye protection: Chemical-splash goggles.
Hand protection: Chemical-resistant gloves
Skin and body protection: Protective footwear. If major exposure is possible, wear suitable protective clothing and footwear.
Respiratory protection: In case of insufficient ventilation wear suitable respiratory equipment. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice

Ingredient(s)	CAS #	ACGIH	OSHA	Mexico
Sodium hydroxide	1310-73-2	2 mg/m³ (Ceiling)	2 mg/m³ (TWA)	2 mg/m³ (Ceiling)

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Appearance: Liquid
Specific gravity: 1.26
Vapor density: No information available
Boiling point/range: Not determined
Decomposition temperature: Not determined
Solubility: No information available
Solubility in other solvents: No information available
Partition coefficient (n-octanol/water): No information available
Elemental Phosphorus: 0.00 % by wt.
pH: 14.0
Explosion limits: - upper: Not determined **- lower:** Not determined

Bulk density: No information available
Evaporation Rate No information available
Color: Clear Pale Yellow Green
Odor: Chlorine
Melting point/range: Not determined
Autoignition temperature: No information available
Density: 10.51 lbs/gal 1.26 Kg/L
Flash point: 200 °F 93.4 °C
Viscosity: No information available
VOC: 0 % *
Dilution pH: 12.4 @ 1:100

* - Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 8.5, Article 2, Consumer Products, Sections 94508

10. STABILITY AND REACTIVITY

Stability: The product is stable
Polymerization: Hazardous polymerization does not occur

Hazardous decomposition products: None reasonably foreseeable.
Materials to avoid: Acids. Ammonia.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Corrosive Oral LD50 estimated to be between 500 - 2000 mg/kg
Component Information: See Section 3

Chronic toxicity: None known

Specific effects
Carcinogenic effects: None known
Mutagenic effects: None known
Reproductive toxicity: None known
Target organ effects: None known

12. ECOLOGICAL INFORMATION

Environmental Information: No data available

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:
Undiluted product is regulated under environmental and transportation laws as a corrosive waste. Dispose of in compliance with all Federal, state, provincial, and local laws and regulations.
RCRA Hazard Class: D002 Corrosive Waste

14. TRANSPORT INFORMATION

DOT/TDG/IMDG: Please refer to the Diversey HazMat Library, http://naextranet.diversey.com/dot/, for up to date shipping information.

DOT Bill of Lading Description: UN1824, SODIUM HYDROXIDE SOLUTION, 8, II

IMDG Bill of Lading Description: UN1824, SODIUM HYDROXIDE SOLUTION, 8, II

15. REGULATORY INFORMATION

International Inventories at CAS# Level
All components of this product are listed on the following inventories: U.S.A. (TSCA), Canada (DSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (ECL), Japan (ENCS), Philippines (PICCS), New Zealand (NZIoC), China (IECSC).

U.S. Regulations
California Proposition 65: This product is not subject to the reporting requirements under California's Proposition 65

RIGHT TO KNOW (RTK)

Ingredient(s)	CAS #	MARTK:	NJRTK:	PARTK:	RIRTK:
Sodium hydroxide	1310-73-2	X	X	X	X
Sodium chloride	7647-14-5	-	-	-	-
Sodium hypochlorite	7681-52-9	X	X	X	X
Water	7732-18-5	-	-	-	-
Sodium polyacrylate	9003-04-7	-	-	-	-

CERCLA/ SARA

Ingredient(s)	CAS #	Weight %	CERCLA/SARA RQ (lbs)	Section 302 TPQ (lbs)	Section 313
Sodium hydroxide	1310-73-2	10 - 20%	1000		
Sodium hypochlorite	7681-52-9	1 - 5%	100		

SARA 311/312 Hazard Categories
Immediate: X
Delayed: -

Fire: -
Reactivity: -
Sudden Release of Pressure: -

Canada

WHMIS hazard class: E Corrosive material

16. OTHER INFORMATION

Reason for revision: Not applicable
Prepared by: NAPRAC

Notice to Reader: This document has been prepared using data from sources considered technically reliable. It does not constitute a warranty, express or implied, as to the accuracy of the information contained within. Actual conditions of use and handling are beyond seller's control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, State, Provincial and Local laws and regulations.

MATERIAL SAFETY DATA SHEET

SU 393

HMIS		NFPA	Personal protective equipment
Health	2	2	None / Aucune / Ninguno
Fire Hazard	3	3	
Reactivity	0	0	

Version Number: 2

Preparation date:2010-10-01

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: SU 393

MSDS #: MS0100543
Product Code: 57645280, 81393, 85393
Recommended use: Sanitizer.

Manufacturer, importer, supplier:
JohnsonDiversey, Inc.
3630 E. Kemper Rd.
Cincinnati, OH 45241
Phone: 1-800-438-2647

Canadian Headquarters
JohnsonDiversey - Canada, Inc.
2401 Bristol Circle
Oakville, Ontario L6H 6P1
Phone: 1-800-668-7171

Emergency telephone number: 1-800-851-7145 (U.S.); 1-651-917-6133 (Int'l)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
CAUTION. CAUSES EYE IRRITATION. HARMFUL IF INHALED. FLAMMABLE LIQUID AND VAPOR.

Principal routes of exposure: Eye contact. Skin contact. Inhalation.
Eye contact: Moderately irritating to the eyes.
Skin contact: Prolonged or repeated contact may dry skin and cause irritation.
Inhalation: Harmful if inhaled.
Ingestion: May cause irritation to mouth, throat and stomach .

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS #	Weight %	LD50 Oral - Rat (mg/kg)	LD50 Dermal - Rabbit	LC50 Inhalation - Rat
Isopropyl alcohol	67-63-0	20 - 30%	4396	=12870 mg/kg	=72.6 mg/L (4 h)
Lactic acid	50-21-5	5 - 10%	3543	>2 g/kg	Not available

4. FIRST AID MEASURES

Eye contact: Flush immediately with plenty of water. If irritation persists, get medical attention.
Skin contact: Flush immediately with plenty of water. If irritation develops, get medical attention.
Inhalation: No specific first aid measures are required.
Ingestion: If swallowed, give a cupful of water or milk.
Aggravated Medical Conditions: None known

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry chemical, water spray, foam, carbon dioxide.
Specific hazards: Not applicable

Unusual hazards: None known
Specific methods: No special methods required

Special protective equipment for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear
Extinguishing media which must not be used for safety reasons: No information available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Contaminated surfaces will be extremely slippery. Use personal protective equipment.
Environmental precautions and clean-up methods: Clean-up methods - large spillage. Prevent product from entering drains. Eliminate all ignition sources . Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Use a water rinse for final clean-up.

7. HANDLING AND STORAGE

Handling:
Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Avoid breathing vapors or mists. Use only with adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition.FOR COMMERCIAL AND INDUSTRIAL USE ONLY.
Storage:
Protect from freezing. Keep this product dry in original tightly closed container when not in use . Store in a cool, dry, well ventilated area away from heat or open flame. KEEP OUT OF REACH OF CHILDREN.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:
No special ventilation requirements General room ventilation is adequate

Personal Protective Equipment

Eye protection: No special requirements under normal use conditions.
Hand protection: No special requirements under normal use conditions
Skin and body protection: No special requirements under normal use conditions.
Respiratory protection: No special requirements under normal use conditions.
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.

Ingredient(s)	CAS #	ACGIH	OSHA	Mexico
Isopropyl alcohol	67-63-0	400 ppm (STEL) 200 ppm (TWA)	400 ppm (TWA) 980 mg/m^3 (TWA)	500 ppm (STEL) 1225 mg/m^3 (STEL) 400 ppm (TWA) 980 mg/m^3 (TWA)

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Appearance: Aqueous solution
Specific gravity:0.97
Vapor density: No information available
Boiling point/range: Not determined
Decomposition temperature: Not determined
Solubility: Completely Soluble
Solubility in other solvents: No information available
Partition coefficient (n-octanol/water): No information available
Elemental Phosphorus:0% by wt.
pH:2.2

Bulk density: No information available
Evaporation Rate No information available
Color: ClearColorless
Odor: Alcohol
Melting point/range: Not determined
Autoignition temperature: No information available
Density:8.09lbs/gal0.97Kg/L
Flash point:84°F29°C
Viscosity: No information available
VOC:25% *
Dilution pH:NA@RTU

Explosion limits:- upper: Not determined**- lower:**Not determined

* - Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 8.5, Article 2, Consumer Products, Sections 94508

10. STABILITY AND REACTIVITY

Stability: The product is stable
Polymerization: Hazardous polymerization does not occur
Hazardous decomposition products: None reasonably foreseeable.
Materials to avoid: Oxidising agents.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Oral LD50 estimated to be greater than 5000 mg/kg Dermal LD50 estimated to be > 2000 mg/kg
Component Information: See Section 3

Chronic toxicity: None known

Specific effects

Carcinogenic effects: None known
Mutagenic effects: None known
Reproductive toxicity: None known
Target organ effects: None known

12. ECOLOGICAL INFORMATION

Environmental Information: No data available

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:
Dispose of according to all federal, state and local applicable regulations.
RCRA Hazard Class:D002

14. TRANSPORT INFORMATION

DOT/TDG:Please refer to the Bill of Lading/receiving documents for up to date shipping information

15. REGULATORY INFORMATION

International Inventories at CAS# Level
All components of this product are listed on the following inventories:Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), New Zealand (NZIoC).

U.S. Regulations
California Proposition 65: This product is not subject to the reporting requirements under California's Proposition 65

RIGHT TO KNOW (RTK)

Ingredient(s)	CAS #	MARTK:	NJRTK:	PARTK:	RIRTK:
Isopropyl alcohol	67-63-0	X	X	X	X
Water	7732-18-5	-	-	-	-
Lactic acid	50-21-5	-	-	-	-

CERCLA/ SARA

Ingredient(s)	CAS #	Weight %	CERCLA/SARA RQ (lbs)	Section 302 TPQ (lbs)	Section 313
Isopropyl alcohol	67-63-0	20 - 30%			X

SARA 311/312 Hazard Categories

Immediate: X
Delayed: -
Fire: X
Reactivity: -
Sudden Release of Pressure: -

Canada
WHMIS hazard class:D2B Toxic materials, B2 Flammable liquid .

Ingredient(s)	CAS #	NPRI
Isopropyl alcohol	67-63-0	X

16. OTHER INFORMATION

Reason for revision: Not applicable
Prepared by: NAPRAC
Additional advice: None

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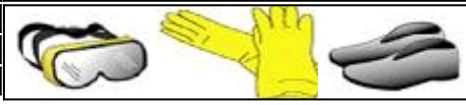
SPECTRUM

HMIS		NFPA	Personal protective equipment
Health	3	3	
Fire Hazard	0	0	
Reactivity	0	0	

Version Number: 1

Preparation date: 2011-05-02

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: SPECTRUM

MSDS #: MS0100630
Product Code: 57616010, 57616100, 57616330, 57616280, 57616004
Recommended use: Food Processing. Sanitizer. This product is intended to be diluted prior to use.

Manufacturer, importer, supplier:

US Headquarters
Diversey, Inc.
8310 16th St.
Sturtevant, Wisconsin 53177-1964
Phone: 1-888-352-2249
MSDS Internet Address: www.diversey.com

Canadian Headquarters
Diversey, Inc. - Canada, Inc.
2401 Bristol Circle
Oakville, Ontario L6H 6P1
Phone: 1-800-668-3131

Emergency telephone number: 1-800-851-7145 (U.S.); 1-651-917-6133 (Int'l)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
DANGER. CORROSIVE. CAUSES SKIN AND EYE BURNS. HARMFUL OR FATAL IF SWALLOWED.

Principal routes of exposure: Eye contact. Skin contact. Inhalation.
Eye contact: Corrosive. Causes permanent eye damage, including blindness.
Skin contact: Corrosive. Causes permanent damage.
Inhalation: May cause irritation and corrosive effects to nose, throat and respiratory tract.
Ingestion: Corrosive. Causes burns to mouth, throat and stomach.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS #	Weight %	LD50 Oral - Rat (mg/kg)	LD50 Dermal - Rabbit	LC50 Inhalation - Rat
Ethyl alcohol	64-17-5	0.1 - 1.5%	7060	Not available	=124.7 mg/L (4 h)
n-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride	68391-01-5	1 - 5%	500	Not available	Not available
n-Alkyl (68% C14, 32% C16) dimethyl ethylbenzyl ammonium chloride	68956-79-6	1 - 5%	500	Not available	Not available

4. FIRST AID MEASURES

Eye contact: Immediately flush eyes with running water for 15-20 minutes, keeping eyelids open. Get medical attention immediately.
Skin contact: Immediately flush with plenty of water for 15-20 minutes . Get medical attention immediately.
Inhalation: If breathing is affected, remove to fresh air. Get medical attention immediately.
Ingestion: If swallowed, rinse mouth. Give a cupful of water or milk . THEN IMMEDIATELY CONTACT A PHYSICIAN OR POISON CENTER. DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Aggravated Medical Conditions: Individuals with chronic respiratory disorders such as asthma, chronic bronchitis, emphysema, etc., may be more susceptible to irritating effects

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: The product is not flammable. Extinguish fire using agent suitable for surrounding fire.
Specific hazards: Not applicable
Unusual hazards: Corrosive material (See sections 8 and 10).
Specific methods: No special methods required

Special protective equipment for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear
Extinguishing media which must not be used for safety reasons: No information available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment
Environmental precautions and clean-up methods: Clean-up methods - large spillage. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal. Use a water rinse for final clean-up.

7. HANDLING AND STORAGE

Handling:
Avoid contact with skin, eyes and clothing. Do not taste or swallow. Avoid breathing vapors or mists. Use only with adequate ventilation. Remove and wash contaminated clothing and footwear before re-use. Wash thoroughly after handling. Product residue may remain on/in empty containers. All precautions for handling the product must be used in handling the empty container and residue. FOR COMMERICAL AND INDUSTRIAL USE ONLY.
Storage:
Protect from freezing. Keep tightly closed in a dry, cool and well-ventilated place. KEEP OUT OF REACH OF CHILDREN.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:
Good general ventilation should be sufficient to control airborne levels Respiratory protection is not required if good ventilation is maintained.

Personal Protective Equipment

Eye protection: Chemical-splash goggles.
Hand protection: Chemical-resistant gloves
Skin and body protection: Protective footwear. If major exposure is possible, wear suitable protective clothing and footwear.
Respiratory protection: In case of insufficient ventilation wear suitable respiratory equipment. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice

Ingredient(s)	CAS #	ACGIH	OSHA	Mexico
Ethyl alcohol	64-17-5	1000 ppm (STEL)	1000 ppm (TWA) 1900 mg/m^3 (TWA)	1000 ppm (TWA) 1900 mg/m^3 (TWA)

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Appearance: Liquid
Specific gravity: 0.995
Vapor density: No information available
Boiling point/range: Not determined
Decomposition temperature: Not determined
Solubility: Completely Soluble
Solubility in other solvents: No information available
Partition coefficient (n-octanol/water): No information available
Elemental Phosphorus: 0 % by wt.
pH: 7.0
Explosion limits: - upper: Not determined **- lower:** Not determined

Bulk density: No information available
Evaporation Rate No information available
Color: Clear Light Green Yellow
Odor: Fresh
Melting point/range: Not determined
Autoignition temperature: No information available
Density: 8.26 lbs/gal Kg/L
Flash point: > 200 °F > 93.4 °C
Viscosity: No information available
VOC: 1.0 % *
Dilution pH: 6.0 @ 1:454

* - Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 8.5, Article 2, Consumer Products, Sections 94508

10. STABILITY AND REACTIVITY

Stability: The product is stable
Polymerization: Hazardous polymerization does not occur
Hazardous decomposition products: None reasonably foreseeable.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Corrosive Oral LD50 estimated to be > 2000 mg/kg Dermal LD50 estimated to be greater than 5000 mg/kg
Component Information: See Section 3

Chronic toxicity: None known

Specific effects
Carcinogenic effects: None known
Mutagenic effects: None known
Reproductive toxicity: None known
Target organ effects: None known

12. ECOLOGICAL INFORMATION

Environmental Information: No data available

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:
PESTICIDAL WASTE - Observe all applicable Federal/Provincial/State regulations and Local/Municipal ordinances regarding disposal of pesticide wastes. Handle as a Pesticide waste. Do not bury, Do not dispose of with Commercial or Household waste .

14. TRANSPORT INFORMATION

DOT/TDG/IMDG: Please refer to the Diversey HazMat Library, http://naextranet.diversey.com/dot/, for up to date shipping information.

DOT Bill of Lading Description: UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (QUATERNARY AMMONIUM COMPOUNDS), 8, III

IMDG Bill of Lading Description: UN3267, CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (QUATERNARY AMMONIUM COMPOUNDS), 8, III

15. REGULATORY INFORMATION

International Inventories at CAS# Level
All components of this product are listed on the following inventories: U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Philippines (PICCS), New Zealand (NZIoC), China (IECSC).

U.S. Regulations
California Proposition 65: This product is not subject to the reporting requirements under California's Proposition 65

RIGHT TO KNOW (RTK)

Ingredient(s)	CAS #	MARTK:	NJRTK:	PARTK:	RIRTK:
Ethyl alcohol	64-17-5	X	X	X	X
n-Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride	68391-01-5	-	-	-	-
n-Alkyl (68% C14, 32% C16) dimethyl ethylbenzyl ammonium chloride	68956-79-6	-	-	-	-
Water	7732-18-5	-	-	-	-

CERCLA/ SARA

SARA 311/312 Hazard Categories

Immediate:	X
Delayed:	-
Fire:	-
Reactivity:	-
Sudden Release of Pressure:	-

Canada

WHMIS hazard class: Non-controlled

PCP No. : 15248

16. OTHER INFORMATION

Reason for revision:	Not applicable
Prepared by:	NAPRAC
Additional advice:	None

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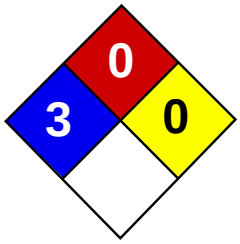


Material Safety Data Sheet
Sodium Hypochlorite, 12% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium Hypochlorite, 12%

Catalog Codes: SLS3076

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Sodium hypochlorite; Water

CI#: Not applicable.

Synonym: Chlorine Bleach, Soda Bleach; Sodium Hypochlorite, Solution, 12% Available Chlorine.

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium hypochlorite	7681-52-9	12-14
Sodium hydroxide	1310-73-2	1
Water	7732-18-5	85-87

Toxicological Data on Ingredients: Sodium hypochlorite: ORAL (LD50): Acute: 5800 mg/kg [Mouse]. 8910 mg/kg [Rat]. Sodium hydroxide LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Sodium hypochlorite]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Sodium hypochlorite]. Mutagenic for mammalian somatic cells. [Sodium hydroxide]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to lungs, mucous membranes, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: combustible materials, organic materials, metals

Explosion Hazards in Presence of Various Substances:
Slightly explosive in presence of heat. Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Releases chlorine when heated above 35 deg. C. The substance itself is non-combustible and does not burn. However, when heated to decomposition it emits corrosive and/or toxic fumes. May ignite combustibles. The heat of reaction with combustibles or organic materials may cause igniton. It may be a fire risk in contact with organic materials. Contact with metals may evolve flammable hydrogen gas.

Special Remarks on Explosion Hazards:

Anydrous Sodium Hypochlorite is very explosive. Primary amines and calcium hypochlorite or sodium hypochlorite react to form normal chloroamines, which are explosive. Interaction of ethyleneimine with sodium (or other) hypochlorite gives the explosive N-chloro cmpd. Removal of formic acid from industrial waste streams with sodium hypochlorite soln becomes explosive at 55 deg C. Several explosions involving methanol and sodium hypochlorite were attributed to formation of methyl hypochlorite, especially in presence of acid or other esterification catalyst. Use of sodium hypochlorite soln to destroy acidified benzyl cyanide residues caused a violent explosion, thought to have been due to formation of nitrogen trichloride. (Sodium hypochlorite)

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill:
Corrosive liquid. Oxidizing material. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals, acids.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers. Do not store above 20°C (68°F). Air Sensitive Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Face shield. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Sodium hypochlorite TWA: 1 CEIL: 1 (ppm as Cl2) STEL: 1 (ppm as Cl2) from ACGIH (TLV) [United States] Sodium hydroxide STEL: 2 (mg/m3) from ACGIH (TLV) [United States] TWA: 2 CEIL: 2 (mg/m3) from OSHA (PEL) [United States] CEIL: 2 (mg/m3) from NIOSH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Clear Liquid.)

Odor: Characteristic. Chlorine-like (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Green to Yellowish. (Light.)

pH (1% soln/water): pH of 10% solution (100 g/l): 12 [Basic.]

Boiling Point: The lowest known value is 100°C (212°F) (Water).

Melting Point: Freezing pt: -3°C (26.6°F)

Critical Temperature: Not available.

Specific Gravity: 1.19 - 1.215 (Water = 1)

Vapor Pressure: 1.6 kPa (@ 20°C)

Vapor Density: The highest known value is 0.62 (Air = 1) (Water).

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, light, air, heat

Incompatibility with various substances: Slightly reactive to reactive with reducing agents, combustible materials, organic materials, metals, acids.

Corrosivity:
Extremely corrosive in presence of aluminum. Moderately corrosive in presence of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Decomposed by carbon dioxide from air. Slowly decomposes on contact with air. Unstable in air unless mixed with sodium hydroxide. Incompatible with ammonium acetate, ammonium carbonate, ammonium nitrate, ammonium oxalate, and ammonium phosphate. Decompostion of sodium hypochlorite takes place within a few seconds with these salts. Also incompatible with primary amines, phenyl acetonitrile, ethyleneimine, methanol, acidified benzyl cyanide, formic acid, urea, nitro compounds, methylscellulose, celloluse, aziridine, ether, ammonia. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas. Chloramine gas may be evolved when ammonia and bleach are mixed. Decomposed by hot water. Sensitive to light. Exposure to light accelerates decompositon.

Special Remarks on Corrosivity:
Sodium Hypochlorite is extremely corrosive to brass, and moderately corrosive to bronze. There is no corrosivity information for copper.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 5800 mg/kg [Mouse]. (Sodium hypochlorite).

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Sodium hypochlorite]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Sodium hypochlorite]. Contains material which may cause damage to the following organs: lungs, mucous membranes, skin, eyes.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive), of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May affect genetic material (mutagenic) (Sodium hypochlorite)

Special Remarks on other Toxic Effects on Humans:
Potential Health Effects: May cause severe irritation and burns to skin and eyes. Contact with skin may also cause vesicular eruptions and eczematoid dermatitis which becomes evident upon re-exposure. Prolonged or repeated eye contact may cause conjunctivitis. Ingestion causes burns to the digestive tract. Symptoms may include: 1. pain and inflammation of the mouth, pharynx, esophagus, and stomach, 2. erosion of the mucous membranes (chiefly of the stomach), nausea, vomiting, choking, coughing, hemorrhage, 3. circulatory collapse with cold and clammy skin (due to methemoglobinemia), cyanosis, and shallow respirations, 4. confusion, delirium, coma, 5. edema of the pharynx, glottis, larynx with stridor and obstruction, 6. perforation of the esophagus, or stomach, with mediastinitis or peritonitis. Inhalation causes severe respiratory tract irritation and pulmonary edema. Prolonged or repeated inhalation may cause allergic respiratory reaction (asthma). (Sodium hypochlorite)

Section 12: Ecological Information

Ecotoxicity: It is toxic to fish and aquatic organisms.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Do not discharge effluent containing this product into laks, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA. Reduce with agents such as bisulfites or ferrous salt solutions. Some heat will be produced. Keep on alkaline side and dilute with copious amounts of water. The main end-product is salt water. Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Hypochlorite solution UNNA: 1791 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Sodium hypochlorite Florida: Sodium hypochlorite Minnesota: Sodium hypochlorite Massachusetts RTK: Sodium hypochlorite New Jersey: Sodium hypochlorite TSCA 8(b) inventory: Sodium hypochlorite; Water CERCLA: Hazardous substances.: Sodium hypochlorite: 100 lbs. (45.36 kg);

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS C: Oxidizing material. CLASS E: Corrosive liquid.

DSCL (EEC):
R8- Contact with combustible material may cause fire. R31- Contact with acids liberates toxic gas. R34- Causes burns. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of water. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 06:32 PM

Last Updated: 05/21/2013 12:00 PM

LAUNDRI PREP PLUS

MSDS Number

BRHKH

National Stock Number

7930-00N038677

Product Name

LAUNDRI PREP PLUS

Manufacturer

ECOLAB INC

Product Identification

Product ID:LAUNDRI PREP PLUS
MSDS Date:06/21/1989
FSC:7930
NIIN:00N038677
MSDS Number: BRHKH

Responsible Party

ECOLAB INC

ECOLAB CENTER

ST PAUL , MN 55102

US

Emergency Phone: 800-328-0026

Info Phone: 612-293-2233

Cage: 0DAC4

Contractor

ECOLAB PROFESSIONAL PRODUCTS DIVISION OF ECOLAB INC.

ST PAUL, MN 55102

US

800-352-5326

Cage: 85884

Ingredients

HYDROTREATED LIGHT PETROLEUM DISTILLATE

CAS: 64742-47-8

Fraction By Weight: 60%

OSHA PELN/K

ACGIH TLV: N/K

NONYLPHENOL POLYETHOXATE

CAS: 9016-45-9

RTECS: MD0900000

Fraction By Weight: 11%

OSHA PELN/K

ACGIH TLV: N/K

Hazards

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.
Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO
Health Hazards Acute and Chronic:EYE:CAUSES IRRITATION, LOSS OF NATURAL LUBRICATION. SKIN:PROLONGED CONTACT MAY DEFAT SKIN, LEADING TO IRRITATION AND DERMATITIS. INGEST:HARMFUL OR FATAL IF SWALLOWED. INHAL:MAY RESULT IN DIZZINESS, HE ADACHE, RESPIRATORY IRRITATION. UNDER RECOMMENDED USE CONDITIONS, VAPOR LEVEL WILL BE TOO LOW TO (EFTS OF OVEREXP)
Explanation of Carcinogenicity:NOT RELEVANT.
Effects of Overexposure:HLTH HAZ:PRESENT AN INHALATION HAZARD.
Medical Cond Aggravated by Exposure:NONE SPECIFIED BY MANUFACTURER.

First Aid

First Aid:EYE:FLUSH IMMEDIATELY WITH PLENTY OF COOL RUNNING WATER. REMOVE CONTACT LENSES. CONTINUE FLUSHING FOR AT LEAST 15 MINUTES. SKIN:FLUSH WITH PLENTY OF COOL RUNNING WATER. WASH THOROUGHY WITH SOAP & WATE R. INGEST:RINSE MOUTH, THEN DRINK 1 OR 2 GLASSES OF WATER. DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCON PERS. INHAL:MOVE TO FRESH AIR IMMED. IF BRTHG IS DFCLT GIVE O*2. (SUPP DATA)

Fire Fighting

Flash Point Method:COC
Flash Point:192F,89C
Lower Limits:0.6%
Upper Limits:6.5%
Extinguishing Media:USE FOG, FOAM OR FINE WATER SPRAY.
Fire Fighting Procedures:WEAR NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT .
Unusual Fire/Explosion Hazard:COMBUSTIBLE LIQUID.

Accidental Release

Spill Release Procedures:REMOVE ALL IGNITION SOURCES. MAXIMIZE VENTILATION. DIKE OR DAM LARGE SPILLS. RECOVER IS POSSIBLE. ADD ABSORBENT MATERIAL TO SOAK UP LIQUID. RINSE SPILL AREA THOROUGHLY WITH WATER.
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

Handling

Handling and Storage Precautions:NONE SPECIFIED BY MANUFACTURER.
Other Precautions:NONE SPECIFIED BY MANUFACTURER.

Exposure Controls

Respiratory Protection:NIOSH/MSHA APPROVED RESPIRATOR APPROPRIATE FOR EXPOSURE OF CONCERN .
Ventilation:NONE SPECIFIED BY MANUFACTURER.
Protective Gloves:RUB GLOVES-PROT CUFF/GAUNTLET TYPE PREF.
Eye Protection:CHEM WORK GOG W/FULL LNGTH FSHLD .
Other Protective Equipment:NONE SPECIFIED BY MANUFACTURER.
Work Hygienic Practices:NONE SPECIFIED BY MANUFACTURER.
Supplemental Safety and Health
CNDTNS TO AVOID:SUCH AS CHLORINE OR OXYGEN. FIRST AID PROC:IF SWALLOWED OR IN CASE OF PERSISTENT EYE OR SKIN IRRITATION, CALL A POISON CONTROL CENTER OR PHYSICIAN IMMEDIATELY.

Chemical Properties

Boiling Pt:B.P. Text:>400F,>204C
Vapor Density:>1
Spec Gravity:0.85-0.87
Evaporation Rate & Reference:Solubility in Water:MODERATE
Appearance and Odor:LIGHT BLUE LIQUID WITH LEMON FRAGRANCE

Stability

Stability Indicator/Materials to Avoid:YES
NONE SPECIFIED BY MANUFACTURER.

Stability Condition to Avoid:KEEP AWAY FROM OPEN FLAME OR OTHER IGNIT SOURCES. DO NOT MIX W/ANYTHING BUT WATER. DO NOT STORE NEAR OXIDIZERS (SUPDAT)
Hazardous Decomposition Products:NONE SPECIFIED BY MANUFACTURER.

Disposal

Waste Disposal Methods:CONSULT STATE AND LOCAL AUTHORITIES FOR RESTRICTIONS ON DISPOSAL OF CHEMICAL WASTE.

Material Safety Data Sheet

FLUFF 2000

1. Product and company identification

Trade name of product : FLUFF 2000

Product use : Laundry detergent

Product dilution information : Not applicable

Supplier's information : Ecolab Co.
5105 Tomken Road
Mississauga ON L4W 2X5
1-800-352-5326

Code : 903337

Date of issue : **21-January-2014**

EMERGENCY HEALTH INFORMATION: 1-800-328-0026
Outside United States and Canada CALL 1-651-222-5352 (in USA)

2. Hazards identification

Product AS SOLD

Physical state : Liquid.

Emergency overview : DANGER !

CAUSES EYE BURNS.
CAUSES SKIN IRRITATION.

Do not get in eyes. Avoid contact with skin and clothing. Wash thoroughly after handling.

Routes of entry : Skin contact, Eye contact, Inhalation, Ingestion

Product AT USE DILUTION
Product is sold ready to use.

Potential acute health effects

Product AS SOLD

Eyes : Corrosive to eyes.

Skin : Severely irritating to the skin.

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Product AT USE DILUTION
Product is sold ready to use.

See toxicological information (Section 11)

3. Composition/information on ingredients

Product AS SOLD

Name	CAS number	% by weight
alcohols, c12-16, ethoxylated	68551-12-2	15 - 40
DISODIUM DISTYRYLBIPHENYL DISULFONATE	27344-41-8	0.1 - 1

Product AT USE DILUTION

Name	CAS number	% by weight
Product is sold ready to use.		

4. First-aid measures

Product AS SOLD

Eye contact : In case of contact, immediately flush eyes with cool running water. Remove contact lenses and continue flushing with plenty of water for at least 15 minutes. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water. Continue to rinse for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation : No special measures required. Treat symptomatically.

Ingestion : Get medical attention if symptoms occur.

Product AT USE DILUTION

Product is sold ready to use.

5. Fire-fighting measures

Product AS SOLD

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Hazardous thermal decomposition products : No specific data.

Special remarks on fire hazards : Not available.

Special remarks on explosion hazards : Not available.

Fire-fighting media and instructions : Use an extinguishing agent suitable for the surrounding fire.

Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

In a fire or if heated, a pressure increase will occur and the container may burst.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Product AS SOLD

Personal precautions : Use personal protective equipment as required.

Environmental precautions : Avoid contact of spilt material and runoff with soil and surface waterways.

Methods for cleaning up : Use a water rinse for final clean-up.

Product AT USE DILUTION

Product is sold ready to use.

7. Handling and storage

Product AS SOLD

Handling : Do not get in eyes. Avoid contact with skin and clothing. Wash thoroughly after handling.

Storage : Keep out of reach of children. Store in a closed container. Keep container tightly closed.

Store between the following temperatures: 0 and 50°C

Product AT USE DILUTION

Product is sold ready to use.

8. Exposure controls/personal protection

	Product AS SOLD	Product AT USE DILUTION
Engineering measures	: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.	Product is sold ready to use.
Personal protection		
Eyes	: Use chemical splash goggles. For continued or severe exposure wear a face shield over the goggles.	Product is sold ready to use.
Hands	: For prolonged or repeated handling, use the following type of gloves: Impervious gloves.	
Skin	: No protective equipment is needed under normal use conditions.	
Respiratory	: No special protection is required.	

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	**List name**	**ppm**	**mg/m³**	**Other**	**ppm**	**mg/m³**	**Other**	**ppm**	**mg/m³**	**Other**	**Notations**
No exposure limit value known.											

Consult local authorities for acceptable exposure limits.

9. Physical and chemical properties

	Product AS SOLD	Product AT USE DILUTION
Physical state	: Liquid.	Product is sold ready to use.
Flash point	: > 100°C Product does not support combustion.	
Colour	: Blue.	
Odour	: Faint odour	
pH	: 5.5 to 9 [Conc. (% w/w): 100%]	
Boiling/ condensation point	: >100°C (>212°F)	
Melting/freezing point	: Not available.	
Relative density	: 1.013 to 1.027	
Vapour pressure	: Not available.	
Vapour density	: Not available.	
Odour threshold	: Not available.	
Evaporation rate	: Not available.	
Viscosity	: Dynamic (room temperature): 65 mPa·s (65 cP) Kinematic (room temperature): 0.6384021 cm^2/s (63.84021 cSt)	
Dispersibility properties	: Not available.	
Solubility	: Easily soluble in the following materials: hot water. Soluble in the following materials: cold water.	
LogK_{ow}	: Not available.	

10. Stability and reactivity

Product AS SOLD

Stability : The product is stable. Under normal conditions of storage and use, hazardous polymerisation will not occur.

Conditions of instability : Not available.

Reactivity : Not available.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerisation : Under normal conditions of storage and use, hazardous polymerisation will not occur.

11. Toxicological information

Potential acute health effects

Product AS SOLD

Eyes : Corrosive to eyes.

Skin : Severely irritating to the skin.

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Product AT USE DILUTION

Product is sold ready to use.

Product AS SOLD

Potential chronic health effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenic effects : No known significant effects or critical hazards.

Reproductive effects : No known significant effects or critical hazards.

Sensitization to Product : No known significant effects or critical hazards.

Synergistic products (toxicologically) : Not available.

Toxicity data

Product/ingredient name	Test	Route	Result	Species
disodium 4,4'-bis(2-sulfostyryl)biphenyl	LD50	Dermal	>2000 mg/kg	Rat
	LD50	Oral	>2000 mg/kg	Rat
	LC50	Inhalation	3.92 mg/l	Rat
alcohols, c12-16, ethoxylated	LD50	Dermal	>2000 mg/kg	Rabbit
	LD50	Oral	1100 mg/kg	Rat

Other adverse effects

Target organs : Not available.

12. Ecological information

Ecotoxicity : Not reported

13. Disposal considerations

Product AS SOLD

Waste disposal : Avoid disposal. Attempt to use product completely in accordance with intended use. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Product AT USE DILUTION

Product is sold ready to use.

14. Transport information

Certain shipping modes or package sizes may have exceptions from the transport regulations. The classification provided may not reflect those exceptions and may not apply to all shipping modes or package sizes.

Product AS SOLD

TDG

TDG Classification	**Not regulated.**

IMO/IMDG

IMO/IMDG Classification	UN3082
IMO/IMDG Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Alcohol, C12-C16 poly (1-6) ethoxylate), marine polluant
Class	9
Packing group	III

For transport in bulk, see shipping documents for specific transportation information.

15. Regulatory information

	Product AS SOLD	**Product AT USE DILUTION**
WHMIS	: Class E: Corrosive material	Product is sold ready to use.

Canada inventory : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

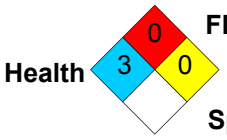
16. Other information

Product AS SOLD

Hazardous Material Information System (U.S.A.) :

Health	3
Flammability	0
Physical hazards	0

National Fire Protection Association (U.S.A.) :



Flammability

Health **Instability/Reactivity**

Special

Date of issue : **21-January-2014**

Responsible name : **Regulatory Affairs**
1-800-352-5326

Indicates information that has changed from previously issued version.

Notice to reader

16. Other information

The above information is believed to be correct with respect to the formula used to manufacture the product in the country of origin. As data, standards, and regulations change, and conditions of use and handling are beyond our control, NO WARRANTY, EXPRESS OR IMPLIED, IS MADE AS TO THE COMPLETENESS OR CONTINUING ACCURACY OF THIS INFORMATION.

FiSan® LCS

Version *1.3*
Revision Date 11/22/2006

Print Date 02/20/2008

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	FiSan® LCS
MSDS Number	:	REL_6054
Company	:	OAKITE PRODUCTS INC 675 Central Avenue New Providence, NJ 07974
Telephone	:	+18005264473
Telefax	:	+19084644658
Emergency telephone no	:	CHEMTREC - 800-424-9300

SECTION 2. HAZARDOUS COMPONENTS INFORMATION

Component	CAS-No.	Weight %
Sodium tetraborate pentahydrate	1330-43-4	1.00 - 5.00
Potassium dodecylbenzene sulfonate	27177-77-1	1.00 - 10.00
Trade Secret Registry	735517-5051P	1.00 - 10.00
Trade Secret Registry	735517-5046P	1.00 - 5.00

Unidentified ingredients are considered not hazardous under Federal Hazard Communication Standard (29CFR 1910.1200).

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	liquid
Colour	:	yellow
Odour	:	mild
Hazard Summary	:	Harmful by inhalation and if swallowed.Repeated or prolonged exposure may cause irritation of eyes and skin.

Route(s) of Entry :	Inhalation	Skin	Ingestion
	yes	yes	yes

Carcinogenicity:

NTP	No substance in this product is listed by NTP as a carcinogen
IARC	No substance in this product is listed by IARC as a carcinogen
OSHA	No substance in this product is regulated by OSHA as a carcinogen

SECTION 4. FIRST AID MEASURES

Inhalation	:	Remove person to fresh air. If signs/symptoms continue, get medical attention.
Skin contact	:	Flush skin with large amounts of water. If irritation develops and persists, get medical attention.
Eye contact	:	Rinse immediately with plenty of water for at least 15 minutesKeep eye wide open while rinsingSeek medical advice.
Ingestion	:	Rinse mouthDrink plenty of water.Obtain medical attention.

SECTION 5. FIRE-FIGHTING MEASURES

Flash point	:	Note: does not flash
Lower explosion limit	:	Note: Not applicable.
Upper explosion limit	:	Note: Not applicable.
TDG Flammability Class	:	NONE
Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Methods for cleaning up	:	Soak up with inert absorbent material. Neutralise with acid. Keep in suitable, closed containers for disposal.
Additional advice	:	Never return spills in original containers for re-use.

SECTION 7. HANDLING AND STORAGE

Storage

Requirements for storage areas and containers	:	Keep containers tightly closed to avoid contamination Store indoors in a cool, well-ventilated place

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	ACGIH TLV	OSHA PEL

	(TWA)	(TWA)
Sodium tetraborate pentahydrate	1 mg/m3 N.D.	N.D.
Potassium dodecylbenzene sulfonate	N.D.	N.D.
Trade Secret Registry	N.D.	N.D.
Trade Secret Registry	N.D.	N.D.

Eye protection : safety glasses

Hand protection : impervious gloves

Skin and body protection : rubber or plastic apron

Respiratory protection : No personal respiratory protective equipment normally required.
In case of insufficient ventilation wear suitable respiratory equipment.

Hygiene measures : Avoid contact with skin, eyes and clothing
Wear suitable gloves and eye/face protection
Wear suitable protective clothing
Wash hands before breaks and immediately after handling the product
Provide adequate ventilation
Do not inhale fumes
Keep away from food and drink

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

pH : 10.0
Note: +/- 0.5

Melting point/range : Note: no data available

Boiling point/range : Note: no data available

Vapour pressure : Note: no data available

Bulk density : 8.5 lb/gal

Water solubility : Note: completely soluble

Partition coefficient (n-octanol/water) :
Note: no data available

Percent of Volatile by Weight excluding water : Note: no data available

Relative density	:	1.023
Evaporation rate	:	1 Note: Water = 1

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	:	freezing
Materials to avoid	:	strong acids,
Hazardous decomposition products	:	sulphur oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity:	:	Mixture; Not Determined.

SECTION 12. ECOLOGICAL INFORMATION

Not Available

SECTION 13. DISPOSAL CONSIDERATIONS

Advice on Disposal	:	Refer to applicable local, state and federal regulations as well as industry standards.

SECTION 14. TRANSPORT INFORMATION

Refer to Bill of Lading.

SECTION 15. REGULATORY INFORMATION

TSCA Status	:	All components of this material are on the US TSCA Inventory.
SARA 313 Components	:	N.D.
CERCLA Reportable Quantity	:	N.D.
California Prop. 65	:	N.D

NFPA	:	1 0 0
HMIS	:	1 0 0 I
WHMIS	:	D2B: Toxic Material Causing Other Toxic Effects

SECTION 16. OTHER INFORMATION

Further information

Oakite Products, Inc. warrants that the products described herein will conform with its published specifications. The products supplied by Oakite and information related to them are intended for use by buyers having necessary industrial skill and knowledge. Buyers should undertake sufficient verification and testing to determine the suitability of the Oakite materials for their own particular purpose. Since buyer's conditions of use of products are beyond Oakite's control, Oakite does not warrant any recommendations and information for the use of such products. OAKITE DISCLAIMS ALL OTHER WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE IN CONNECTION WITH THE USE OF ITS PRODUCTS.

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Product Information Sheet

Fatsolve VF21

High Performance Foam Cleaner, Soft Metal Safe

Diverclean™

Description
Fatsolve is an alkaline foam detergent for use in the food, beverage and allied industries and in pharmaceutical or cosmetic manufacturing areas.

Key Properties
Balanced blend of anionic and non-ionic surfactants in alkaline solution.
Removes oils , fats and grease of vegetable and animal origin
Can be used with all types of foam application equipment e.g. high pressure washers, steam cleaners, floor scrubbing machines and via mobile and ring main foaming systems.

Benefits

- Effective against oils, fats and grease.
- Retentive foam properties
- Suitable for use on most surfaces found in food/ beverage processing
- Can be used on aluminium with care as directed

Use instructions
For daily routine cleaning 1 –2% v/v up to 60°C contact time 10-15 mins, with brushing, followed by rinsing in clean water.
Foam applications 3 –5% v/v.
For heavy duty residues requiring repeat treatments up to 10% v/v concentration may be required.

Technical data

Appearance:	Clear pale yellow liquid
Relative Density at 20ºC:	1.10
pH (1%v/v solution)	11

Safe handling and storage information
Store in original closed containers, away from extremes of temperatures. Full guidance on the handling and disposal of this product is provided in a separate Material Safety Data Sheet.

Product Compatibility
Fatsolve is compatible with most materials commonly found in the food , beverage and Pharmaceutical industries. Use on aluminium with care as directed. In the event of uncertainty it is advisable to evaluate individual materials before use.

Test Method

Reagents	0.1M Hydrochloric acid Phenolphthalein indicator
Procedure	Take 100 ml of test solution and add 2 –3 drops indicator Titrate with acid to colourless end point %v/v Fatsolve = titre x 0.0885

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SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006

FATSOLVE VF21

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Name: Fatsolve
Professional cleaning/maintenance product for food & beverage industries
Product Code: MSDS6882
Supplier: Hugh Crane (Cleaning Equipment) Ltd.
South Walsham Road, Acle,
Norwich, NR13 3ES
Telephone Number: Tel (01493) 750072 Fax (01493) 751854
Emergency Telephone Number: For medical or environmental emergency only: call 0800 052 0185

Relevant Identified Uses Of The Substance Or Mixture And Uses Advised Against

Identified uses: For industrial use only.
AISE-P806 - Foam cleaner. Semi-automatic with venting process
AISE-P807 - Foam cleaner. Semi-automatic without venting process
Soaking bath. Manual process (AISE_CS_I01 & AISE_CS_I10)
Uses advised against: Uses other than those identified are not recommended

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture: The product has been classified and labelled in accordance with Directive 1999/45/EC and corresponding national legislation.

Indication of danger C - Corrosive
Risk phrases: R35 - Causes severe burns.
Label elements: C - Corrosive

Contains: Sodium hydroxide,disodium metasilicate
Risk phrases: R35 Causes severe burns.
Safety phrases:
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28a After contact with skin, wash immediately with plenty of water.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S36 Wear suitable protective clothing
S37 Wear suitable protective gloves
S39 Wear suitable eye/face protection.
Other hazards: No other hazards known. The product does not meet the criteria for PBT or vPvB in accordance with Regulation (EC) No 1907/2006, Annex XIII.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures

Ingredients	EC No.	CAS No,	REACH No.	Classification	Classification EC 1272/2008	Notes	Weight %
Sodium Alkylbenzenesulphonate	285-600-2	85117-50-6	[1]	Xn;R22 Xi;R38-41	Eye Dam. 1 (H318) Acute Tox. 4 (H302) Skin Irrit. 2 (H315)		10-20
Sodium Cumenesulphonate	248-983-7	28348-53-0	01-2119489411-37	Xi;R36	Eye Irrit. 2 (H319)		3-10
Isotridecanol, Ethoxylated	Polymer*	69011-36-5	[4]	Xn;R22 Xi;R41	Eye Dam. 1 (H318) Acute Tox. 4 (H302)		3-10
Tetrasodium Ethylene Diamine Tetraacetate	200-573-9	64-02-8	01-2119486762-27	Xn;R20/22 Xi;R41	Eye Dam. 1 (H318) Acute Tox. 4 (H302) Acute Tox. 4 (H332) Met. Corr. 1 (H290)		1-3
Sodium Hydroxide	215-185-5	1310-73-2	01-2119457892-27	C: R35	Skin Corr A1 (H314) Met Corr 1 (H290)		1-3
Disodium Metasilicate	229-912-9	6834-92-0	[1]	C;R34 Xi;R37	Skin Corr A1 (H314) Met Corr 1 (H290) STOT SE 3 (H335)		1-3

** Polymer. For the full text of the R, H and EUH phrases mentioned in this Section, see Section 16.*
Workplace exposure limit(s), if available, are listed in subsection 8.1.
[1] Exempted: ionic mixture. See Regulation (EC) No 1907/2006, Annex V, paragraph 3 and 4. This salt is potentially present, based on calculation, and included for classification and labelling purposes only. Each starting material of the ionic mixture is registered, as required.
[2] Exempted: included in Annex IV of Regulation (EC) No 1907/2006. [3] Exempted: Annex V of Regulation (EC) No 1907/2006.
[4] Exempted: polymer. See Article 2(9) of Regulation (EC) No 1907/2006.

4. FIRST AID MEASURES

Description of first aid measures

General Information: If unconscious place in recovery position and seek medical advice.
Inhalation: Remove from source of exposure. Get medical attention immediately.
Skin contact: Immediately wash off with plenty of water. Take off all contaminated clothing immediately. Get medical attention.
Eye contact: Wash off immediately with plenty of water. Get medical attention immediately.
Ingestion: Remove material from mouth. Immediately drink 1-2 glasses of water or milk. Get medical attention immediately.
Self-protection of first aider: Consider personal protective equipment as indicated in subsection 8.2.

Most Important Symptoms And Effects, Both Acute And Delayed

Inhalation: Severe irritant, may cause respiratory tract irritation.
Skin contact: Causes severe burns.
Eye contact: Causes severe or permanent damage.
Ingestion: Causes severe burns. Ingestion will lead to a strong caustic effect on mouth and throat and to the danger of perforation of oesophagus and stomach.
Sensitisation: No known effects.

Indication Of Any Immediate Medical Attention And Special Treatment Needed

No information available on clinical testing and medical monitoring. Specific toxicological information on substances, if available, can be found in section 11.

5. FIRE FIGHTING MEASURES

Extinguishing media: Carbon dioxide. Dry powder. Water spray jet. Fight larger fires with water spray jet or alcohol-resistant foam.
Special hazards arising from the substance or mixture: No special hazards known.
Advice for firefighters: As in any fire, wear self contained breathing apparatus and suitable protective clothing including gloves and eye/face protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective Eqpt & and emergency procedures: Wear suitable protective clothing, gloves and eye/face protection.
Environmental precautions: Do not allow to enter drainage system, surface or ground water. Dilute with plenty of water.
Methods and material for containment and cleaning up: Use neutralising agent. Absorb onto dry sand or similar inert material.
Reference to other sections: For personal protective equipment see subsection 8.2. For disposal considerations see section 13.

7. HANDLING & STORAGE

Precautions For Safe Handling

Advice on safe handling: Handle in accordance with good industrial hygiene and safety practice. Do not mix with other products unless advised by Diversey. For advice on general occupational hygiene and environmental exposure controls see section 8. For incompatible materials see section 10.
Prevention of fire and explosion: No special precautions required.

Conditions For Safe Storage, Including Any Incompatibilities

Requirements for storage rooms / facilities: In accordance with local and national regulations.
Combined storage in storage rooms / facilities: In accordance with local and national regulations. For incompatible materials see section 10.
Basic storage conditions: Store in original container. Keep container tightly closed. For conditions to avoid see section 10.
Specific end use(s): No specific advice for end use available.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control parameters

Workplace exposure limits

Air limit values, if available:

Ingredient(s)	UK Long Term Values	UK Short Term Values
sodium hydroxide		2 mg/m^3

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Biological limit values, if available:
Recommended monitoring procedures, if available:
Additional exposure limits under the conditions of use, if available:

DNEL/DMEL and PNEC values

Human exposure

DNEL oral exposure - Consumer (mg/kg bw)

Ingredient(s)	Short term – Local effects	Short term – Systemic effects	Long term – Local effects	Long term – Systemic effects
Sodium Alkylbenzenesulphonate	No data available	No data available	No data available	No data available
Sodium Cumenesulphonate	No data available	No data available	No data available	No data available
Isotridecanol, Ethoxylated	No data available	No data available	No data available	No data available
Tetrasodium Ethylene Diamine Tetraacetate	No data available	No data available	No data available	25
Sodium Hydroxide	No data available	No data available	No data available	No data available
Disodium Metasilicate	No data available	No data available	No data available	No data available

DNEL dermal exposure - Worker

Ingredient(s)	Short term – Local effects	Short term – Systemic effects (mg/kg bw)	Long term – Local effects	Long term – Systemic effects (mg/kg bw)
Sodium Alkylbenzenesulphonate	No data available	No data available	No data available	No data available
Sodium Cumenesulphonate	No data available	No data available	No data available	No data available
Isotridecanol, Ethoxylated	No data available	No data available	No data available	No data available
Tetrasodium Ethylene Diamine Tetraacetate	No data available	No data available	No data available	No data available
Sodium Hydroxide	2%	No data available	No data available	No data available
Disodium Metasilicate	No data available	No data available	No data available	No data available

DNEL dermal exposure - Consumer

Ingredient(s)	Short term – Local effects	Short term – Systemic effects (mg/kg bw)	Long term – Local effects	Long term – Systemic effects (mg/kg bw)
Sodium Alkylbenzenesulphonate	No data available	No data available	No data available	No data available
Sodium Cumenesulphonate	No data available	No data available	No data available	No data available
Isotridecanol, Ethoxylated	No data available	No data available	No data available	No data available
Tetrasodium Ethylene Diamine Tetraacetate	No data available	No data available	No data available	No data available
Sodium Hydroxide	2%	No data available	No data available	No data available
Disodium Metasilicate	No data available	No data available	No data available	No data available

DNEL inhalatory exposure - Worker (mg/m^3)

Ingredient(s)	Short term – Local effects	Short term – Systemic effects	Long term – Local effects	Long term – Systemic effects
Sodium Alkylbenzenesulphonate	No data available	No data available	No data available	No data available
Sodium Cumenesulphonate	No data available	No data available	No data available	No data available
Isotridecanol, Ethoxylated	No data available	No data available	No data available	No data available
Tetrasodium Ethylene Diamine Tetraacetate	2.5	2.5	No data available	No data available
Sodium Hydroxide	No data available	No data available	1	No data available
Disodium Metasilicate	No data available	No data available	No data available	No data available

DNEL inhalatory exposure - Consumer (mg/m^3)

Ingredient(s)	Short term – Local effects	Short term – Systemic effects	Long term – Local effects	Long term – Systemic effects
Sodium Alkylbenzenesulphonate	No data available	No data available	No data available	No data available
Sodium Cumenesulphonate	No data available	No data available	No data available	No data available
Isotridecanol, Ethoxylated	No data available	No data available	No data available	No data available
Tetrasodium Ethylene Diamine Tetraacetate	1.5	1.5	No data available	No data available
Sodium Hydroxide	No data available	No data available	1	No data available
Disodium Metasilicate	No data available	No data available	No data available	No data available

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Environmental exposure

Environmental exposure – PNEC

Ingredient(s)	Surface water, fresh (mg/l)	Surface water, marine (mg/l)	Intermittent (mg/l)	Sewage treatment plant (mg/l)
Sodium Alkylbenzenesulphonate	No data available	No data available	No data available	No data available
Sodium Cumenesulphonate	No data available	No data available	No data available	No data available
Isotridecanol, Ethoxylated	No data available	No data available	No data available	No data available
Tetrasodium Ethylene Diamine Tetraacetate	2.2	0.22	1.2	43
Sodium Hydroxide	No data available	No data available	No data available	No data available
Disodium Metasilicate	No data available	No data available	No data available	No data available

Environmental exposure - PNEC, continued

Ingredient(s)	Sediment, freshwater (mg/kg)	Sediment, marine (mg/kg)	Soil (mg/kg)	Air (mg/m^3)
Sodium Alkylbenzenesulphonate	No data available	No data available	No data available	No data available
Sodium Cumenesulphonate	No data available	No data available	No data available	No data available
Isotridecanol, Ethoxylated	No data available	No data available	No data available	No data available
Tetrasodium Ethylene Diamine Tetraacetate	No data available	No data available	0.72	No data available
Sodium Hydroxide	No data available	No data available	No data available	No data available
Disodium Metasilicate	No data available	No data available	No data available	No data available

Exposure Controls

General health and safety measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Take off immediately all contaminated clothing. Wash hands before breaks and at the end of workday. Avoid contact with skin and eyes.

The following information applies for the uses indicated in subsection 1.
If available, please refer to the product information sheet for application and handling instructions.
Normal use conditions are assumed for this section.
Recommended safety measures for handling the **undiluted** *product:*

Appropriate engineering controls: If the product is diluted by using specific dosing systems with no risk of splashes or direct Skin contact, the personal protection equipment as described in this section is not required.

Appropriate organisational controls: Avoid direct contact and/or splashes where possible. Train personnel.

Personal Protective Equipment

Eye / face protection: Safety glasses or goggles (EN 166).

Hand protection: Chemical-resistant protective gloves (EN 374). Verify instructions regarding permeability and breakthrough time, as provided by the gloves supplier. Consider specific local use conditions, such as risk of splashes, cuts, contact time and temperature.

Suggested gloves for prolonged contact: Material: butyl rubber
Penetration time: >= 480 min
Material thickness: >= 0.7 mm

Suggested gloves for protection against splashes: Material: nitrile rubber
Penetration time: >= 30 min
Material thickness: >= 0.4 mm

In consultation with the supplier of protective gloves a different type providing similar protection may be chosen.

Body protection: Wear chemical-resistant clothing and boots in case direct dermal exposure and/or splashes may occur.

Respiratory protection: No special requirements under normal use conditions.

Environmental exposure controls: Should not reach sewage water or drainage ditch undiluted or unneutralised.

Recommended safety measures for handling the **diluted** *product:*

Recommended maximum concentration (%): 10

Appropriate engineering controls: Ensure that foam equipment does not generate respirable particles.

Appropriate organisational controls: No special requirements under normal use conditions.

Personal protective equipment .

Eye / face protection: No special requirements under normal use conditions.

Hand protection: No special requirements under normal use conditions.

Body protection: No special requirements under normal use conditions.

Respiratory protection: No special requirements under normal use conditions.

Environmental exposure controls: No special requirements under normal use conditions.

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Website: www.hughcrane.co.uk

9. PHYSICAL & CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Information in this section refers to the product, unless it is specifically stated that substance data is listed

Physical State: Liquid
Colour: Clear, Yellow
Odour: Product specific
Odour threshold: Not applicable
pH: > 12 (neat)
Melting point/freezing point (°C): Not determined
Initial boiling point and boiling range (°C): Not determined

Substance Data, Boiling Point

Ingredient(s)	Value (ºC)	Method	Atmospheric Pressure (hPa)
Sodium Alkylbenzenesulphonate	No data available		
Sodium Cumenesulphonate	>100	Method not given	
Isotridecanol, Ethoxylated	No data available		
Tetrasodium Ethylene Diamine Tetraacetate	100	Method not given	
Sodium Hydroxide	>990	Method not given	1013
Disodium Metasilicate	No data available		

Flash point (°C): Not applicable.
Sustained combustion: Not determined
Evaporation rate: Not determined
Flammability (solid, gas): Not determined
Upper/lower flammability limit (%): Not determined

Substance data, flammability or explosive limits, if available

Vapour pressure: Not determined

Substance data, vapour pressure

Ingredient(s)	Value (Pa)	Method	Temperature (ºC)
Sodium Alkylbenzenesulphonate	No data available		
Sodium Cumenesulphonate	No data available		
Isotridecanol, Ethoxylated	No data available		
Tetrasodium Ethylene Diamine Tetraacetate	600	Method not given	20
Sodium Hydroxide	<1330	Method not given	20
Disodium Metasilicate	No data available		

Vapour Density: Not determined
Relative Density: 1.08 g/cm3 (20ºC)
Solubility in / Miscibility with Water: Fully miscible

Substance data, solubility in water

Ingredient(s)	Value (g/l)	Method	Temperature (ºC)
Sodium Alkylbenzenesulphonate	No data available		
Sodium Cumenesulphonate	Soluble		
Isotridecanol, Ethoxylated	Soluble	Method not given	20
Tetrasodium Ethylene Diamine Tetraacetate	500	Method not given	20
Sodium Hydroxide	1000	Method not given	20
Disodium Metasilicate	No data available		

Autoignition Temperature: Not determined.
Decomposition Temperature: Not determined.
Viscosity: Not determined.
Explosive Properties: Not explosive.
Oxidising properties: Not oxidising.

Other information

Surface Tension (N/m): Not determined.
Corrosion To Metals: Not determined
(According to IMDG/ADR Regulations)

Substance Data, Dissociation Constant, if available.

10. STABILITY & REACTIVITY

Reactivity: No reactivity hazards known under normal storage and use conditions.
Chemical stability: Stable under normal storage and use conditions.
Possibility of hazardous reactions: No hazardous reactions known under normal storage and use conditions.
Conditions to avoid: None known under normal storage and use conditions.

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Incompatible materials: Reacts with acids.
Hazardous decomposition products: None known under normal storage and use conditions.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Mixtures

No test data is available on the mixture
Substance data, where relevant and available, are listed below.

Acute toxicity

Acute oral toxicity

Ingredients	Endpoint	Value (mg/kg)	Species	Method	Exposure Time
Sodium Alkylbenzenesulphonate		No data available			
Sodium Cumenesulphonate	LD_{50}	>7000	Rat	Method not given	
Isotridecanol, Ethoxylated	LD_{50}	>2000	Rat	OECD 423 (EU B.1 tris)	
Tetrasodium Ethylene Diamine Tetraacetate	LD_{50}	>=1780	Rat	Non guideline test	
Sodium Hydroxide		No data available			
Disodium Metasilicate		No data available			

Acute dermal toxicity

Ingredients	Endpoint	Value (mg/kg)	Species	Method	Exposure Time
Sodium Alkylbenzenesulphonate		No data available			
Sodium Cumenesulphonate	LD_{50}	>2000	Rabbit	Method not given	
Isotridecanol, Ethoxylated		No data available			
Tetrasodium Ethylene Diamine Tetraacetate	LD_{50}	>5000	Rabbit	Method not given	
Sodium Hydroxide		No data available			
Disodium Metasilicate		No data available			

Acute inhalative toxicity

Ingredients	Endpoint	Value (mg/l)	Species	Method	Exposure Time
Sodium Alkylbenzenesulphonate		No data available			
Sodium Cumenesulphonate	LC_{50}	>770	Rath	Method not given	4 hrs
Isotridecanol, Ethoxylated		No data available			
Tetrasodium Ethylene Diamine Tetraacetate	LC_{50}	>=1	Rat	OECD 403 (EU B.2)	6 hrs
Sodium Hydroxide		No data available			
Disodium Metasilicate		No data available			

Irritation and corrosivity

Skin irritation and corrosivity

Ingredients	Result	Species	Method	Exposure Time
Sodium Alkylbenzenesulphonate	No data available			
Sodium Cumenesulphonate	No data available			
Isotridecanol, Ethoxylated	Not Irritant	Rabbit	OECD 404 (EU B.4)	
Tetrasodium Ethylene Diamine Tetraacetate	Not irritant	Rabbit	Non guideline test	
Sodium Hydroxide	Corrosive	Rabbit	Method not given	
Disodium Metasilicate	No data available			

Eye irritation and corrosivity

Ingredients	Result	Species	Method	Exposure Time
Sodium Alkylbenzenesulphonate	No data available			
Sodium Cumenesulphonate	Irritant		Method not given	
Isotridecanol, Ethoxylated	Severe damage	Rabbit	OECD 405 (EU B.5)	
Tetrasodium Ethylene Diamine Tetraacetate	Severe damage		Method not given	
Sodium Hydroxide	Corrosive	Rabbit	Method not given	
Disodium Metasilicate	No data available			

Respiratory tract irritation and corrosivity

Ingredients	Result	Species	Method	Exposure Time
Sodium Alkylbenzenesulphonate	No data available			
Sodium Cumenesulphonate	No data available			
Isotridecanol, Ethoxylated	No data available			
Tetrasodium Ethylene Diamine Tetraacetate	No data available			
Sodium Hydroxide	No data available			
Disodium Metasilicate	No data available			

Sensitisation

Sensitisation by skin contact

Ingredients	Result	Species	Method	Exposure Time
Sodium Alkylbenzenesulphonate	No data available			
Sodium Cumenesulphonate	Not sensitising	Guinea Pig	OECD 406 (EU B.6) / GPMT	
Isotridecanol, Ethoxylated	No data available			
Tetrasodium Ethylene Diamine Tetraacetate	Not sensitising	Guinea Pig	OECD 406 (EU B.6) / GPMT	OECD 406 (EU B.6) / GPMT
Sodium Hydroxide	Not sensitising		Human repeated patch test	
Disodium Metasilicate	No data available			

Sensitisation by inhalation

Ingredients	Result	Species	Method	Exposure Time
Sodium Alkylbenzenesulphonate	No data available			
Sodium Cumenesulphonate	No data available			
Isotridecanol, Ethoxylated	No data available			
Tetrasodium Ethylene Diamine Tetraacetate	No data available			
Sodium Hydroxide	No data available			
Disodium Metasilicate	No data available			

Repeated dose toxicity

Sub-acute or sub-chronic oral toxicity

Ingredient(s)	Endpoint	Value (mg/kg bw/d)	Species	Method	Exposure time (days)	Specific effects & organs affected
Sodium Alkylbenzenesulphonate		No data available				
Sodium Cumenesulphonate	NOAEL	763-3534		OECD 408 (EU B.26)	90	
Isotridecanol, Ethoxylated		No data available				
Tetrasodium Ethylene Diamine Tetraacetate		No data available				
Sodium Hydroxide		No data available				
Disodium Metasilicate		No data available				

Sub-chronic dermal toxicity

Ingredient(s)	Endpoint	Value (mg/kg bw/d)	Species	Method	Exposure time (days)	Specific effects & organs affected
Sodium Alkylbenzenesulphonate		No data available				
Sodium Cumenesulphonate	NOAEL	440	Mouse	Method not given	90	
Isotridecanol, Ethoxylated		No data available				
Tetrasodium Ethylene Diamine Tetraacetate		No data available				
Sodium Hydroxide		No data available				
Disodium Metasilicate		No data available				

Sub-chronic inhalation toxicity

Ingredient(s)	Endpoint	Value (mg/kg bw/d)	Species	Method	Exposure time (days)	Specific effects & organs affected
Sodium Alkylbenzenesulphonate		No data available				
Sodium Cumenesulphonate		No data available				
Isotridecanol, Ethoxylated		No data available				
Tetrasodium Ethylene Diamine Tetraacetate		No data available				
Sodium Hydroxide		No data available				
Disodium Metasilicate		No data available				

Chronic toxicity

Ingredient(s)	Exposure route	End point	Value (mg/kg bw/d)	Species	Method	Exposure time	Specific effects & organs affected	Remark
Sodium Alkylbenzenesulphonate			No data available					
Sodium Cumenesulphonate	NOAEL		727	Mouse	Method not given	24 months		
Isotridecanol, Ethoxylated			No data available					
Tetrasodium Ethylene Diamine Tetraacetate								
Sodium Hydroxide			No data available					
Disodium Metasilicate			No data available					

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Mixture data:
Based on available data, the classification criteria are not met.
Substance data, where relevant and available:

Carcinogenicity
Ingredient(s) Effect

Ingredient(s)	Effect
Sodium Alkylbenzenesulphonate	No data available
Sodium Cumenesulphonate	No evidence for carcinogenicity, negative test results
Isotridecanol, Ethoxylated	No data available
Tetrasodium Ethylene Diamine Tetraacetate	No evidence for carcinogenicity, weight of evidence
Sodium Hydroxide	No evidence for carcinogenicity, weight of evidence
Disodium Metasilicate	No data available

Mutagenicity

Ingredients	Result (in vitro)	Method (in vitro)	Result (in vivo)	Method (in vivo)
Sodium Alkylbenzenesulphonate	No data available		No data available	
Sodium Cumenesulphonate	No evidence for mutagenicity, negative test results	Method not given	No evidence for mutagenicity, negative test results	OECD 474 (EU B.12)
Isotridecanol, Ethoxylated	No data available		No data available	
Tetrasodium Ethylene Diamine Tetraacetate	No evidence for mutagenicity, negative test results	Method not given	No evidence for genotoxicity, negative test results	Method not given
Sodium Hydroxide	No evidence for mutagenicity, negative test results	DNA Repair test on rat hepatocytes OECD 473	No evidence for mutagenicity, negative test results	OECD 474 (EU B.12) OECD 475 (EU B.11)
Disodium Metasilicate	No data available		No data available	

Toxicity for reproduction

Ingredient(s)	End point	Specific effect	Value (mg/kg bw/d)	Species	Method	Exposure Time	Remarks & other effects reported
Sodium Alkylbenzenesulphonate			No data available				
Sodium Cumenesulphonate	NOAEL	Teratogenic Effects	>3000	Rat	Non guideline test		
Isotridecanol, Ethoxylated			No data available				
Tetrasodium Ethylene Diamine Tetraacetate			No data available				No evidence for reproductive toxicity
Sodium Hydroxide			No data available				No evidence for developmental or reproductive toxicity
Disodium Metasilicate			No data available				

Potential adverse health effects and symptoms: Effects and symptoms related to the product, if any, are listed in Section 4.

12. ECOLOGICAL INFORMATION

Toxicity
Mixtures
No test data is available on the mixture.
Substance data, where relevant and available, are listed below

Aquatic short-term toxicity
Aquatic short-term toxicity – fish

Ingredient(s)	Endpoint	Value (mg/l)	Species	Method	Exposure Time (h)
Sodium Alkylbenzenesulphonate		No data available			
Sodium Cumenesulphonate	LC_{50}	>1000	Fish	EPA-OPPTS	96
Isotridecanol, Ethoxylated	LC_{50}	10-100	Leuciscus Idus	Method not given	96
Tetrasodium Ethylene Diamine Tetraacetate	LC_{50}	>100	Lepomis Macrochirus	OPP72-1 Static (EPA)	96
Sodium Hydroxide	LC_{50}	35	Various species	Method not given	96
Disodium Metasilicate		No data available			

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Aquatic short-term toxicity – crustacea

Ingredient(s)	Endpoint	Value (mg/l)	Species	Method	Exposure Time (h)
Sodium Alkylbenzenesulphonate		No data available			
Sodium Cumenesulphonate	EC_{50}	>1000	Daphnia	EPA-OPPTS	48
Isotridecanol, Ethoxylated	EC_{50}	10-100	Not specified	Method not given	48
Tetrasodium Ethylene Diamine Tetraacetate	EC_{50}	>100	Daphnia magna straus	DIN 38412, Part 11	48
Sodium Hydroxide	EC_{50}	40.4	Ceriodaphnia sp.	Method not given	48
Disodium Metasilicate		No data available			

Aquatic short-term toxicity – algae

Ingredient(s)	Endpoint	Value (mg/l)	Species	Method	Exposure Time (h)
Sodium Alkylbenzenesulphonate		No data available			
Sodium Cumenesulphonate	E r C_{50}	310	Not specified		72
Isotridecanol, Ethoxylated	EC_{50}	10-100	Not specified	Method not given	72
Tetrasodium Ethylene Diamine Tetraacetate	EC_{50}	>100	Scenedesmus Obliquus	88/302/EEC, Part C, Static	72
Sodium Hydroxide	EC_{50}	22	Photobacterium phosphoreum	Method not given	0.25
Disodium Metasilicate		No data available			

Aquatic short-term toxicity - marine species

Ingredient(s)	Endpoint	Value (mg/l)	Species	Method	Exposure Time (h)
Sodium Alkylbenzenesulphonate		No data available			
Sodium Cumenesulphonate		No data available			
Isotridecanol, Ethoxylated		No data available			
Tetrasodium Ethylene Diamine Tetraacetate		No data available			
Sodium Hydroxide		No data available			
Disodium Metasilicate		No data available			

Impact on sewage plants - toxicity to bacteria

Ingredient(s)	Endpoint	Value (mg/l)	Inoculum	Method	Exposure Time (h)
Sodium Alkylbenzenesulphonate		No data available			
Sodium Cumenesulphonate	E r C_{50}	>1000	Bacteria	OECD 209	3 hrs
Isotridecanol, Ethoxylated	EC_{10}	>10000	Bacteria	DIN 38412/Part 8	17 hrs
Tetrasodium Ethylene Diamine Tetraacetate	EC_{20}	>500	Activated sludge	OECD 209	0.5 hrs
Sodium Hydroxide		No data available			
Disodium Metasilicate		No data available			

Aquatic long-term toxicity

Aquatic long-term toxicity - fish

Ingredients	Endpoint	Value (mg/l)	Species	Method	Exposure Time	Effects Observed
Sodium Alkylbenzenesulphonate		No data available				
Sodium Cumenesulphonate		No data available				
Isotridecanol, Ethoxylated		No data available				
Tetrasodium Ethylene Diamine Tetraacetate	NOEC	>=36.9	Brachydanio rerio	OECD 210	35 days	
Sodium Hydroxide		No data available				
Disodium Metasilicate		No data available				

Aquatic long-term toxicity – crustacea

Ingredients	End point	Value (mg/l)	Species	Method	Exposure Time	Effects Observed
Sodium Alkylbenzenesulphonate		No data available				
Sodium Cumenesulphonate		No data available				
Isotridecanol, Ethoxylated		No data available				
Tetrasodium Ethylene Diamine Tetraacetate	NOEC	25	Daphnia Magna	OECD 211	21 days	
Sodium Hydroxide		No data available				
Disodium Metasilicate		No data available				

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Aquatic toxicity to other aquatic benthic organisms, including sediment-dwelling organisms, if available:

Ingredients	End point	Value (mg/kg dw sediment)	Species	Method	Exposure Time	Effects Observed
Sodium Alkylbenzenesulphonate		No data available				
Sodium Cumenesulphonate		No data available				
Isotridecanol, Ethoxylated		No data available				
Tetrasodium Ethylene Diamine Tetraacetate		No data available				
Sodium Hydroxide		No data available				
Disodium Metasilicate		No data available				

Terrestrial toxicity

Terrestrial toxicity - soil invertebrates, including earthworms, if available:

Ingredients	End point	Value (mg/l)	Species	Method	Exposure Time	Effects Observed
Tetrasodium Ethylene Diamine Tetraacetate	LD_{50}	156	Eisenia Fetida	OECD 207	14 days	

Terrestrial toxicity - plants, if available:

Ingredients	End point	Value (mg/l)	Species	Method	Exposure Time	Effects Observed
Tetrasodium Ethylene Diamine Tetraacetate	NOEC	0.25 – 1.25			21 days	

Terrestrial toxicity - birds, if available:
Terrestrial toxicity - beneficial insects, if available:
Terrestrial toxicity - soil bacteria, if available:

Persistence And Degradability

Abiotic degradation

Abiotic degradation - photodegradation in air, if available:

Ingredient(s)	Half-life time	Method	Evaluation	Remark
Sodium Hydroxide	13 Seconds	Method not given	Rapidly photodegradable	

Abiotic degradation - hydrolysis, if available:
Abiotic degradation - other processes, if available:

Biodegradation

Ready biodegradability - aerobic conditions

Ingredients	Inoculum	Analytical method	DT_{50}	Method	Evaluation
Sodium Alkylbenzenesulphonate					No data available
Sodium Cumenesulphonate					Not readily biodegradable
Isotridecanol, Ethoxylated		CO_2 Production	>60% in 28 days	OECD 301B	Readily biodegradable
Tetrasodium Ethylene Diamine Tetraacetate					Readily biodegradable
Sodium Hydroxide					Not applicable (inorganic substance)
Disodium Metasilicate					No data available

Ready biodegradability - anaerobic and marine conditions, if available:

Degradation in relevant environmental compartments, if available:

The surfactant(s) contained in this preparation complies(comply) with the biodegradability criteria as laid down in Regulation (EC) No. 648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

Bioaccumulative Potential

Partition coefficient n-octanol/water (log Kow)

Ingredient(s)	Value	Method	Evaluation	Remark
Sodium Alkylbenzenesulphonate	No data available			
Sodium Cumenesulphonate	-1.1	Method not given	Low Potential for bioaccumulation	
Isotridecanol, Ethoxylated	No data available		No bioaccumulation expected	
Tetrasodium Ethylene Diamine Tetraacetate	-13	Method not given	No bioaccumulation expected	
Sodium Hydroxide	No data available		Not relevant, does not bioaccumulate	
Disodium Metasilicate	No data available			

Bioconcentration factor (BCF)

Ingredients	Value	Species	Method	Evaluation	Remark
Sodium Alkylbenzenesulphonate	No data available				
Sodium Cumenesulphonate	No data available				
Isotridecanol, Ethoxylated	No data available				
Tetrasodium Ethylene Diamine Tetraacetate	1.8	Lepomis macrochirus	Method not given	Low Potential for bioaccumulation	
Sodium Hydroxide	No data available				
Disodium Metasilicate	No data available				

Mobility in soil

Adsorption/Desorption to soil or sediment

Ingredients	Adsorption coefficient Log Koc	Desorption coefficient Log Koc(des)	Method	Soil/sediment type	Evaluation
Sodium Alkylbenzenesulphonate	No data available				
Sodium Cumenesulphonate	No data available				
Isotridecanol, Ethoxylated	No data available				Potential for adsorption to soil.
Tetrasodium Ethylene Diamine Tetraacetate	No data available				Adsorption to solid soil phase is not expected.
Sodium Hydroxide	No data available				Mobile in soil.
Disodium Metasilicate	No data available				

Results of PBT and vPvB assessment: Substances that fulfil the criteria for PBT/vPvB, if any, are listed in section 3.
Other adverse effects: No other adverse effects known.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Waste from residues / unused products: The concentrated contents or contaminated packaging should be disposed of by a certified handler or according to the site permit. Release of waste to sewers is discouraged. The cleaned packaging material is suitable for energy recovery or recycling in line with local legislation.
European Waste Catalogue: 20 01 15* - alkalines.
Empty packaging Recommendation: Dispose of observing national or local regulations.
Suitable cleaning agents: Water, if necessary with cleaning agent.

14. TRANSPORT INFORMATION

ADR, RID, ADN, IMO/IMDG, ICAO/IATA

UN number: 1760
UN proper shipping name: Corrosive liquid, n.o.s. (sodium hydroxide , tetrasodium ethylenediaminetetraacetate)

Transport hazard class(es):
Class: 8
Label(s): 8

Packing group: III

Environmental hazards
Environmentally hazardous: No
Marine pollutant: No

Special precautions for user: None known.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: The product is not transported in bulk tankers.

Other relevant information
ADR
Classification code: C9
Tunnel restriction code: E
Hazard identification number: 80

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IMO/IMDG

EmS: F-A, S-B

The product has been classified, labelled and packaged in accordance with the requirements of ADR and the provisions of the IMDG Code. Transport regulations include special provisions for certain classes of dangerous goods packed in limited quantities.

15. REGULATORY INFORMATION

Safety, Health And Environmental Regulations/Legislation Specific For The Substance Or Mixture

Authorisations or restrictions (Regulation (EC) No 1907/2006, Title VII respectively Title VIII): Not applicable.

Ingredients according to EC Detergents Regulation 648/2004

anionic surfactants 5 - 15%
EDTA and salts thereof, non-ionic surfactants < 5%

Chemical safety assessment: A chemical safety assessment has not been carried out on the mixture

16. OTHER INFORMATION

The information in this document is based on our best present knowledge. However, it does not constitute a guarantee for any specific product features and does not establish a legally binding contract

MSDS code: MSDS6882
Revision Date: 06 February 2014

Reason for revision: Overall design adjusted in accordance with Regulation (EC) No 1907/2006, Annex II

Full text of the R, H and EUH phrases mentioned in section 3:

R20 Harmful by inhalation
R22 Harmful if swallowed
R34 Causes burns.
R35 Causes severe burns.
R36 Irritating to eyes
R37 Irritating to respiratory system.
R38 Irritating to skin.
R41 Risk of serious damage to eyes

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

Abbreviations and acronyms:

AISE - The international Association for Soaps, Detergents and Maintenance Products
DNEL - Derived No Effect Limit
EUH - CLP Specific hazard statement
PBT - Persistent, Bioaccumulative and Toxic
PNEC - Predicted No Effect Concentration
REACH number - REACH registration number, without supplier specific part
vPvB - very Persistent and very Bioaccumulative

End of Safety Data Sheet

MATERIAL SAFETY DATA SHEET

CESCO SOLUTIONS, INC.
CESCO PROTECT 1043

PRODUCT NAME: CESCO PROTECT 1043 HMIS CODES: H F R P
2 0 1 D

========== SECTION I - PRODUCT INFORMATION ==========

PRODUCT NAME: CESCO PROTECT 1043
PRODUCT USE: Wastewater Treatment
WHMIS CLASSIFICATION: E - Corrosive Material

MANUFACTURER'S NAME: CESCO SOLUTIONS, INC.
ADDRESS : 2227 Midway Lane, Bellingham, WA 98226

SUPPLIER'S NAME : CESCO SOLUTIONS, INC.
ADDRESS : 2227 Midway Lane, Bellingham, WA 98226

EMERGENCY PHONE : 1-800-424-9300
INFORMATION PHONE : (360) 733-7478

========== SECTION II - HAZARDOUS INGREDIENTS ==========

REPORTABLE COMPONENTS	CAS NUMBER	VAPOR PRESSURE mm Hg @ TEMP		WEIGHT PERCENT
FERRIC CHLORIDE (43% FeCl3)	7705-08-0	40	104F	90 -100%

.....OSHA PEL-TWA 1 mg/m3 SOLUBLE IRON SALTS (as Fe)
.....ACGIH TLV-TWA 1mg/m3 SOLUBLE IRON SALTS (as Fe)
HYDROCHLORIC ACID CAS NO.7647-01-0 0.5% OSHAPEL 5ppm, 7.5 mg/m3 ceiling
.....ACGIH TLV 5 ppm, 7.5 mg/m3

To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.
The manufacturer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by CESCO SOLUTIONS, INC. as a customer service.

========== SECTION III - PHYSICAL DATA ==========

BOILING RANGE: N/AV
VAPOR DENSITY: N/AV
EVAPORATION RATE: N/AV
COEFFICIENT OF WATER/OIL DIST: N/AV
SOLUBILITY IN WATER: Complete.
SPECIFIC GRAVITY (H2O=1): 1.417
pH: <2 (neat)
FREEZING POINT : N/AV
MATERIAL V.O.C.: N/AV
ODOR THRESHOLD: N/AV
ODOR & APPEARANCE: Red-brown liquid with slight acidic odor.

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

========== SECTION IV - FIRE AND EXPLOSION HAZARD DATA ==========

FLASH POINT:
Non-combustible.

FLASH POINT METHOD:
Not Applicable

FLAMMABLE LIMITS IN AIR BY VOLUME:
LOWER: N/A UPPER: N/A

EXTINGUISHING MEDIA:
Use media appropriate for surrounding material. Use water spray to cool containers exposed to fire from as far a distance as possible.

SPECIAL FIREFIGHTING PROCEDURES:
SCBA recommended with a full face piece operated in pressure-demand mode or other positive pressure mode. Wear full protective clothing. Run-off may cause pollution. Dike to contain run-off for proper handling as stated in Section VII.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Negligible fire hazard when exposed to heat or flame under normal conditions. Fire and explosion hazard may exist when product is in contact with metals due to evolution of hydrogen gas.

FLAMMABILITY - T.D.G.R. CLASS:
Not classified as flammable or combustible

HAZARDOUS COMBUSTION PRODUCTS:
Hydrogen chloride and phosgene.

EXPLOSION DATA - SENSITIVITY TO IMPACT:
No Information

EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE:
No Information

========== SECTION V - REACTIVITY DATA ==========

STABILITY:
Stable under normal temperatures and pressures.

CONDITIONS TO AVOID:
Keep away from metals and high heat.

INCOMPATIBILITY (MATERIALS TO AVOID):
Alkalies. Aluminum, aluminum alloys, carbon steel, copper, copper alloys, alkaline materials and organic compounds including nylon. Material has a moderate oxidizing capability, avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS:
Hydrogen chloride and phosgene.

HAZARDOUS POLYMERIZATION:

Has not been reported to occur. Emits toxic hydrogen chloride fumes when heated to decomposition temperature.

========== SECTION VI - TOXICOLOGICAL PROPERTIES ==========

ROUTES OF ENTRY:
Ingestion, inhalation, skin and eyes.

INHALATION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Inhalation can cause nose, throat and respiratory tract irritation and coughing.

EYE CONTACT HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Eye irritant, may cause redness, burning or tearing.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Mild to moderate skin irritant. May cause some dryness of skin with repeated contact.

INGESTION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Harmful if swallowed.

INHALATION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
There is no data available on the chronic effects of inhaling this material.

EYE CONTACT HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
There is no data available on the chronic effects of eye contact with this material.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
There is no data available on the chronic effects of skin contact with this material.

INGESTION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
There is no data available on the chronic effects of ingestion of this material.

CARCINOGENICITY:
NTP CARCINOGEN: Not known to have any carcinogenic components. IARC MONOGRAPHS: No

TERATOGENICITY:
No Information.

MUTAGENICITY:
No Information.

IRRITANCY:
Corrosive

SENSITIZATION:
No information.

SYNERGISTIC PRODUCTS:
None known.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
N/AV

ADDITIONAL INFORMATION:

TOXOLOGICAL/ECOLOGICAL INFORMATION
Based on Ferric Chloride Solid (anhydrous)

Acute Toxicity:
Oral: LD50/oral/rat: = 450 mg/kg

Mutagenicity: Escherichia coli - 500 nmol/tube: Phage inhibition capacity: Escherichia coli - 41 ng/well.

Reproductive Effects: TDLo Rat 1 day(s) intratesticular 12,976 ug/kg: TDLoRat 1 day(s) intravaginal 29 mg/kg pre pregnancy continuous

Ecotoxicity: TLm Daphnia 15 ppm/96 hour fresh water

Persistence/degradability: Data not available

Bio-accumulation: Data not available

========== SECTION VII - PREVENTIVE MEASURES ==========

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Do not touch spilled material. Stop leak if you can without risk. For SMALL SPILLS pick up spill with vacuum equipment (acid resistant) for disposal, or flush to holding area with water.
For LARGER SPILLS, dike far ahead of spill for later disposal. Keep unnecessary people away from area. Isolate hazard area and deny entry.
Neutralize residues with lime or soda ash and rinse with water. According to 40 CFR 302 Table 302.4 (CERCLA), environmental releases that exceed the RQ must be reported to the National Response Center by calling 1-800-424-8802 (202-426-2675) and the State Emergency Response Commission and the Local Emergency Planning Committee (40 CFR 355.40) as appropriate. The RQ for Ferric Chloride is 1,000 lbs. The RQ for CESCO PROTECT 1043 is 2,325 lbs.

WASTE DISPOSAL METHOD:

Waste acid must never be discharged directly to sewers or surface waters. First convert to neutral salts by covering with soda ash or sodium carbonate. Scoop up slurry and dispose of in accordance with all local, state and federal disposal and discharge laws.

RESOURCE CONSERVATION & RECOVERY ACT (RCRA) REQUIREMENTS:

May be a RCRA regulated hazardous waste upon disposal due to corrosive characteristic. Comply with all Federal, State and local laws and regulations upon disposal.

CLEAN WATER ACT REQUIREMENTS:

Ferric chloride is designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Store in well sealed containers which are protected from physical damage. Avoid handling conditions that can lead to spills or mist formation. Drains must have retention basins for pH adjustment and neutralization of spilled materials and flushings prior to discharge. Have abundant running water available where material is stored, unloaded or handled. Store above the freezing point of water. Avoid contact with incompatible chemicals listed in Section V. DO NOT permit workers to handle ACID solutions without proper training and proper equipment. Bulk storage containers and ancillary fill and feed systems should be constructed out of appropriate materials such as polyethylene, ploypropylene and rubber-lined steel. Storage tanks should be vented to scrubber or atmosphere and should have secondary containment.

OTHER PRECAUTIONS:
N/AV

RESPIRATORY PROTECTION:
Have available and wear as appropriate for exposure limits: NIOSH/MSHA approved respirator. Supplied-air respirator with a full face-piece, helmet or hood: self-contained breathing apparatus with a full face-piece.

ENGINEERING CONTROLS (VENTILATION):
Provide natural or mechanical ventilation to minimize exposure, especially where possibility of mist formation exists. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design exhaust systems.

PROTECTIVE GLOVES:
Employee must wear appropriate protective gloves to prevent contact with this substance.

EYE PROTECTION:
Employee must wear splash proof and/or dust-resistant safety goggles with a full face-shield to prevent eye contact with this substance. DO NOT WEAR CONTACT LENSES.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:
Apron or protective clothing, and rubber boots (tops covered by apron or clothing to prevent entrance of material).

WORK/HYGIENIC PRACTICES:
Where there is any possibility that an employee's eyes may be exposed to this substance, the employer shall provide an eye-wash fountain within the immediate work area for emergency use.

SHIPPING CLASSIFICATIONS:

TDG REGULATION (TRANSPORT DANGEROUS GOODS Schedule 1):
UN 2582, Ferric chloride, Solution, Class 8, PGIII.

U.S.DOT CLASSIFICATION (49 CFR 172.101):
UN 2582, Ferric chloride, Solution, Class 8, PGIII.

U.S. SUPERFUND AMENDMENTS & REAUTHORIZATION ACT (SARA) REQUIREMENTS:

SARA TITLE III (Sections 302 & 304 Extremely Hazardous Substances):
The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, Section 302 requires notification of the State Emergency Response Commission (SERC) and Local Emergency Planning Committee (LEPC) of the presence of Extremely

Hazardous Substances (EHS), 40 CFR 355 Appendix A, in amounts in excess of the threshold planning quantity (TPQ). Extremely Hazardous Substances contained in this product are: ***NONE***. Section 304 requires notification of SERC and LEPC of releases involving a RQ of an EHS or CERCLA Hazardous Substance.
Ferric chloride is considered a CERCLA Hazardous substance with a reportable quantity (RQ) of 2,325 lbs of CESCO Protect 1043.

SARA TITLE III (Sections 311 & 312 Hazardous Chemicals):
This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: An Immediate (Acute) Health Hazard.

SARA TITLE III (Section 313 Toxic Release Inventory):
The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDS's that are copied or distributed for this material. Refer to Section II, HAZARDOUS INGREDIENTS/SARA III INFORMATION, the components that are subject to reporting are designated by an asterix (*).

========== SECTION VIII - FIRST AID MEASURES ==========

INHALATION:
Remove from exposure to mist. If breathing has stopped, provide artificial respiration. Keep the person warm and at rest. OBTAIN IMMEDIATE MEDICAL ATTENTION.

EYE CONTACT:
Wash eyes immediately with plenty of running water for 15-20 minutes, or until no evidence of chemical remains, including under eyelids. Remove any contact lenses at once. Speed in beginning the eye wash is essential if permanent injury is to be avoided. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
Flush contaminated skin with water for 15 minutes, or until no evidence of chemical remains. Remove contaminated clothing under the shower immediately. Prolong washing in serious cases until doctor arrives. GET MEDICAL CARE FOR EVIDENCE OF BURNING. If evidence of chemical burn exists, cover with sterile, dry dressing. Bandage securely, but not too tightly.

INGESTION:
Do not induce vomiting. Drink two glasses of water. Treat symptomatically and supportively. GET MEDICAL ATTENTION IMMEDIATELY. CAUTION: IF UNCONSCIOUS OR HAVING TROUBLE BREATHING OR IN CONVULSIONS, DO NOT INDUCE VOMITING OR GIVE WATER.

========== SECTION IX - PREPARATION INFORMATION ==========

MSDS REVISION DATE: December 20, 2013

NAME OF PREPARER: Environmental, Health & Safety Department.

CONTACT PHONE: (360) 733-7478

DISCLAIMER:

IMPORTANT: The information and data herein is based on available data. Buyer assumes all risk of use, storage and handling of this product in compliance with applicable laws and regulations. CESCO SOLUTIONS, INC., MAKES NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, AND WILL NOT BE LIABLE FOR CLAIMS, RELATING TO THE ACCURACY OF THIS DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

MATERIAL SAFETY DATA SHEET

CESCO SOLUTIONS, INC.
CESCO PF 622CH

PRODUCT NAME: CESCO PF 622CH HMIS CODES: H F R P
1 1 0 B

========== SECTION I - PRODUCT INFORMATION ==========

PRODUCT NAME: CESCO PF 622CH
PRODUCT USE: Flocculant
WHMIS CLASSIFICATION: Not Classified

MANUFACTURER'S NAME: CESCO SOLUTIONS, INC.
ADDRESS : 2227 Midway Lane, Bellingham, WA 98226

SUPPLIER'S NAME : CESCO SOLUTIONS, INC.
ADDRESS : 2227 Midway Lane, Bellingham, WA 98226

EMERGENCY PHONE : 1-800-424-9300
INFORMATION PHONE : (360) 733-7478

========== SECTION II - HAZARDOUS INGREDIENTS ==========

REPORTABLE COMPONENTS	CAS NUMBER	VAPOR PRESSURE mm Hg @ TEMP	WEIGHT PERCENT
********** NO REPORTABLE INGREDIENTS **********			

To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.
The manufacturer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by CESCO SOLUTIONS, INC. as a customer service.

========== SECTION III - PHYSICAL DATA ==========

BOILING RANGE: N/AV
VAPOR DENSITY: N/AV
EVAPORATION RATE: N/AV
COEFFICIENT OF WATER/OIL DIST: N/AV
SOLUBILITY IN WATER: ~5%
SPECIFIC GRAVITY (H2O=1): 1.037
pH: 4 - 7 @ 5g/l.
FREEZING POINT : N/AV
MATERIAL V.O.C.: 26% VOC's
ODOR THRESHOLD: N/AV
ODOR & APPEARANCE: Milk white, opaque viscous liquid with slight organic odor.

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

========== SECTION IV - FIRE AND EXPLOSION HAZARD DATA ==========

FLASH POINT:
>200F

FLASH POINT METHOD:

PMCC

FLAMMABLE LIMITS IN AIR BY VOLUME:
LOWER: N/A UPPER: N/A

EXTINGUISHING MEDIA:
Dry chemical, carbon dioxide or foam. AVOID water - may cause extremely slippery conditions.

SPECIAL FIREFIGHTING PROCEDURES:
Move containers from fire if possible, cool containers exposed to flames with water from side until well after fire is out.

Do not use water directly on material. If large amounts of combustible material are involved, use water spray or fog in flooding amounts. Solid streams may be ineffective. Use water spray to absorb corrosive vapors. Cool containers with flooding amounts of water from as far a distance as possible, keep upwind. SCBA recommended: smother to exclude air. Firefighters should wear self-contained breathing apparatus and bunker gear.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Negligible fire hazard when exposed to heat or flame.

NATIONAL FIRE PROTECTION ASSOCIATION RATINGS (NFPA 704):
HEALTH= 1 FLAMMABILITY= 1 INSTABILITY/REACTIVITY: 0

FLAMMABILITY - T.D.G.R. CLASS:
Not classified as flammable or combustible

HAZARDOUS COMBUSTION PRODUCTS:
Thermal decomposition products expected to produce carbon dioxides, various nitrous oxides and hydrochloric vapors.

EXPLOSION DATA - SENSITIVITY TO IMPACT:
No Information

EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE:
No Information

========== SECTION V - REACTIVITY DATA ==========

STABILITY:
Stable under normal temperatures and pressures.

CONDITIONS TO AVOID:
Under extreme temperatures, evaporation of water in formulation will occur, and may burn but does not ignite readily. AVOID water - may cause extremely slippery conditions.

INCOMPATIBILITY (MATERIALS TO AVOID):
Strong oxidizers, acids and alkalies.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS:
Thermal decomposition products expected to produce carbon dioxides. Various nitrous oxides and hydrochloric vapors.

HAZARDOUS POLYMERIZATION:
Has not been reported to occur.

========== SECTION VI - TOXICOLOGICAL PROPERTIES ==========

ROUTES OF ENTRY:
Ingestion, inhalation, skin and eyes.

INHALATION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Inhalation can cause nose, throat and respiratory tract irritation and coughing.

EYE CONTACT HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Moderate to severe eye irritant.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Mild to moderate skin irritant. May cause some dryness of skin with repeated contact.

INGESTION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Ingestion may cause irritation, nausea and diarrhea. May be irritating to mouth, throat and gastrointestinal system.

INHALATION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
There is no data available on the chronic effects of inhaling this material.

EYE CONTACT HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
There is no data available on the chronic effects of eye contact with this material.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
There is no data available on the chronic effects of skin contact with this material.

INGESTION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
There is no data available on the chronic effects of ingestion of this material.

CARCINOGENICITY:
NTP CARCINOGEN: Not known to have any carcinogenic components. IARC MONOGRAPHS: No

TERATOGENICITY:
No Information.

MUTAGENICITY:
No Information.

IRRITANCY:
Irritant

SENSITIZATION:
No information. May cause iritation with prolonged or repeated contact.

SYNERGISTIC PRODUCTS:
None known.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
None known or reported.

ADDITIONAL INFORMATION:

TOXOLOGICAL INFORMATION

Acute Toxicity:

Oral: LD50/oral/rat: > 5000 mg/kg
Dermal: This product is not toxic in contact with the skin.
Inhalation: This product is not expected to be toxic by inhalation.

Irritation:

Skin: The results obtained using OCED test 404 demonstrated that the product was irritating to the skin.

Eyes: Irritating to the eyes.

Sensitization: The results of testing on guinea pigs showed the material to be non-sensitizing.

Chronic Toxicity: A two-year feeding study on rats did reveal adverse health effects. A one-year feeding study on dogs did not reveal adverse health effects. Prolonged skin contact may defat the skin and produce dermatitis.

Ecotoxicity:
Any aquatic activity is highly mitigated by hydrolysis as well as the presence of dissolved organic carbon and suspended matter present in natural waters. Tests show that the synergistic effect of hydrolysis and irreversible adsorption onto suspended matter and dissolved organics (such as humic and other organic acids) present in natural waters, reduces the toxicity to aquatic organisms by a factor of over 100.

Environmental Fate:
The product has a half-life of less than 12 hours in natural pH environments and so degrades almost totally due to hydrolysis. The degradation products are practically non-toxic to aquatic organisms and present no danger to the natural environment.

Bioaccumulation: This product is not expected to bioaccumulate.

Persistence/Degradability: Inherent biodegradability (Zahn-Wellens test):
80% after 28 days.

========== SECTION VII - PREVENTIVE MEASURES ==========

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Do not touch spilled material. Stop leak if you can without risk. For SMALL SPILLS cover with sand or other absorbent material. With a clean shovel place all spilled material, contaminated soil and other contaminated material into a clean, dry container and cover for later disposal. Move containers from spill area. For LARGER SPILLS, dike far ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry.

WASTE DISPOSAL METHOD:
A non-hazardous liquid waste, it should be solidified with sand, soil or other absorbent material so that no free liquid remains before disposal. Incineration and/or disposal in chemical land-fill. Disposal must comply with all federal,

state and local disposal and discharge laws.

RESOURCE CONSERVATION & RECOVERY ACT (RCRA) REQUIREMENTS:
Not a hazardous waste.

CLEAN WATER ACT REQUIREMENTS:
No information.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Store in well sealed containers which are protected from physical damage. Avoid handling conditions that can lead to spills or mist formation. Drains must have retention basins for pH adjustment and neutralization of spilled materials and flushings prior to discharge. Have abundant running water available where material is stored, unloaded or handled. Store above the freezing point of water.

OTHER PRECAUTIONS:
AVOID WATER - MAY CAUSE EXTREMELY SLIPPERY CONDITIONS. KEEP AWAY FROM FREEZING.

RESPIRATORY PROTECTION:
None needed for normal operating conditions. If misty conditions are encountered, wear a NIOSH approved organic filter respirator.

ENGINEERING CONTROLS (VENTILATION):
Provide natural or mechanical ventilation to minimize exposure, especially where possibility of mist formation exists. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design exhaust systems.

PROTECTIVE GLOVES:
Employee must wear appropriate protective gloves to prevent contact with this substance.

EYE PROTECTION:
Employee must wear splash proof and dust-resistant safety goggles or face-shield to prevent eye contact with this substance. DO NOT WEAR CONTACT LENSES.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:
Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated contact with this substance.

WORK/HYGIENIC PRACTICES:
Where there is any possibility that an employee's eyes may be exposed to this substance, the employer shall provide an eye-wash fountain within the immediate work area for emergency use.

SHIPPING CLASSIFICATIONS:

TDG REGULATION (TRANSPORT DANGEROUS GOODS Schedule 1):
Synthetic Resin Compound Non Hazardous

NOT REGULATED

U.S.DOT CLASSIFICATION (49 CFR 172.101):
Synthetic Resin Compound

U.S. SUPERFUND AMENDMENTS & REAUTHORIZATION ACT (SARA) REQUIREMENTS:

SARA TITLE III (Sections 302 & 304 Extremely Hazardous Substances):
The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, Section 302 requires notification of the State Emergency Response Commission (SERC) and Local Emergency Planning Committee (LEPC) of the presence of Extremely Hazardous Substances (EHS), 40 CFR 355 Appendix A, in amounts in excess of the threshold planning quantity (TPQ). Section 304 requires notification of SERC and LEPC of releases involving a RQ of an EHS or CERCLA Hazardous Substance. Extremely Hazardous Substances contained in this product are:
**********NONE**********

SARA TITLE III (Sections 311 & 312 Hazardous Chemicals):
This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: **********NONE**********

SARA TITLE III (Section 313 Toxic Release Inventory):
The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDS's that are copied or distributed for this material. Refer to Section II, HAZARDOUS INGREDIENTS/SARA III INFORMATION, the components that are subject to reporting are designated by an asterix (*).

========== SECTION VIII - FIRST AID MEASURES ==========

INHALATION:
Remove from exposure to mist. If breathing has stopped, provide artificial respiration. Keep the person warm and at rest. OBTAIN IMMEDIATE MEDICAL ATTENTION.

EYE CONTACT:
Wash eyes immediately with plenty of running water for 15-20 minutes, or until no evidence of chemical remains, including under eyelids. Remove any contact lenses at once. Speed in beginning the eye wash is essential if permanent injury is to be avoided. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
Flush contaminated skin with water for 15 minutes, or until no evidence of chemical remains. Remove contaminated clothing under the shower immediately. Prolong washing in serious cases until doctor arrives. GET MEDICAL CARE FOR EVIDENCE OF BURNING.

INGESTION:
Do not induce vomiting. Drink a large glass of water. Treat symptomatically and supportively. GET MEDICAL ATTENTION IMMEDIATELY. CAUTION: IF UNCONSCIOUS OR HAVING TROUBLE BREATHING OR IN CONVULSIONS, DO NOT INDUCE VOMITING OR GIVE

WATER.

========== SECTION IX - PREPARATION INFORMATION ==========

MSDS REVISION DATE: March 26, 2014

NAME OF PREPARER: Environmental, Health & Safety Department.

CONTACT PHONE: (360) 733-7478

DISCLAIMER:
IMPORTANT: The information and data herein is based on available data. Buyer assumes all risk of use, storage and handling of this product in compliance with applicable laws and regulations. CESCO SOLUTIONS, INC., MAKES NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, AND WILL NOT BE LIABLE FOR CLAIMS, RELATING TO THE ACCURACY OF THIS DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

MATERIAL SAFETY DATA SHEET

CESCO SOLUTIONS, INC.
CESCO NEUTRO 1025

PRODUCT NAME: CESCO NEUTRO 1025 HMIS CODES: H F R P
3 0 1 D

========== SECTION I - PRODUCT INFORMATION ==========

PRODUCT NAME: CESCO NEUTRO 1025
PRODUCT USE: Wastewater Treatment
WHMIS CLASSIFICATION: E - Corrosive Material

MANUFACTURER'S NAME: CESCO SOLUTIONS, INC.
ADDRESS : 2227 Midway Lane, Bellingham, WA 98226

SUPPLIER'S NAME : CESCO SOLUTIONS, INC.
ADDRESS : 2227 Midway Lane, Bellingham, WA 98226

EMERGENCY PHONE : 1-800-424-9300
INFORMATION PHONE : (360) 733-7478

========== SECTION II - HAZARDOUS INGREDIENTS ==========

REPORTABLE COMPONENTS	CAS NUMBER	VAPOR PRESSURE mm Hg @ TEMP		WEIGHT PERCENT
SODIUM HYDROXIDE, 50% SOLUTION	1310-73-2	1.5	68F	40 - 50%
..... OSHA PEL-2MG/M3 ACGIH TLV-2MG/M3				

The manufacturer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by CESCO SOLUTIONS, INC. as a customer service.

========== SECTION III - PHYSICAL DATA ==========

BOILING RANGE: N/AV
SPECIFIC GRAVITY (H2O=1): 1.21
VAPOR DENSITY: N/AV
pH: >14 (Neat)
EVAPORATION RATE: N/AV
FREEZING POINT : 0°F (-17°C)
COEFFICIENT OF WATER/OIL DIST: N/AV
MATERIAL V.O.C.: N/AV
SOLUBILITY IN WATER: Complete.
ODOR THRESHOLD: N/AV
ODOR & APPEARANCE: Clear, semi-viscous odorless liquid.

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

========== SECTION IV - FIRE AND EXPLOSION HAZARD DATA ==========

FLASH POINT:
No flash prior to reaching Boiling Point

FLASH POINT METHOD:
N/AV

FLAMMABLE LIMITS IN AIR BY VOLUME:
LOWER: N/A UPPER: N/A

EXTINGUISHING MEDIA:
Use media appropriate for surrounding material. Use water spray to cool containers exposed to fire from as far a distance as possible. DO NOT get water inside containers. Generates heat upon addition of water, with possible spattering. Use water spray to absorb corrosive vapors.

SPECIAL FIREFIGHTING PROCEDURES:
SCBA recommended with a full face piece operated in pressure-demand mode or other positive pressure mode. Wear full protective clothing. Run-off may cause pollution. Dike to contain run-off for proper handling as stated in Section VII.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
Negligible fire hazard when exposed to heat or flame.

FLAMMABILITY - T.D.G.R. CLASS:
Not classified as flammable or combustible

HAZARDOUS COMBUSTION PRODUCTS:
Thermal decomposition products may include toxic and hazardous oxides of carbon and sodium.

EXPLOSION DATA - SENSITIVITY TO IMPACT:
No Information

EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE:
No Information

========== SECTION V - REACTIVITY DATA ==========

STABILITY:
Stable under normal temperatures and pressures.

CONDITIONS TO AVOID:
Flammable hydrogen gas may be generated upon contact with metals such as aluminum, tin and zinc.

INCOMPATIBILITY (MATERIALS TO AVOID):
Acids. This product is alkaline - avoid contact with acidic materials. Addition of water creates heat and may cause spattering. Prolonged contact with metals such as aluminum, tin, lead and zinc may produce flammable hydrogen gas.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS:
Thermal decomposition products may include toxic and hazardous oxides of carbon and sodium.

HAZARDOUS POLYMERIZATION:
May cause the violent polymerization of acetaldehyde, acrolein or acrylonitrile.

========== SECTION VI - TOXICOLOGICAL PROPERTIES ==========

ROUTES OF ENTRY:
Ingestion, inhalation, skin and eyes.

INHALATION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
SODIUM HYDROXIDE: CORROSIVE. 200 mg/m3 is immediately dangerous to life and health. The effects may vary from mild irritation of the nose at 2 mg/m3 to severe pneumonitis, depending upon the severity of exposure. Low concentrations may cause sore throat, coughing, and labored breathing. Intense exposures may result in delayed pulmonary edema.

EYE CONTACT HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Causes severe burns to eyes. Eye damage may be permanent. SODIUM HYDROXIDE: Corrosive. Contact may cause disintegration and sloughing of conjunctival and corneal epithelium, corneal opacification, marked edema and ulceration. After 7-13 days, either gradual recovery begins or there is progression of ulceration and corneal opacification. Complications of severe eye burns are symblepharon with overgrowth of the cornea by a vascularized membrane, progression or recurrent corneal laceration and permanent corneal opacification.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Causes severe burns to skin and all body tissues.

INGESTION HEALTH RISKS AND SYMPTOMS OF ACUTE EXPOSURE:
Harmful if swallowed. Ingestion may cause burns to the mouth and esophagus. SODIUM HYDROXIDE: Corrosive. May cause severe abdominal pain, corrosion of the lips, mouth, tongue and pharnyx, and vomiting of large pieces of mucosa. Asphyxia can occur from swelling of the throat. Perforation of the esophagus and stomach may occur. Cases of squamous cell carcinoma of the esophagus have occurred with latent periods of 12-42 years after ingestion. These cancers are believed to be sequela of tissue destruction and possibly scar formation rather than the result of direct carcinogenic action of the sodium hydroxide.

INHALATION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
SODIUM HYDROXIDE: Prolonged exposure may cause bronchial irritation, coughing, bronchial pneumonia and gastrointestinal disturbances.

EYE CONTACT HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
SODIUM HYDROXIDE: Contact at low levels may cause conjunctivitis.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
SODIUM HYDROXIDE: Repeated exposure may cause dermatitis.

INGESTION HEALTH RISKS AND SYMPTOMS OF CHRONIC EXPOSURE:
SODIUM HYDROXIDE: There is no data available on the chronic effects of ingestion of this material.

CARCINOGENICITY:
NTP CARCINOGEN: Not known to have any carcinogenic components. IARC MONOGRAPHS: No

TERATOGENICITY:
No Information.

MUTAGENICITY:
No Information.

IRRITANCY:
Corrosive

SENSITIZATION:
No information.

SYNERGISTIC PRODUCTS:
None known.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
None known or reported.

ADDITIONAL INFORMATION:

TOXOLOGICAL INFORMATION

Acute Toxicity:

Acute Oral: LD50/oral/rabbit: 500 mg/kg, intraperitoneal Irritation: 500 mg/24 hour(s) skin-rabbit severe; 400 ug eyes-rabbit mild; 1% eyes-rabbit severe

========== SECTION VII - PREVENTIVE MEASURES ==========

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Do not touch spilled material. Stop leak if you can without risk. For SMALL SPILLS pick up spill with vacuum equipment (alkali resistant) for disposal, or flush to holding area with water. Neutralize residues with dilute acid and rinse with water.

For LARGER SPILLS, dike far ahead of spill for later disposal. Keep unnecessary people away from area. Isolate hazard area and deny entry.
A spill or release of sodium hydroxide may trigger the emergency release reporting requirements under SARA, Title III (40CFR, Part 355) and /or CERCLA (40CFR, Part 300). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws.

WASTE DISPOSAL METHOD:
Waste caustic must NEVER be discharged directly to sewers or surface waters. First convert to neutral salts and dilute well with water. Inform legal authorities of uncontrolled spills.

RESOURCE CONSERVATION & RECOVERY ACT (RCRA) REQUIREMENTS:
As currently defined in the federal Resource Conservation Act (RCRA), sodium hydroxide, when discarded, is a hazardous waste as defined under 40 CFR 261.22 as exhibiting the characteristics of corrosivity. Its disposal is, therefore, regulated by federal RCRA regulations.

CLEAN WATER ACT REQUIREMENTS:
NaOH is listed under Section 311 as requiring the submission of a National Pollutant Discharge Elimination System (NPDES) permit application to the EPA. Once a permit is issued, NaOH is exempted from the reporting requirements of Section 311 relating to spills.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Store in well sealed containers which are protected from physical damage. Avoid handling conditions that can lead to spills or mist formation. Drains must have retention basins for pH adjustment and neutralization of spilled materials and flushings prior to discharge. Have abundant running water available where material is stored, unloaded or handled. Store above the freezing point of water. DO NOT store in ALUMINUM containers as flammable hydrogen gas can be generated. Do not use aluminum fittings or transfer lines. Avoid contact with acids. DO NOT permit workers to handle caustic materials without proper training and proper equipment. Avoid contact with incompatible chemicals listed in Section V.

OTHER PRECAUTIONS:
N/AV

RESPIRATORY PROTECTION:
None needed for normal operating conditions. Have available and wear as appropriate for exposure limits: NIOSH/MSHA approved respirator. Supplied-air respirator with a full face-piece, helmet or hood: self-contained breathing apparatus with a full face-piece.

ENGINEERING CONTROLS (VENTILATION):
Provide natural or mechanical ventilation to minimize exposure, especially where possibility of mist formation exists. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design exhaust systems.

PROTECTIVE GLOVES:
Employee must wear appropriate protective gloves to prevent contact with this substance.

EYE PROTECTION:
Employee must wear splash proof and/or dust-resistant safety goggles with a full face-shield to prevent eye contact with this substance. DO NOT WEAR CONTACT LENSES.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:
Apron or protective clothing, and rubber boots (tops covered by apron or clothing to prevent entrance of material).

WORK/HYGIENIC PRACTICES:
Where there is any possibility that an employee's eyes may be exposed to this substance, the employer shall provide an eye-wash fountain within the immediate work area for emergency use.

SHIPPING CLASSIFICATIONS:

TDG REGULATION (TRANSPORT DANGEROUS GOODS Schedule 1):
UN 1824, Sodium Hydroxide Solution, Class 8, PG II

U.S.DOT CLASSIFICATION (49 CFR 172.101):
UN 1824, Sodium Hydroxide Solution, Class 8, PG II

U.S. SUPERFUND AMENDMENTS & REAUTHORIZATION ACT (SARA) REQUIREMENTS:

SARA TITLE III (Sections 302 & 304 Extremely Hazardous Substances):
The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, Section 302 requires notification of the State Emergency Response Commission (SERC) and Local Emergency Planning Committee (LEPC) of the presence of Extremely Hazardous Substances (EHS), 40 CFR 355 Appendix A, in amounts in excess of the threshold planning quantity (TPQ). Extremely Hazardous Substances contained in this product are: ***NONE***. Section 304 requires notification of SERC and LEPC of releases involving a RQ of an EHS or CERCLA Hazardous Substance.
Sodium hydroxide is considered a CERCLA Hazardous substance with a reportable quantity (RQ) of 4,000 lbs of CESCO NEUTRO 1025.

SARA TITLE III (Sections 311 & 312 Hazardous Chemicals):
This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: An Immediate (Acute) Health Hazard. A Reactive Hazard.

SARA TITLE III (Section 313 Toxic Release Inventory):
The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDS's that are copied or distributed for this material. Refer to Section II, HAZARDOUS INGREDIENTS/SARA III INFORMATION, the components that are subject to reporting are designated by an asterix (*).

========== SECTION VIII - FIRST AID MEASURES ==========

INHALATION:
Remove from exposure to mist. If breathing has stopped, provide artificial respiration. Keep the person warm and at rest. OBTAIN IMMEDIATE MEDICAL ATTENTION.

EYE CONTACT:
Wash eyes immediately with plenty of running water for 15-20 minutes, or until no evidence of chemical remains, including under eyelids. Remove any contact lenses at once. Speed in beginning the eyewash is essential if permanent injury is to be avoided. In case of chemical burns, apply sterile bandages loosely to eyes without medication. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
Flush contaminated skin with water for 15 minutes, or until no evidence of chemical remains. Remove contaminated clothing under the shower immediately. Prolong washing in serious cases until doctor arrives. GET MEDICAL CARE FOR EVIDENCE OF BURNING. If evidence of chemical burn exists, cover with sterile, dry dressing. Bandage securely, but not too tightly.

INGESTION:
Do not induce vomiting. Drink a large glass of water. Treat symptomatically and supportively. GET MEDICAL ATTENTION IMMEDIATELY. CAUTION: IF UNCONSCIOUS OR HAVING TROUBLE BREATHING OR IN CONVULSIONS, DO NOT INDUCE VOMITING OR GIVE WATER.

========== SECTION IX - PREPARATION INFORMATION ==========

MSDS REVISION DATE: March 6th, 2013

NAME OF PREPARER: Environmental, Health & Safety Department.

CONTACT PHONE: (360) 733-7478

DISCLAIMER:

IMPORTANT: The information and data herein is based on available data. Buyer assumes all risk of use, storage and handling of this product in compliance with applicable laws and regulations. CESCO SOLUTIONS, INC., MAKES NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, AND WILL NOT BE LIABLE FOR CLAIMS, RELATING TO THE ACCURACY OF THIS DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

Safe Foods Corporation
4801 North Shore Drive
North Little Rock, AR 72118
501-758-8500

Cecure® Concentrate

Original: 11/15/99
Revised: 11/16/04

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT IDENTIFICATION

Information and Emergency Phone during business hours: 501-758-8500

For use only in the event of chemical emergencies involving a spill, leak, fire, or accident with this material: call CHEMTREC at 1-800-424-9300

Trade Name:	Cecure®
Chemical Name:	Cetylpyridinium chloride in propylene glycol and water
Synonyms:	N/A
CAS #:	Mixture
Chemical Family:	N/A
Product Code:	60599A
Produce Use:	N/A
PIN #:	None
WHMIS Class:	∉D1A,D2B

SECTION 2: COMPOSITION / INFORMATION ON COMPONENTS

COMPONENTS	CAS #	WEIGHT %
Propylene glycol	57-55-6	trade secret information
Cetylpyridinium chloride, monohydrate	6004-24-6	1.0% - 40.0%

SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview:

Clear light yellow liquid with a slight odor. Can cause irritation to skin and eyes. Toxic by ingestion. Will release toxic fumes, such as hydrogen chloride, if involved in a fire.

∉Breathing mist may cause respiratory tract irritation or serious lung damage.

∉In case of fire, use CO_2 , dry chemical, or alcohol foam.

Breathing:

∉Breathing mist may cause respiratory tract irritation and/or difficulty in breathing. Prolonged or repeated exposure to mists can cause serious lung damage and may be fatal.

N/A = Not Available
∉ = Revision

SECTION 3: HAZARDS IDENTIFICATION …continued

Skin Contact:

Can cause severe skin irritation.

Eye Contact:

Severely irritating to the eyes. Injury may be permanent.

Swallowing:

Toxic by ingestion.

Long Term Health Effects:

∉Repeated skin contact can cause serious irritation at the site of contact.

∉In several studies repeated systemic exposure of animals to cetylpyridinium chloride did not result in significant target organ toxicity. This chemical is not teratogenic, mutagenic, carcinogenic, or toxic to reproduction.

Conditions Aggravated By Exposure:

Not known.

SECTION 4: FIRST AID MEASURES

Breathing:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

Skin:

Immediately flush with large amounts of water for at least 15 minutes. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. Get prompt medical attention if symptoms occur. ∉Thoroughly wash clothes before wearing again. Thoroughly clean, or discard, shoes.

Eye:

Immediately flush eyes with plenty of water for at least 15 minutes, holding eyelids apart. ∉Get immediate medical attention. If a physician is not available, flush for an additional 15 minutes, and then get medical attention.

Swallowing:

∉Give several large glasses of milk, or water if not available. Do NOT induce vomiting. Get immediate medical attention. Never give anything by mouth to an unconscious person.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point:	N/A
Method:	N/A
Lower Explosive Limit:	N/A
Upper Explosive Limit:	N/A
Auto Ignition Temperature:	N/A
Extinguishing Media:	CO_2, dry chemical, alcohol foam

Firefighting Procedures:

Evacuate area and fight fire from safe distance. ∉Wear pressure-demand self-contained breathing apparatus (NIOSH-approved or equivalent) and full protective gear.

Special Firefighting Procedures:

∉Can burn in fire releasing toxic and corrosive vapors. As in fire, wear pressure-demand self-contained breathing apparatus (NIOSH-approved or equivalent) and full protective gear.

Unusual Fire and Explosion Hazards:

∉Emits toxic and corrosive vapors or fumes, such as hydrogen chloride, under fire conditions.

Sensitivity To Explosion:

None expected by mechanical impact or static discharge.

Conditions of Flammability:

Material may burn, but does not ignite readily.

SECTION 6: ACCIDENTAL RELEASE MEASURES

General:

∉Wear appropriate protective equipment (See Section 8). Do not get in eyes, on skin, or on clothing. Avoid breathing mists. Minimize entry of material into sewers and drainage systems. Refer to permit discharge limitations if applicable. Isolate spill area, preventing entry by unauthorized persons.

Small Spill:

Absorb spill with inert material (e.g., dry sand, earth). Place in an approved chemical waste container.

Large Spill:

Shut off leak, if safe to do so. Clean up spills immediately, observing precautions in Protective Equipment section. Contain spilled liquid with sand or earth. Retain all contaminated water for removal and treatment.

SECTION 7: HANDLING AND STORAGE

Handling:

≠Wear appropriate protective equipment (See Section 8). Do not get in eyes, on skin, or on clothing. Avoid breathing mists. Use with adequate ventilation. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Thoroughly clean, or discard, shoes. Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

Storage:

Keep container closed when not in use.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Levels:

None established.

Engineering Controls:

≠Use process enclosures, local exhaust ventilation, or other engineering controls to control sources of mist or vapor.

Respiratory Protection:

≠If operations generate mists or if product is heated, wear a NIOSH approved respirator selected by a technically qualified person for the specific work conditions. Follow respiratory protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.

Eye/Face Protection:

≠Wear splash-proof chemical goggles, or safety glasses and face shield.

Skin Protection:

Use impervious gloves. Use clean protective body-covering clothing and impervious gloves as needed to minimize contact with clothing and skin.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES	
Appearance:	Clear light yellow liquid
Odor:	Slight
Initial Boiling Point:	N/A
Final Boiling Point:	N/A
Specific Gravity (Relative to Water):	0.9923
Vapor Density (Relative to Air):	N/A
Vapor Pressure (mm Hg):	N/A
pH:	N/A
Solubility in Water:	Soluble
Freezing/Melting Point:	N/A
Octanol/Water Partition Coefficient:	N/A
Odor Threshold:	N/A
Viscosity:	N/A
Evaporation Rate (Relative to n-Butylacetate):	N/A

SECTION 10: STABILITY AND REACTIVITY

Stable:
Yes

Strong Oxidizer:
No

Hazardous Polymerization:
Not prone to hazardous polymerization.

Incompatibility:
Strong oxidizing agents, acids, acid anhydrides, acid chlorides.

Conditions to Avoid:
Avoid exposure to incompatible materials and heat.

Hazardous Decomposition Products:
Carbon monoxide, nitrogen oxides, and hydrogen chloride.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicology: ∉No information for product.

Cetylpyridinium Chloride (CAS # 123-03-5):

∉Acute

Oral LD_{50} in rats, mice and rabbits: 125-680 mg/kg.
4 hr. Inhalation LC_{50} in rats: 0.09 mg/l.
Severe eye and skin irritant.
Does not cause dermal sensitization (skin rash).

∉Chronic

Mutagenicity tests indicate that this chemical is not mutagenic.
Does not cause reproductive toxicity or express anti-fertility activity.
A developmental toxicity test in rats found no treatment – related anomalies.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological Information:
Not available.

Chemical Fate:
Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:
Dispose of in accordance with all federal, state, and local regulations.

Container Disposal:
∉Follow all MSDS/label precautions even after container is emptied because it may contain product residues. Dispose of in accordance with all federal, state, and local regulations.

SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Not Regulated
Hazard Class:

Packing Group:
UN/NA No.:
DOT Labels:
Subsidiary Label:
DOT Placards:

IMO Shipping Name: Not Regulated
Hazard Class:
Packing Group:
UN No.:
IMO Labels:
Subsidiary Label:

IATA Shipping Name: Not Regulated
Hazard Class:
Packing Group:
UN No.:
IATA Labels:
Subsidiary Label:

SECTION 15: REGULATORY INFORMATION

SARA 311/312 Chronic Health Hazard: No
SARA 311/312 Acute Health Hazard: Yes
SARA 311/312 Fire Hazard: No
SARA 311/312 Sudden Pressure: No
SARA 311/312 Reactivity Hazard: No

Section 302 Extremely Hazardous:

Ingredients	CAS #	Weight %	TPQ
** None **			

CERCLA Hazardous Substances:

Ingredients	CAS #	Weight %	RQ
** None **			

Section 313 Toxic Chemicals:

Ingredients	CAS #	Weight %
** None **		

NJ Environmental Hazardous Substance List:

Ingredients	CAS #	Weight %
** None **		

California Proposition 65 Ingredients:

Ingredients	CAS #	Weight %
** None **		

TSCA:

Cetylpyridinium chloride is listed on the TSCA inventory under the anhydrous form, CAS # 123-03-5. Propylene glycol is listed on the TSCA inventory.

Canadian DSL/EINECS:

Cetylpyridinium chloride is listed as the anhydrous form, CAS # 123-03-5, on the Canadian Domestic Substances List (DSL) and the European Inventory of Existing Commercial Chemical Substances (EINECS). Propylene glycol is listed on the DSL and EINECS.

Canadian WHMIS:

∉ This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. This product meets hazard class criteria D1A and D2B.

SECTION 16: OTHER INFORMATION

NFPA Hazard Ratings:		HMIS Hazard Ratings:	
Health:	3	Health:	3
Fire:	1	Fire:	1
Reactivity:	0	Reactivity:	0
Specific Hazard:	None		

PREPARER: Bill Luplow
04/07/03 Revisions are indicated by ≠
NOTE:

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Safe Foods Corporation. The data on this sheet relates only to the specific material designated herein. Safe Foods Corporation assumes no legal responsibility for the use or reliance upon these data.

Safe Foods Corporation
4801 North Shore Drive
North Little Rock, AR 72118
501-758-8500

Cecure® (Less than or Equal to 1% Cetylpyridinium Chloride)

Original: 04/13/04
Revised: 02/10/06

16 Sections Printed: 2/27/2006

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT IDENTIFICATION

Information and Emergency Phone during business hours: 501-758-8500

For use only in the event of chemical emergencies involving a spill, leak, fire, or accident with this material: call CHEMTREC at 1-800-424-9300

Trade Name:	Cecure®
Chemical Name:	Cetylpyridinium chloride in propylene glycol and water
Synonyms:	N/A
CAS #:	Mixture
Chemical Family:	N/A
Product Code:	60599A
Produce Use:	N/A
PIN #:	None
WHMIS Class:	D1A,D2B

SECTION 2: COMPOSITION / INFORMATION ON COMPONENTS

COMPONENTS	CAS #	WEIGHT %
Propylene glycol	57-55-6	trade secret information
Cetylpyridinium chloride, monohydrate	6004-24-6	less than or equal to 1%

SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview:

Clear light yellow liquid with a slight odor. May causes eye and skin irritation. Breathing mist may cause respiratory tract irritation.

In case of fire, use CO_2 , dry chemical, or alcohol foam.

Breathing:

Breathing mist may cause respiratory tract irritation.

continued…

N/A = Not Available

SECTION 3: HAZARDS IDENTIFICATION …continued

Skin Contact:
May cause skin irritation.

Eye Contact:
May cause eye irritation.

Swallowing:
Toxic by ingestion at doses estimated at 30 mg/kg.

Long Term Health Effects:
Prolonged skin contact can cause irritation at the site of contact.

In several studies repeated systemic exposure of animals to cetylpyridinium chloride did not result in significant target organ toxicity. This chemical is not teratogenic, mutagenic, carcinogenic, or toxic to reproduction.

Conditions Aggravated By Exposure:
Not known.

SECTION 4: FIRST AID MEASURES

Breathing:
Remove to fresh air and monitor for respiratory distress. If cough or difficulty in breathing persist, seek medical attention.

Skin:
Wash after handling and use soap if available. Remove contaminated clothing, including shoes. Thoroughly wash clothes and shoes before wearing again. Seek medical attention if skin irritation occurs. .

Eye:
Immediately flush eyes with plenty of water for at least 15 minutes, holding eyelids apart. Seek medical attention if irritation occurs.

Swallowing:
Give several large glasses of milk, or water if not available. Do NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: N/A
Method: N/A
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A
Auto Ignition Temperature: N/A
Extinguishing Media: CO_2, dry chemical, alcohol foam

Firefighting Procedures:

Cecure® (Less than or Equal to 1% Cetylpyridinium Chloride) is non-flammable; use most appropriate agent to extinguish surrounding fire. As in fire**,** evacuate area and fight fire from safe distance. Wear pressure-demand self-contained breathing apparatus (NIOSH-approved or equivalent) and full protective gear.

Sensitivity To Explosion:

None expected by mechanical impact or static discharge.

Conditions of Flammability:

None expected.

SECTION 6: ACCIDENTAL RELEASE MEASURES

General:

Wear appropriate protective equipment (See Section 8). Avoid contact with eyes, skin, and clothing. Avoid breathing mists. Minimize entry of material into sewers and drainage systems. Refer to permit discharge limitations if applicable. Isolate spill area, preventing entry by unauthorized persons.

Small Spill:

Absorb spill with inert material (e.g., dry sand, earth). Place in an approved chemical waste container.

Large Spill:

Shut off leak, if safe to do so. Clean up spills immediately, observing precautions in Protective Equipment section. Contain spilled liquid with sand or earth. Retain all contaminated water for removal and treatment.

N/A = Not Available

SECTION 7: HANDLING AND STORAGE

Handling:

Wear appropriate protective equipment (See Section 8). Avoid contact with eyes, skin, and clothing. Avoid breathing mists. Use with adequate ventilation. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Thoroughly clean, or discard, shoes. Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

Storage:

Keep container closed when not in use.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Levels:

None established.

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to control sources of mist or vapor.

Respiratory Protection:

If operations generate mists or if product is heated, wear a NIOSH approved respirator selected by a technically qualified person for the specific work conditions. Follow respiratory protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.

Eye/Face Protection:

As with any chemical, you should wear splash-proof chemical goggles, or safety glasses and face shield when in a situation where splash potential occurs

Skin Protection:

Use impervious gloves. Use clean protective body-covering clothing and impervious gloves as needed to minimize contact with clothing and skin. Wash thoroughly after handling.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear light yellow liquid
Odor:	Slight
Initial Boiling Point:	N/A
Final Boiling Point:	N/A
Specific Gravity (Relative to Water):	0.9923 – 3.5
Vapor Density (Relative to Air):	N/A
Vapor Pressure (mm Hg):	N/A
pH:	N/A
Solubility in Water:	Soluble
Freezing/Melting Point:	N/A
Octanol/Water Partition Coefficient:	N/A
Odor Threshold:	N/A
Viscosity:	N/A
Evaporation Rate (Relative to n-Butylacetate):	N/A

SECTION 10: STABILITY AND REACTIVITY

Stable:
Yes

Strong Oxidizer:
No

Hazardous Polymerization:
Not prone to hazardous polymerization.

Incompatibility:
Strong oxidizing agents, acids, acid anhydrides, acid chlorides.

Conditions to Avoid:
Avoid exposure to incompatible materials and heat.

Hazardous Decomposition Products:
Carbon monoxide, nitrogen oxides, and hydrogen chloride.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicology: Not available for dilute mixtures in water.

Cetylpyridinium Chloride (CAS # 123-03-5):

Acute

Oral LD_{50} in rats, mice and rabbits: 125-680 mg/kg.
4 hr. Inhalation LC_{50} in rats: 0.09 mg/l.
Eye and skin irritant.
Does not cause dermal sensitization (skin rash).

Chronic

Mutagenicity tests indicate that this chemical is not mutagenic.
Does not cause reproductive toxicity or express antifertility activity.
A developmental toxicity test in rats found no treatment – related anomalies.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological Information:
Not available.

Chemical Fate:
Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:
Dispose of in accordance with all federal, state, and local regulations.

Container Disposal:
Follow all MSDS/label precautions even after container is emptied because it may contain product residues. Dispose of in accordance with all federal, state, and local regulations.

SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Not Regulated
Hazard Class:

Packing Group:
UN/NA No.:
DOT Labels:
Subsidiary Label:
DOT Placards:

IMO Shipping Name: Not Regulated
Hazard Class:
Packing Group:
UN No.:
IMO Labels:
Subsidiary Label:

IATA Shipping Name: Not Regulated
Hazard Class:
Packing Group:
UN No.:
IATA Labels:
Subsidiary Label:

SECTION 15: REGULATORY INFORMATION

SARA 311/312 Chronic Health Hazard: No
SARA 311/312 Acute Health Hazard: Yes
SARA 311/312 Fire Hazard: No
SARA 311/312 Sudden Pressure: No
SARA 311/312 Reactivity Hazard: No

Section 302 Extremely Hazardous:

Ingredients	CAS #	Weight %	TPQ
** None **			

CERCLA Hazardous Substances:

Ingredients	CAS #	Weight %	RQ
** None **			

Section 313 Toxic Chemicals:

Ingredients	CAS #	Weight %
** None **		

NJ Environmental Hazardous Substance List:

Ingredients	CAS #	Weight %
** None **		

California Proposition 65 Ingredients:

Ingredients	CAS #	Weight %
** None **		

TSCA:

Cetylpyridinium chloride is listed on the TSCA inventory under the anhydrous form, CAS # 123-03-5. Propylene glycol is listed on the TSCA inventory.

Canadian DSL/EINECS:

Cetylpyridinium chloride is listed as the anhydrous form, CAS # 123-03-5, on the Canadian Domestic Substances List (DSL) and the European Inventory of Existing Commercial Chemical Substances (EINECS). Propylene glycol is listed on the DSL and EINECS.

Canadian WHMIS:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. This product meets hazard class criteria D2B.

SECTION 16: OTHER INFORMATION

NFPA Hazard Ratings:		HMIS Hazard Ratings:	
Health:	1	Health:	1
Fire:	1	Fire:	1
Reactivity:	0	Reactivity:	0
Specific Hazard:	None		

PREPARER: Chris Hawk

NOTE:

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Safe Foods Corporation. The data on this sheet relates only to the specific material designated herein. Safe Foods Corporation assumes no legal responsibility for the use or reliance upon these data.

Appendix F HEALTH AND SAFETY PROGRAM

4.6 Health and Safety

Dunn-Rite's Health and Safety Policy

Employees of Dunn-Rite Food Products Ltd. safety, health and welfare come first. Our management team is committed to preventing injuries related to work and maintaining a healthy working environment for all employees.

Management is committed to:

1. Ensuring all employees receive the proper training required to perform their jobs so that optimal output can be achieved without accidents and injuries occurring
2. Following regulatory requirements found in the Workplace Health and Safety Act and other legislation that is directly related to the workplace
3. Making safety and health part of their regular routine

All employees must integrate good workplace safety and health practices into daily activities and are accountable for using the Workplace Health and Safety Program

4.6 Health and Safety

SAFE WORK

S SPOT THE HAZARD
A ASSESS THE RISK
F FIND A SAFER WAY
E EVERYDAY

Responsibilities

Management Responsibilities

a. Providing a safe and healthy workplace
b. Ensuring that legal safety and health requirements are met
c. Ensuring all employees receive proper training required
d. Establishing and maintaining a Safety and Health Program and obtaining input from everyone in the company
e. Making sure Supervisors and Lead Hands are trained and supported in fulfilling their workplace safety and health requirements
f. Setting up an effective Workplace Safety and Health Committee and supporting the Committee

4.6 Health and Safety

SAFE WORK

S SPOT THE HAZARD
A ASSESS THE RISK
F FIND A SAFER WAY
E EVERYDAY

Responsibilities

Supervisor and Lead Hand Responsibilities

a. Providing a safe and healthy workplace
b. Ensuring that legal safety and health requirements are met
c. Ensuring all employees receive proper training required as per Safety and Health Program
d. Monitoring employees for Safety behaviors
e. Retraining employees who work unsafely
f. Following up with Safety concerns brought forth by employees. Valid urgent concerns should be addressed on the floor. If a resolution cannot be found, the concern should be brought up to Management and the Health and Safety Committee
g. Supervisors must make sure Lead Hands are trained and supported in fulfilling their workplace safety and health requirements

4.6 Health and Safety

SAFE WORK
S SPOT THE HAZARD
A ASSESS THE RISK
F FIND A SAFER WAY
E EVERYDAY

Responsibilities

Worker Responsibilities

- Ensuring company safe work procedures are followed (written procedures in the safety binder available in the QA lab at all times). This includes verbal instructions from Lead Hands/Supervisors
- Taking reasonable care to protect individual safety and health and the safety and health of other people around who may be affected
- Using personal protective equipment, safety equipment, machine guards and safety devices
- Reporting unsafe acts and workplace hazards
- Reporting accidents, near miss accidents, injuries or illnesses immediately to Management and/or the Workplace Safety and Health Committee
- Co-operating with the Workplace Safety and Health Committee

4.6 Health and Safety

SAFE WORK

S SPOT THE HAZARD
A ASSESS THE RISK
F FIND A SAFER WAY
E EVERYDAY

Responsibilities

Workplace Safety and Health Committee Responsibilities

- Receive and review concerns and complaints regarding the safety and health of workers
- Participate in workplace risk and hazard identification
- Know the Workplace Safety and Health legislations
- Ensure the Safety and Health Program (located in the Safety binder in the QA lab) is functioning as it should
- Inspect the workplace on a regular basis (must inspect a department before any Safety and Health Committee meeting at a minimum)
- Take part in incident investigations along with Management
- Ensuring the Safety and Health Bulletin board is up-to-date (eg. emergency exits posted, minutes to last Safety meeting posted, photos of the Committee posted)
- Help Management promote safety training throughout the plant

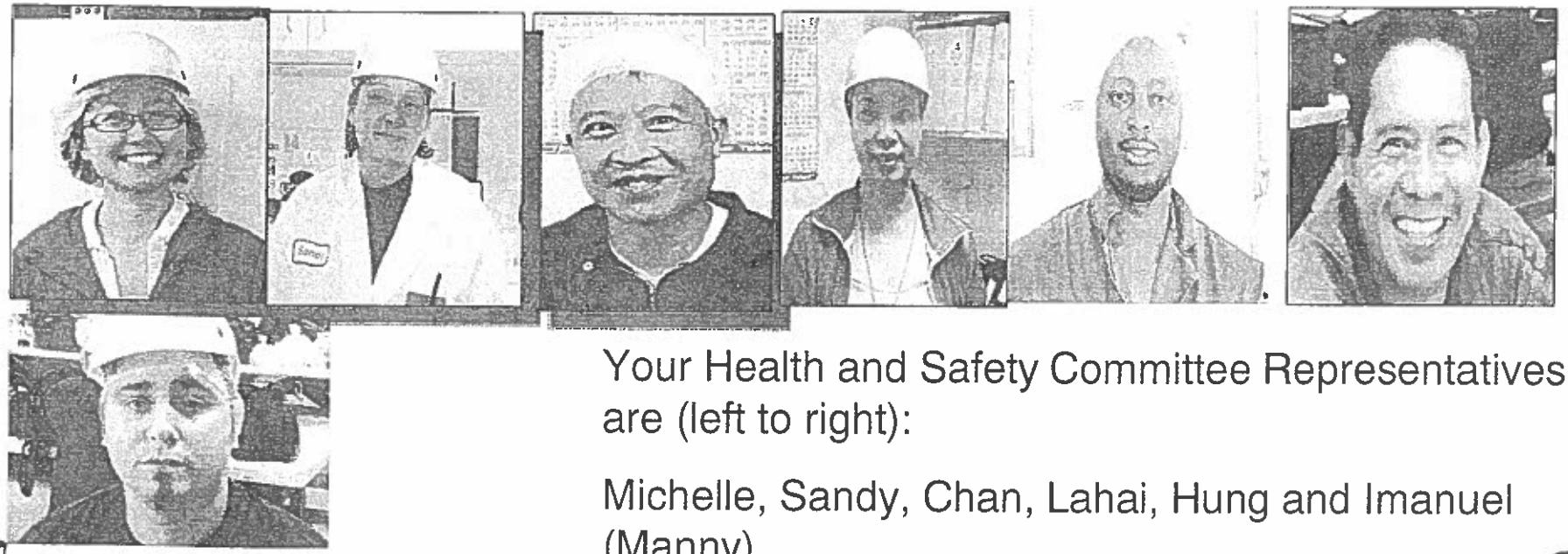
4.6 Health and Safety

SAFE WORK

S SPOT THE HAZARD
A ASSESS THE RISK
F FIND A SAFER WAY
E EVERYDAY

A Workplace Health and Safety Committee meets regularly to review H & S issues. If you have any concerns regarding health and safety you should immediately report them to a Lead Hand or Supervisor. The Workplace Health and Safety Committee will investigate. Meeting minutes are posted in the lunchroom

You have the right to refuse unsafe work. Discuss it with your supervisor or Vance.



Your Health and Safety Committee Representatives are (left to right):

Michelle, Sandy, Chan, Lahai, Hung and Imanuel (Manny)

4.6 Health and Safety (continued)

-If you are sick, you should not come to work:

Contact Vance, or leave a message before your normal start time.

Phone 452-8379 (or 452-8817 after 4:30pm).

-You must notify management of any changes to your

- address
- phone number
- other emergency contact numbers

4.6 Health and Safety (continued)

•Designated and trained 1st Responders are...

Vance

Macy Steve

Sandy

Chan

Binh

Binh

Abass

To Cam

Tho

En

Hung Quoc

Le

•Emergency cases are taken to the Victoria General Hospital - 2340 Pembina Highway, phone: 269-3570.

•Injuries are to be reported immediately- call 911 if injury is life-threatening and contact the Winnipeg Workplace Safety and Health Department: 945-0581 (number is posted on the Health and Safety board in the lunchroom

4.6 Health and Safety (continued)

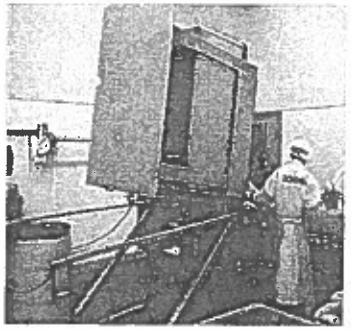
•DO NOT operate a Power-jack or Forklift unless you are trained and have been authorized.
Do not stand or ride on moving equipment.
Keep clear of these machines.

Power-jack


Forklift

•DO NOT run in the plant.

•DO NOT stand or walk under the Vat-dumper.
Do not reach under vat-dumper – use the hook that is provided to remove product.


Vat-dumper

The maximum weight for a tub or case of product is 25kg.

SAFE WORK

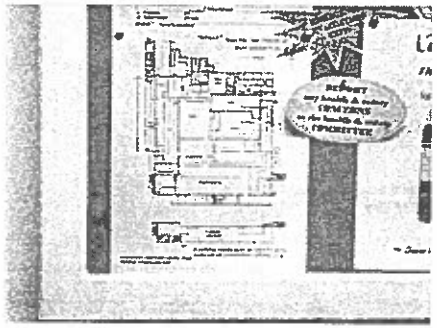
4.6 Health and Safety (continued)

•If the power goes off, remain at your workstation until directed by a supervisor.

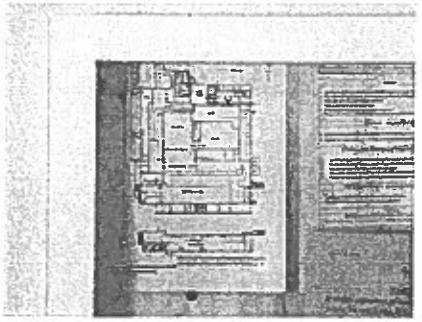
SAFE WORK

•In an emergency, everyone must leave the plant in a quick and orderly fashion. Gather in the parking lot so that Lead Hands and Supervisors can be sure that all employees are safe.

•Emergency procedures and exits are posted in the main lunchroom and in the Live Receival lunchroom:



Be familiar with exit routes and keep them clear at all times.



4.6 Health and Safety (continued)

- It is your responsibility to be aware of and report if you are suffering from or are a carrier of a disease transmissible through food. (e.g. Hepatitis, *E. coli*, Salmonella)

- Immediately report any workplace injuries to Vance (or your Supervisor – Sandy, Macy, Steve).

- When there is a Near-miss (an accident which almost or could have happened), it must also be reported.

- When you return to work after your injury, you need to show a **RETURN TO WORK** form.

- Open cuts or wounds must be properly dressed and a rubber glove worn. DO NOT touch another person's blood or other body fluids unless you have been trained and are suitably protected.

Blood and Bodily Fluids (B/BF)

- Many diseases, including HIV and Hepatitis B (HBV), can be spread through B/BF. This can occur through open wounds or mucous membranes.

Personal Protection

•Gloves (latex or vinyl are provided. Use vinyl gloves if you are allergic to latex) are to be worn when in contact with B/BF, open wounds or sores, and items or surfaces soiled with B/BF.

•Pocket masks are to be used when administering mouth-to-mouth resuscitation.

•Hands and other skin surfaces must be washed immediately after contact with B/BF. Wash thoroughly with soap and water, vigorously rubbing together all lathered surfaces for at least 10 seconds. Rinse thoroughly under a stream of water.

Blood and Bodily Fluids (B/BF)

Cleaning up spills and contaminated surfaces:

SAFE WORK

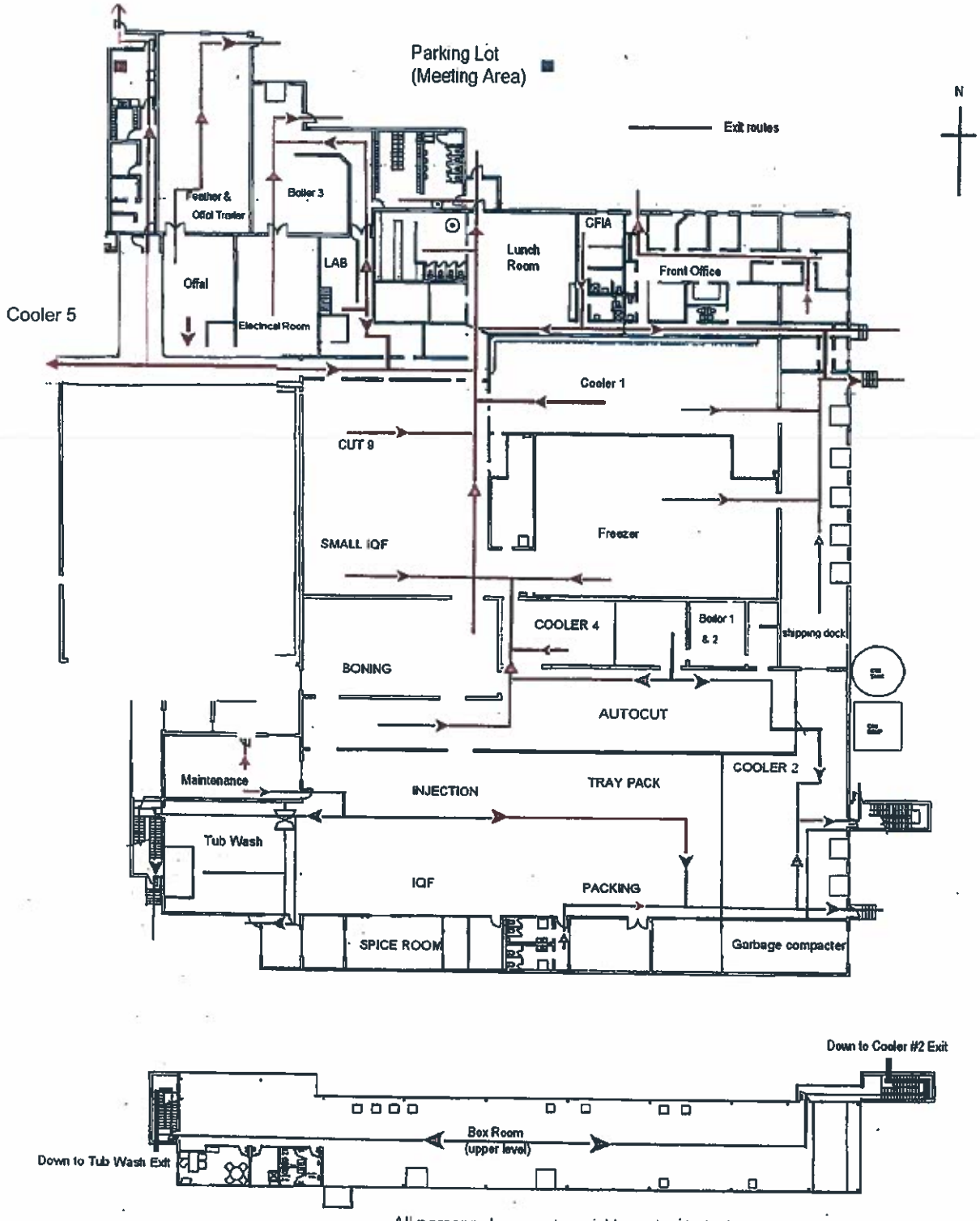
- Spills of human B/BF should be promptly cleaned up by the following method while wearing protective gloves. If splashing is anticipated, both protective eyewear (goggles) and clothing (rain suit) should be worn.

- Visible material should first be removed with absorbent disposable towels and disposed into a plastic bag.

- The area should be cleaned with water and detergent and rinsed, then sanitized with bleach and left to dry. Tools, instruments, and electronic equipment should be disinfected with 70% isopropyl alcohol solution for 10 minutes.

- Wash hands after removing gloves. Soiled clothing should be cleaned and disinfected if not disposed of in trash.

Evacuation Plan



All personnel evacuate quickly and orderly through the nearest safe exit and assemble in the Parking Lot.

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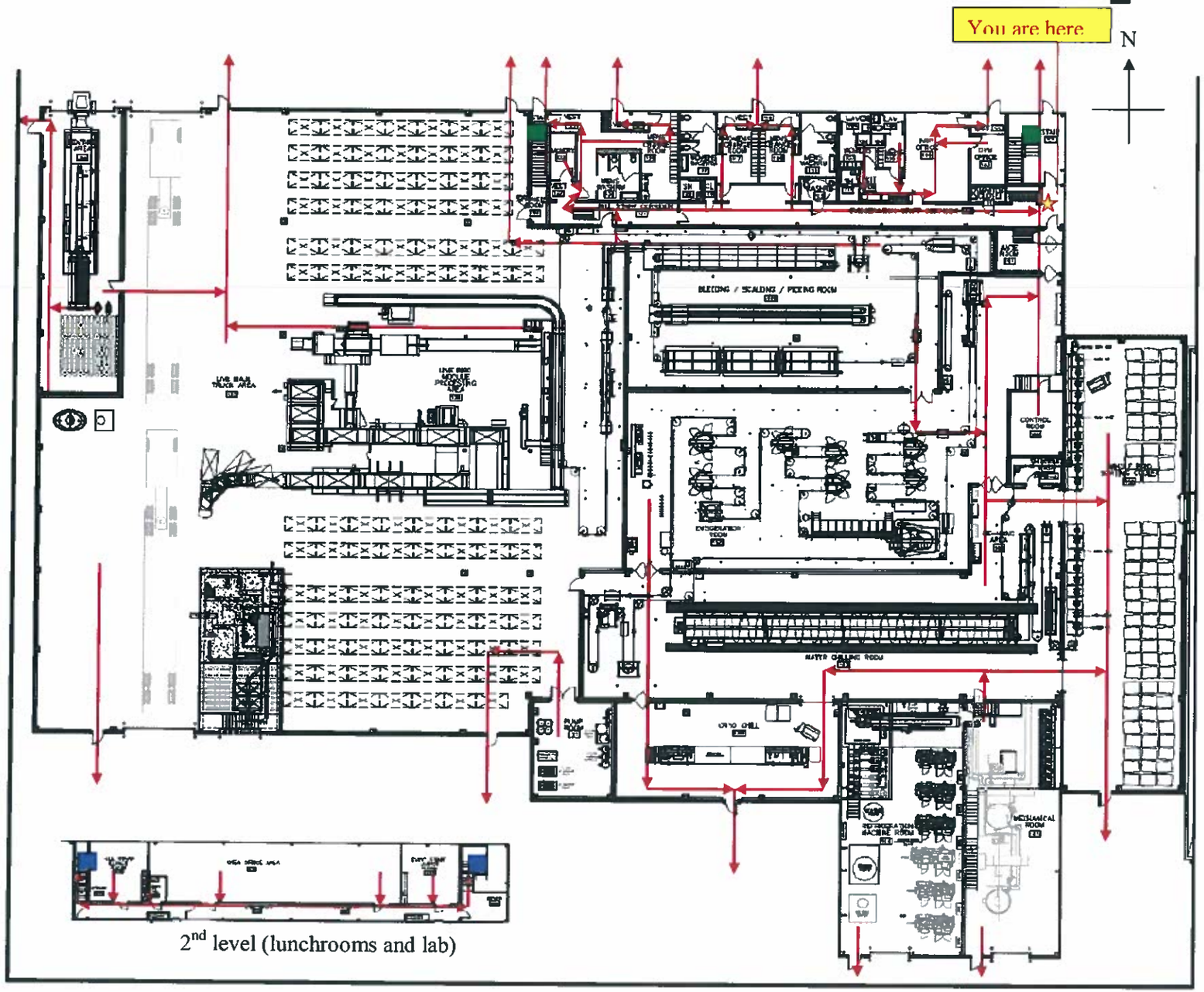
Parking lot- meeting area



Dunn-Rite Food Products Evacuation Plan
(Live Receiving and Evisceration)

Exit Routes

From 2nd level

2nd level going to ground level

When alarm sounds, safety lights will flash.
During production, listen to your Lead Hand/Supervisor who will give you direction on what to do.
Look for Exit signs.
All employees must evacuate quickly and orderly to the nearest safety exit and assemble at the Parking Lot

When alarm sounds, safety lights will flash.
Look for Exit signs

HEALTH AND SAFETY SOP'S:

SOP:	TITLE:
H&S.1	SAFETY PROCEDURES FOR FORKLIFTS AND POWER JACKS
H&S.2	EMERGENCY PROCEDURES
H&S.3	PROCEDURES FOR CHECKING FIRE EXTINGUISHERS, FIRST AID KITS AND EYE WASH STATIONS
H&S.4	SAFETY PROCEDURE FOR HOT WORK
H&S.5	PROCEDURES FOR FALL SAFETY
H&S.6	LOCKOUT AND TAGOUT(LOTO)
H&S.7	SERIOUS INCIDENTS AT WORKPLACE
H&S.8	EXPOSURE TO HUMAN BLOOD / BODILY FLUIDS
H&S.9	WORK ALONE AND / OR IN ISOLATION
H&S.10	PALLET TRUCK PRE-OPERATIONAL INSPECTION
H&S.11	LIFT TRUCK PRE-OPERATIONAL INSPECTION
H&S.12	RIGHT TO REFUSE DANGEROUS WORK
H&S.13	NOISE EXPOSURE ASSESSMENT
H&S.14	VIOLENCE PREVENTION POLICY
H&S.15	CHEMICALS IN THE PLANT
H&S.16	CONTRACTED EMPLOYERS
H&S.17	HEALTH AND SAFETY COMMITTEE

SAFETY PROCEDURES FOR FORKLIFTS AND POWER JACKS

H&S-1 1.1 OVERVIEW

a. As a battery is being charged, an explosive gas mixture forms within and around each cell. If the area is not properly ventilated, this explosive gas can remain in or around the battery for several hours after charging. An open flame or spark can ignite this gas, resulting in serious damage or injury.

b. Battery electrolyte is a solution of sulfuric acid and water. Battery acid causes burns. Should any electrolyte come in contact with your clothing or skin, flush the area immediately with cold water. Should the solution get on your face or in your eyes, flush the area with cold water and get medical help immediately.

H&S-1 1.2 BATTERY SAFETY

a. For your safety, observe the following precautions when working with or around walkie batteries

b. Read, understand, and follow procedures, recommendations and specifications in the battery and battery charger manufacturer's manual.

c. Wear protective clothing for eyes, face, and skin. This equipment includes goggles or face shield, rubber gloves (with or without arm shields), and a rubber apron. Make sure an eyewash station is nearby.

d. Do not smoke, use open flames or spark producing devices near batteries.

e. Charge batteries in a well-ventilated area to avoid hydrogen gas concentration.

f. Do not break live circuits at the battery terminals because spark usually occurs at the point where live circuit is broken.

g. Never lay tools or metal objects on top of the battery, to avoid a short circuit or explosion.

h. Keep batteries clean. Corrosion can cause shorts to the frame and sparks.

i. Keep plugs, terminals, cables and receptacles in good condition to avoid shorts and sparks.

j. Hook the cables up, when not in use, to prevent damage that may occur because of their being on the floor.

k. Keep filler plugs firmly in place at all times except when the electrolyte level is checked, when water is added to the cells or when the specific gravity is checked.

l. Make sure the venting holes in the filler plugs are open so gas can escape from the cells.

m. Do not allow cleaning solution, dirt or any foreign matter to enter the cells.

n. Charge batteries at the indicated rates and do not overcharge.

H&S-1 1.3 PREVENTIVE MEAINTENANCE SCHEDULE

a. Weekly

- Equalize charge (heavy use application)
- Equalize charge (light use application).
- Inspect cables and charging plugs.
- Clean top of cells.

c. Semi-annual

- Inspect charger.
- Clean exterior of battery.

d. Trouble Signs

- Battery temperature rises more than 25^{o}F (14^{o}C) during a normal charge.
- The top of the battery is always wet or one cell requires excessive water.

H&S-1 1.4 MAINTENANCE CLEANING (when required)

The top of the battery should be kept clean and dry. Kept vent caps in place during use and charging. Remove only to observe levels, make water additions, take temperatures, or take specific gravity readings with a hydrometer. The battery can be washed off with water if dusty. Keep vent caps in place. If electrolyte has accumulated on top, wash with a neutralizing solution of soda and water (one pound of baking or commercial soda ash to one gallon of water). Follow with a rinse using clear water. Check local codes before discharging cleaning water into the sewage system.

H&S-1 1.5 WATER ADDITIONS

Maintain electrolyte levels above the perforated, plastic element protector, but no higher than within 1/8” of the bottom of the cell cover vent well. Check electrolyte level weekly, or as necessary depending on battery use prior to charging. If the level is not discernable (below the element protector) add just enough water to cover it and then proceed with charging the battery. Otherwise, defer watering the battery until the end of the charging period when the battery is fully charged and the charger has tapered to its finish rate. At that time, add enough water to bring the electrolyte level to within 1/8” of the bottom of the vent well. Always use distilled water or water that is known to be free of abnormally high amounts of impurities. Contact your local GNB representative if you are not sure of your water quality.

Date	Employee Name	Trainer Name	Employee Signature	Trainer Signature

EMERGENCY PROCEDURES

Dunn-Rite's Emergency Procedures must be followed to protect the safety of employees, property and the environment.

H&S-2 1.1 GENERAL

a. The Operations Manager, Vance Rempel, acts as the Evacuation Team Leader in the event of any emergency
b. Lead-Hands should know WHO and HOW MANY are in their Department.
c. The Payroll Coordinator or Assistant will be able to pull up the list of employees who have clocked in or scanned into the building for the day
d. Floor Plans showing exit routes and procedures are displayed in Maintenance, in all lunchrooms (East Plant, West Plant Evisceration and West Plant Live Receiving), Evisceration hallway, Live Receiving hallway and the CFIA office.
e. Main escape routes are to be kept clear.
f. Procedures are reviewed during orientation sessions.
g. The general procedure is to exit quickly and orderly and gather in the North-East corner of the parking lot (noted on evacuation map)
h. Employees will be warned to evacuate the building through the fire alarm, radios, lead hands, or public address (PA) system (PA system in Old East Plant only. Does not include Tray Pack Room)

H&S-2 1.2 BLACKOUT

a. Personnel are to remain at their work unless in immediate danger or unless instructed otherwise.
b. Management will advise Lead-Hands if it is a short-term delay or long-term, and what to do

H&S-2 1.3 FIRE, GAS, OR OTHER SERIOUS DANGER

a. Lead-Hands to direct their crew out through the nearest safe exit.
b. Lead-Hands to shut off their equipment and quickly check that no one is still in their area.
c. Management to confirm that all areas are evacuated.
d. All to gather in the car-park on the north side of the plant (unless problem with fumes/prevailing wind).
e. Management and Lead-Hands to verify that all employees are accounted for.
f. Refer to SOP H&S-21 for Ammonia leak procedures
g. For Natural Gas Emergencies
    a. If natural gas odors are detected (sulphur like or rotten egg smell), notify the maintenance department immediately. For afternoon and night shifts, contact the shift engineer on duty at (204) 898-2176. On weekends, contact the Maintenance Manager at (204) 981-3886 or Chief Engineer at (204) 295-3096.
    b. All reported leaks will be investigated and necessary actions taken, including evacuation of the plant and calling 911 if required.
    c. For plant evacuations, follow the General Procedure above in H&S-2 1.1

h. For Fire Emergencies

a. Pull the fire alarm to warn occupants to evacuate. Then dial 911 to alert the fire department. Provide the following information:
   i. Business name and Street Address (Dunn-Rite Food Products, 199 Hamelin St)
   ii. Nature of fire
   iii. Fire location (building and floor)
   iv. Type of fire alarm (detector, pull station, sprinkler waterflow)
   v. Location of fire alarm (building and floor)
   vi. Name of person reporting fire
   vii. Telephone number for return call

b. Evacuate the premises as per General Procedures above

c. Matt Warren (204- 291-1640) is to meet the Fire Department Incident Commander and to inform him if everyone has been accounted for and if there are any injuries. Matt is to provide an update on the nature of the emergency and actions taken. Building floor plans, keys and other assistance will be provided as requested. After-hours (after 4pm), contact the Shift Engineer at (204) 898-2176. The Shift Engineer will be the first contact with the Fire Department but they will still be required to contact Matt Warren

d. Matt Warren is to assign personnel to verify that the fire protection systems are operating normally and to operate building utility and protection systems as directed by the fire department

H&S-2 1.4 SHELTER-IN-PLACE

If warned to “shelter-in-place” from an outside airborne hazard

a. Maintenance (Matt Warren and Gerry Caister) are to shut down ventilation systems and close air intakes (controls located in mechanical/electrical room in the West plant)

b. Managers, Supervisors and Lead Hands are directly responsible for employees in their departments (ensure all employee’s are accounted for and do not leave the building)

OTHER LOCALIZED INCIDENTS

a. Lead-Hands to clear workers from the immediate danger area.
b. Management to reassign duties until the damage repaired.

H&S-2 1.5 ALL CLEAR

a. Management will advise Lead hands when it is safe to return to work.
b. All staff must wait for directions from their Lead hand or Supervisor before returning into the plant

H&S-2 1.6 FIRST RESPONDERS

If a medical emergency is reported, dial 9-1-1 and request an ambulance. Alert trained employees (see below) to respond to the victim's location and bring a first aid kit

a. Day-shift:

Plant Management:	Vance Rempel (Operations Manager)
	Sandy Sernowski (Production Supervisor)
Shipping:	Macy Thiesen (Shipping Manager)
	Steve Gunn (Shipping Supervisor)
Quality Assurance:	Chan Tran (QA Supervisor)
Maintenance:	Binh Ung
	To Cam Phung
Production Floor:	Abass Jalloh (Live Receiving Lead Hand)
	Tho Ngoc Van (Evisceration Lead Hand)
	Binh Chau (Evisceration Supervisor)
	En Hui Hong (Cut-9 Lead Hand)
	Le Van Tien (IQF Lead Hand)

b. Evening-shift: Robert Gelley (JFC)
Lam Phung (Maintenance)

*First Aid Kits can be found at these locations:

- East Plant Lunchroom, hanging beside the operations office.
- Evisceration office
- Maintenance Shop (East Plant)
- Plant Floor Office (Marty's Office) behind the IQF machine
- Shipping Office

*One difribillator is located in the QA Lab

H&S-2 1.7 PHONE NUMBERS

a. Emergency: 911
b. Victoria Hospital: 477-3148

After calling 911 and ensuring that the injured employee is taken care of, the Plant Management designate must immediately and by the fastest means of communication available, notify the Workplace Safety and Health Division of the incident. The designee may choose to fill up a "Notice of Serious Incident" Form located on the Health and Safety board to help answer questions that the Division might have.

The current **Workplace Safety and Health Division phone number is 204-945-0581.**

Emergency Response Contact List

At least one of the employees listed below have to be contacted even though a first aider has responded to the situation

Name	Contact For	Phone Number
Vance Rempel, Operations Manager	1st Aid, CPR, AED, anything employee and plant related	Ext 216/215, (204) 471-6585
Sandy Sernowski, Plant Supervisor	1st Aid, CPR, AED, anything employee and plant related	Ext 417, (204) 254-1654
Matt Warren, Electrician	1st Aid, CPR, AED, Fire & Airborne Hazards, anything electrical	Ext 250, (204) 291-1640
Dong Phung	Anything maintenance related (eg-gas leaks)	Ext 218/219, (204) 981-3886
Gerry Caister	Anything maintenance related (eg-Ammonia leaks)	(204) 295-3096

RECORD(S): Time and Attendance Record.

H&S-3 1 Fire Extinguisher Inspection

H&S-3 1.1 OBJECTIVE

Fire extinguishers are deigned to put out or control small fire. The purpose of conducting regular inspection is to ensure that extinguishers are accessible when needed and in operable condition.

H&S-3 1.2 MONTHLY

Ensure the following criteria are met:

1. Extinguishers are located in their designated location (please refer to the maps attached and Form S.7.) and secured properly.
2. Extinguishers are not obstructed with respect to access or visibility.
3. Extinguishers are free from obvious physical damage, corrosion, leakage, and dust.
4. Extinguishers are properly charged and have not been discharged.
5. Legible operating instructions are on the extinguisher label facing outward.
6. Seals and tamper indicators are not broken or missing.
7. Pressure-gauge readings or indicators are in the operable ranges. Make sure the needle is in the green part of the gauge.
8. Inspector records tags that are attached on the fire extinguishers.

H&S-3 1.3 ANNUALLY

An external company is to conduct the Fire Extinguisher Inspection annually. Procedures and requirements are as per the National Fire Protection Association.

1. All monthly inspection items.
2. Inspection of the hose and nozzle for cracks, blockages, or other damage.
3. Inspection of extinguisher shell for corrosion, dents, or other damage.
4. The annual Fire Extinguisher Inspection report is on file.

H&S-3 1.4 VERIFIER AND RECORDS

QA is to monitor the completion of the monthly inspection by checking tags and seals on fire extinguishers. Finding of the monitoring is recorded on Form S.7.

H&S-3 1.5 CORRECTIVE ACTIONS

When inspection of any extinguisher reveals a deficiency in operating condition, the following corrective actions are to be taken immediately.

- A spare extinguisher of the same type and equal or greater rating shall replace the extinguisher.
- Defective extinguishers are to be marked as such and placed in appropriate place until repair and/or recharging is performed.

H&S-3 2 First Aid Kits Inspection

H&S-3 2.1 OVERVIEW

a. Responsibility - QA

b. Frequency – Monthly

c. Record – Form S.8

1.2 OBJECTIVE

First Aid Kits must be inspected at a regular basis to ensure that first aid supplies are readily available for emergency access.

H&S-3 2.3 INSPECTION

a. Location of First Aid Kits is labelled on map in Form S.8.
b. Check the cable tie that sealed the First Aid Kit bag.
c. Make sure the tie is not broken.
d. If the tie was broken, check the content of the First Aid Kit.
e. Refer to the inventory checklist on Form S.8. Make sure all the items and quantity of first aid supplies are same as stated on the checklist.
f. Any missing item must be replenished.
g. Reseal the First Aid Kit with a cable tie.

H&S-3 3 Eyewash Station Inspection

H&S-3 3.1 OVERVIEW

a. Responsibility – QA
b. Frequency – Monthly
c. Record Eye-Wash Checks (Form C.8)

H&S-3 3.2 HAND-HELD SQUEEZE BOTTLES B,E,F,G,H,I,J,K.L

a. Ensure that the inside and outside of the container are clean.

b. Check the level and fill if necessary.

Change once per month

H&S-3 3.3 PULL DOWN WASH STATION A & C

a. Ensure that the inside and outside of the container are clean.

b. Pull down and ensure sprays are functioning.

c. Check the level and fill if necessary.

Change every 3-month. Test for bacteria counts once per month.

H&S-3 3.4 LIVE RECEIVAL STATION D

a. Ensure the unit is clean.

b. Test the unit and report any defects to maintenance.

H&S-3 3.5 STOCK SOLUTION PREPARATION

a. Using blue 20L container (in Maintenance Store Room) mix 2oz HYDROSEP with 20L clean water

SEE MAP ON FORM C.8 – REVERSE FOR EYE WASH LOCATIONS:

SAFETY PROCEDURES FOR HOT WORK

H&S-4 1.1 OVERVIEW

Dunn-Rite Food Products Ltd. has a safe work procedure dealing with “Hot Work”.

Hot Work is defined as any operation where heat is used or generated in sufficient intensity to cause a fire or explosion. In order to reduce the risk of fire or explosion, the normal safety precautions must be in place and the following procedure must be strictly adhered to. This includes roofing and electric welding.

H&S-4 1.2 PRIOR TO COMMENCEMENT OF THE PROJECT

A. Prior to commencement of any Hot Work Project, the contractor performing the work will:

A.1. Inspect the site for combustibles and fire detection system.

A.1.a. If a fire detection system exists, the contractor must fill out a request for Fire Detection Shutdown and obtain approval from plant engineer or designate prior to the start of work. (Maintenance Food Safety Record – Form C.9)

A.2. Notify the plant engineer or designate.

A.2.a. When contacting the plant engineer or designate, the contractor shall:
- Identify the work area;
- Identify the individuals involved in the work;
- Acknowledge that approval has been granted (through Fire Detection Shutdown) for the deactivation of life safety equipment (ie. Smoke and heat detectors) in the area; and
- Provide a firm completion time.

H&S-4 1.3 THE FOLLOWING PRECAUTIONS MUST BE TAKEN

A. Clear the area surrounding the work entirely of combustibles.

B. Sweep floors clean. Clean up and remove grease and oils.

C. Cover floors made of combustible material with fire-resistant tarpaulins or other noncombustible material.

D. If Hot Work is conducted on walls and ceilings, move combustibles away from the back side of the wall.

E. If Hot Work is conducted near the ceiling, suspend fire-resistive tarpaulins beneath the work.

F. Where wall and ceiling (and/or roof) construction is combustible, avoid doing Hot Work unless absolutely necessary and only after taking special precautions. The special precautions may include completely

shielding the work area from the wall or ceiling (and/or roof) with fire-resistive tarpaulins, or metal screens, or continually wetting the area while the Hot Work is in progress.

G. Where Hot Work involves closed containers, remove all contents inside the closed container. Completely purge the container of flammable liquids and fill with water or inert gas.

H. Place noncombustible screens around work area at the floor level to trap sparks and protect other workers from weld flash.

I. Remove flammable liquids like paints, oils, and lacquers from the work area.

J. Protect unmovable combustibles with fire-resistive tarpaulins or metal shields. This includes storage or machinery with grease or lint deposits.

K. Eliminate explosive atmospheres or do not permit Hot Work. Halt processes that produce explosive atmospheres and continuously monitor the area for accumulation of combustible gases before, during, and after Hot Work.

L. Remove pressurized vessels from service: Isolate and vent them.

M. Close all doors and fire doors to prevent sparks from escaping.

N. Keep Hot Work equipment in good repair. Damaged or leaking hoses or hose attachments on torch cutting and welding equipment and electric cables on electric welders are of special concern. **Taped welding electric cables** or **hoses** are not permitted.

O. A properly rated fire extinguisher for the hazard involved must be located nearby.

H&S-4 1.4 ON COMPLETION OF THE PROJECT

A. On completion of the Hot Work project the, contractor will:

A.1. Notify the Dunn-Rite Food Products Ltd. plant engineer or designate.

A.1.a. When contacting the plant engineer or designate, the contractor will:
- Report that the work is complete;
- Report that the area is secure; and
- Report the time of completion.

A.2. Inspect the site for fire.

A.2.a. If the Hot Work involves roofing, the contractor must provide a two (2) hour fire watch after the completion of the work.

B. Dunn-Rite Food Products Ltd. plant engineer or designate will re-activate Fire Detection System. They will also complete and enter information on Maintenance Food Safety Record – Form C.9.

H&S-4 1.5 INDOOR USE OF FUEL FIRE EQUIPMENT

To ensure that air quality is maintained when operating fuel-fired equipment or using gas-fired heaters inside Dunn-Rite Food Products Ltd., contractors are required to:

A. Post proper signage in and around the work area;

B. Barricade and isolate the work area. Where welding work is done, obtain a "HOT WORK PERMIT" from Maintenance Department;

C. Remove all flammable/hazardous materials from the work area;

D. Provide an adequate supply of ABC and water fire extinguishers;

E. Provide advance notice to occupants of the affected building about the proposed work;

F. Establish Emergency Protocol for the work area;

G. Follow all construction/workplace safety protocols with regard to the use of personal protective equipment; and

H. Ensure that no exhaust fumes enter the ventilation system of building or surrounding area.

H&S-4 1.6 RECORDS

Maintenance Food Safety Record – Form C.9.

PROCEDURES FOR FALL SAFETY

H&S-5 1.1: OVERVIEW

Dunn-Rite Food Products Ltd. has safe work procedures dealing with Fall Safety which applies to employees and contractors working on company property.

Fall Safety has two components:
1. Fall Protection refers to barriers used to prevent a fall from occurring. These may include guardrails, warning tape, travel restraint systems, and non-slip flooring and footwear.
2. Fall Arrest systems limit the potential for injury when a fall does occur. These can be divided into two general types, either a harness attached via a lanyard to an anchor or a fall containment system (net suspended under the work area). The Manitoba Workplace Safety and Health Act stipulates that workers must be prevented from falling a vertical distance greater than 2.5 metres (8 feet).

Fall protection is always considered to be preferable to fall arrest. However, some job requirements may preclude the use of adequate fall protection and, in such cases, fall arrest equipment will also be used.

All workers who may be exposed to a risk of falling will be trained in the correct use of fall protection and fall arrest equipment.

H&S-5 1.2: PRIOR TO COMMENCEMENT OF THE PROJECT

Prior to commencement of any project, the employee or contractor will inspect the work site and job requirements to identify any potential for falls greater than 2.5m (8'). If such a risk is present, the worker will contact their immediate supervisor or contract coordinator to request fall protection and/or arrest equipment.

H&S-5 1.3: PRECAUTIONS

A. Sweep floors clean. Clean up and remove grease and oils.

B. Appropriate footwear should be worn at all times to reduce the chances of slipping.

C. Place barriers or warning tape around the site so that people nearby are aware of the risk and kept at a safe distance.

D. If fixed barriers are not present, a travel restraint system will be used. Such systems consist of a full body harness attached to a lanyard which is then attached to at least one fixed anchor. D ring belts are no longer allowed under new legislation except in mines

E. If fixed barriers are not present and it is not possible to use a travel restraint system is impractical, a fall arrest system will be used. The fall arrest system will be one of the following:
    1. A full body harness – shock absorber – lanyard – fall arrestor* – lifeline* – anchor.
    * will only be required when using two anchors. The lifeline connects the anchors and the fall arrestor slides freely along it until it is loaded by a fall. If only one anchor is used, the lanyard will be connected

directly to it.

2. A net suspended from fixed anchors.

F. When working at heights of 2.5m (8') or higher, always use a buddy system. Never work at height alone.

H&S-5 1.4 ON COMPLETION OF THE PROJECT

When the job is complete, remove all temporary barriers and warning tape. Inspect any safety equipment used. If it is undamaged, return it. Any damaged equipment should be brought to the attention of the head of the maintenance department.

H&S-5 1.5 RECORD

FORM FS#1 is a record of fall safety equipment inspections and whether or not any action(s) were taken.

LOCKOUT AND TAGOUT PROCEDURES

H&S-6 1.1 OVERVIEW

Dunn-Rite Food Products Ltd. has a safe work procedure dealing with “Lockout” and “Tagout” procedures.

Any equipment that has movable and/or energized parts can harm workers. When machinery is being used as intended, safeguards should be in place to minimize the risks of injury. However, when maintenance is to be performed on such equipment, operational safeguards may have to be bypassed. Lockout and tagout procedures ensure that machines cannot be turned on and that moveable parts are restrained during maintenance.

The lockout/tagout system comprises locks that can be applied to equipment to physically prevent the release of energy that could cause injury and tags that can be attached to the locks and/or to switches that cannot be locked.

H&S-6 1.2 PRIOR TO COMMENCING WORK

A. A competent worker must identify all parts of the equipment that could release energy and cause injury.
B. All sources of energy must be eliminated or reduced as much as possible. In doing so, the worker must ensure that this will not cause a release of energy that could injure a worker in another area (Eg: Closing a valve in a steam pipe could cause a buildup of steam that could burst the pipe somewhere else.).
C. The worker must apply a lock to each point at which injury-causing movement could occur. These locks must be applied in such a way as to prevent movement of the equipment.
D. The worker must apply a tag to each lock used. Tags must also be applied to all electrical switches and other sources of energy that cannot be physically locked-out.
E. All tags must be completed with the name and employee number of the worker as well as the date, time, and reason for lockout/tagout.

H&S-6 1.3 AFTER COMPLETION OF WORK

Note: Only the worker who applied the locks and tags and conducted the work may remove the locks and tags. Locks and tags may only be removed when work on the equipment is complete. An exception to this is in emergency situations when another designated competent worker may removes locks and tags.

A. The worker who applied all locks and tags will remove these devices, rendering the equipment operational.
B. All tags will be completed with the name and employee number of the worker who removed them. They will also provide the date and time of removal as well as the reason for removing the tag.
C. All locks and keys will be returned to the maintenance department and all used tags will be placed in the designated location.

SERIOUS INCIDENTS AT WORKPLACE

H&S 7.1 Introduction

A "Serious incident" is classified as an incident whereby:

- a worker is killed
- a worker suffers:
  - an injury resulting from electrical contact
  - unconsciousness as the result of a concussion
  - a fracture of his or her skull, spine, pelvis, arm, leg, hand or foot
  - amputation of an arm, leg, hand, foot, finger or toe, third degree burns, permanent or temporary loss of sight
  - a cut or laceration that requires medical treatment at a hospital or asphyxiation or poisoning
- the following are involved:
  - the collapse or structural failure of a building, structure, crane, hoist, lift, temporary support system or excavation
  - an explosion, fire or flood
  - an uncontrolled spill or escape of a hazardous substance
  - the failure of an atmosphere-supplying respirator

H&S 7.2 Procedure

H&S 7.2.1. Notification

After calling 911 and ensuring that the injured employee is taken care of, the Plant Management designate must immediately and by the fastest means of communication available, notify the Workplace Safety and Health Division of the incident. The designee may choose to fill up a "Notice of Serious Incident" Form located on the Health and Safety board to help answer questions that the Division might have.

If any information provided was inaccurate or incomplete, the Workplace Safety and Health Division must be notified immediately of the correct or complete information.

The current Workplace Safety and Health Division phone number is 204-945-0581.
If no answer leave a message stating Dunn-Rite Food Products Ltd. call back number 452-8379 (regular hours) and 452-8817 (after regular hours – to pick up a call dial *91# from any phone).

H&S 7.2.2Preservation of Site

Except to the extent necessary to free a trapped person or to avoid the creation of an additional hazard, nothing involved in a serious incident can be altered or moved until notification from the Workplace Safety and Health Division.

H&S 7.2.3 Investigations: serious incidents and accidents

Plant Management will ensure that each of the following is investigated as soon as reasonably practicable after it occurs:

- A serious incident;
- An accident or other dangerous occurrence that injures a person, and results in the person requiring medical treatment, or that had the potential to cause a serious incident.

The investigation must be carried out by

- the co-chairpersons of Dunn-Rite's Health and Safety Committee or their designates;
- A Plant Management designee and workplace representative; or
- A Plant Management designee, in the presence of a worker employed at the workplace that is not associated with the management of the workplace, when there is no committee or representative available.

After an investigation is completed, the Plant Management, in consultation with the Safety Committee's co-chairpersons or designates, or the worker, as applicable, must prepare a written report that includes the following:

- the name of any person injured or killed;
- the date, time and place of the incident, accident or dangerous occurrence;
- a description of the incident, accident or dangerous occurrence;
- any graphics, photographs or other evidence that may assist in determining the cause or causes of the incident, accident or dangerous occurrence;
- an explanation of the cause of the incident, accident or dangerous occurrence, including any factors or events that indirectly contributed to it occurring;
- any immediate corrective action taken;
- Any long-term action that will be taken to prevent the occurrence of a similar incident, accident or dangerous occurrence, or the reasons for no action being taken.

DUNN-RITE FOOD PRODUCTS

NOTICE OF SERIOUS INCIDENT

CALL WORKPLACE SAFETY AND HEALTH DIVISION AT 945-0581

EMPLOYER NAME: Dunn-Rite Food Products Ltd.

EMPLOYER ADDRESS: 199 Hamelin Street; Winnipeg;

Manitoba; R3T 0P2

If leaving a message Dunn-Rite call back numbers are 452-8379 (regular hours) and 452-8817 (after hours; to pick up a call dial *91# from any phone).

If injured worker is employed by another employer

EMPLOYER NAME: _____

EMPLOYER ADDRESS: _____

DATE AND TIME OF INCIDENT: _____

LOCATION OF INCIDENT: _____

Did the incident involve injury? Yes _____ No _____
If yes,
Name of injured: _____
First Name Middle Last Name

Injured Worker's Home Address: _____ Tel#: _____

Injured Worker's Occupation / Job Title:
_____

Name of Witness:
_____
First Name Middle Last Name

What was the DIRECT CAUSE of the incident and the circumstances that contributed? (What caused injury or damage?)

_____

_____

_____

_____

EXPOSURE TO HUMAN BLOOD/ BODILY FLUIDS

H&S 8.1 Potential Hazard

At Dunn-Rite Food Products Ltd. there is a risk of workers being exposed to the blood or bodily fluids of another worker. This risk is due to sharp objects and tools (knives, scissors, saw blades etc) and machinery being regularly utilized. Although precautionary measures are in place an injury can happen and employees may become exposed to the blood or bodily fluids of another worker. When a worker has contact with another person's blood or certain other bodily fluids, there is a chance they can be infected by blood borne pathogens. There are a number of blood borne pathogens, of which Hepatitis B and C and HIV (AIDS) are of most concern.
Transmission of these pathogens occurs through direct contact with infected blood or certain bodily fluids (semen, vaginal secretions, blood tinged bodily cavity fluids, etc). Exposure to urine, feces, vomit, phlegm, saliva, tears, or nasal secretions are not considered risky unless they are visibly blood tinged.

H&S 8.2 Significant exposure to blood or bodily fluids:

Although no contact with another person's blood and/or bodily fluids is wanted, not any contact carries the same risk of infection. Risk of infection is higher in cases of significant exposure to blood or bodily fluids.
Significant exposure happens only in certain ways:

- Puncturing one's skin with a sharp object (knife, scissors, saw blade, etc.) that is coated with blood or bodily fluids
- When blood is splashed on to a mucous membrane (eyes, nose, mouth)
- When blood is splashed onto broken skin (cuts, eczema, other damaged skin)

When blood or bodily fluids come into contact with skin that is intact, this is not considered to be a risk for the spread of blood borne pathogens.

H&S 8.3 Safe cleaning of areas contaminated with blood or bodily fluids

Note: Cleaning of areas contaminated with blood or bodily fluids involving serious workplace incidents are subject to site preservation (refer to SOP# H&S – 7)

- General

Anything in the workplace that has been contaminated by blood or bodily fluids is disposed of or cleaned by a trained person in a manner that prevents workers from being exposed to the blood or bodily fluids. When cleaning areas or objects contaminated with

blood or bodily fluids, latex or vinyl gloves should always be worn. Hands should always be washed thoroughly with soap and water after any direct contact with blood or bodily fluids.
Soap and water is the most common and most easily accessible cleaning product.
A commonly used disinfectant is household bleach solution, one part bleach to nine parts water, prepared daily. For decontamination of aluminum or electronic equipment, use 70% isopropyl alcohol solution applied for 10 minutes.

- Spills

Floor areas which have been contaminated should be promptly cleaned with absorbent disposable paper towels which are then disposed into plastic bags. The area should then be cleaned with water and detergent followed by disinfecting with a household bleach solution (1 part bleach to 9 parts water), and then given time to air-dry. If mops have been used in the clean-up, they should be thoroughly washed in soap and water and dried before re-use. Equipment, tools, product contact areas etc. which come into contact with blood or bodily fluids should be cleaned with paper towels, washed and decontaminated with an appropriate disinfectant.
Extra caution should be taken when cleaning sharp tools and instruments.
For specific instruction refer to SSOP D-R E.028 related to cleaning areas contaminated with blood or bodily fluids.

- Soiled Clothing

Clothing soiled with blood or bodily fluids should be removed and laundered in the usual fashion.

- Sharps Disposal Procedures

When disposing of sharp objects, safe pickup procedures must be practiced. Sharps must be disposed of in a puncture proof container (not in the regular garbage) and safe garbage handling procedures must be followed.

H&S 8.4 Measures when a worker is exposed to blood or bodily fluids

If a worker has been exposed to blood or bodily fluids, the following steps should be taken:

1. The worker should flush the contacted area with water as soon as possible and report the incident to lead hand or supervisor.

2. If a significant exposure (see previous page) has occurred, the worker should seek medical attention immediately, preferably within two hours. Timely assessment is necessary for the initiation of preventative medication and/or vaccination.

WORK ALONE AND / OR IN ISOLATION

H&S 9.1 Definition

Working Alone means the performance of any work function by a worker who:

- is the only worker for that employer, or any other person designated as a supervisor by the employer, at any time; and
- is not directly supervised by the employer, or any other person designated as a supervisor by the employer, at any time.

Working in Isolation means working in remote locations where assistance is not readily available in the event of injury, ill health or emergency and does not necessarily mean that the worker is working alone.

H&S 9.2 Positions experiencing working alone or working in isolation situations and risk assessment

There are positions within Dunn-Rite Food Products Ltd. that involve personnel who permanently experience working alone / in isolation conditions:

POSITION	HAZARDS	LENGTH OF WORK ALONE	RISK LEVEL	SAFE PROCEDURE
Delivery Drivers	Possible victimization , Slip / Trip/MSI	Entire Shift	Medium	Cellphone, GPS
Retail Store Attendant	Possible victimization, Slip/Trip/MSI	Entire Shift	Low	Regular phone and visual contact with plant, sales, QA

Several other positions involve working alone / in isolation conditions occasionally and for shorter periods of time:

POSITION	HAZARDS	LENGTH OF WORK ALONE	RISK LEVEL	SAFE PROCEDURE
Freezer Attendant	Slip/Trip/MSI	4-6 AM every day	Low	Man Down Alarm; Radio Contact
Box Room Attendant	Slip/Trip/MSI Moving equipment	6-7 AM / breaks	Low	Radio Contact, Communication*
Kill and EVIS set up employees	Slip/Trip/MSI Moving equipment	4-6 AM every day	Low	Communication*
Offal Room Attendant	Slip/Trip/MSI Moving equipment	Various times	Low	Communication*
Warehouse Attendant	Slip/Trip/MSI	Various times	Low	Radio Contact,
Shunt Driver	Slip/Trip/MSI	Various times	Low	Cell phone
Weekend Duty Manager	Slip/Trip/MSI	Rarely	Low	Cell phone
Weekend Employees	Slip/Trip/MSI/Moving equipment	Various times	Medium	Communication*

*Communication involves notifying another personnel (e.g.- partner working in the same room, supervisor, etc.).

Note: Sanitation company employees, hired contractors and service providers may occasionally be working alone or in isolation. These companies are all requested to have their employees working in pairs when possible and practicable. Also, they are supervised by their own lead hands or supervisors (e.g. Sanitation Company) or asked to report to Dunn-Rite management. The Weekend Duty Manager oversees activities performed on the weekend and ensures safety of contractors and service providers. Service providers are encouraged to regularly contact Dunn-Rite management to notify us of work alone and work in isolation situations. Contractors and service providers also have their own work alone procedures where they keep contact with their dispatchers.

H&S 9.3 Procedures

Delivery drivers must carry the company cell phone with them at all times (each driver is given a cell phone). There is also a GPS on every truck that allows the Shipping Manager to remotely track the locations of the drivers at any point in time.
Retail Store Attendant works alone but makes frequent trips to the warehouse and maintains frequent phone communication with shipping, production, QA and sales department.

Freezer and Storage Attendants are to work in at least pairs. If they choose to alter the arrangements, they must protect themselves by activating the Man-down alarm. The standard procedure is to set the alarm for 45 minutes, and use the assigned code to deactivate the alarm. They must continue to reset the alarm until their co-worker arrives. If the alarm is not responded to within six minutes, the monitoring company assumes that the attendant(s) is incapacitated and initiates emergency procedures.

Freezer attendant works alone between 4 and 6AM. These personnel use the Man-down alarm and / or maintain radio contact with maintenance personnel.

Box Room Attendants maintain regular radio contact with the rest of the plant. Employees advise production supervisor when they go for breaks and when they return.

Kill and EVIS set up employees work in at least pairs. If working alone they are required to maintain regular contact with one another and other employees.

Offal Room Attendant informs the evisceration supervisor or production / QA employees each time he/she goes to the offal room and estimates how long he/she will remain in the area. If the employee does not return in a timely fashion, notified employees are to look for the attendant.

Warehouse Attendants normally carry radios and maintain communication with the plant. All trips to the warehouse are announced and task length is estimated. If employee(s) do not return from the warehouse in a timely fashion, a search is conducted.

Shunt Driver makes regular trips to the plant and also carries a cell phone that can be used in case of emergency.

Weekend Duty Manager does not normally work alone but will make a phone call to another manager to inform him/her of working alone, estimating the length of time. A follow up call is made upon leaving the plant to confirm everything was safe. If a follow up call is not made within the time agreed, the manager previously contacted must contact the employee. If not successful contacting the employee the manager is to come to the plant and look for employee. This procedure is applicable to any other employee entering the plant alone.

Weekend Employees who are in during early morning hours and work alone in their department must notify another employee who is there of the location they are working.

No employee should work with moving equipment if he/she is the only employee in the plant. The employee must wait until there is another employee present in the plant to notify the other employee of his/her whereabouts before starting work.

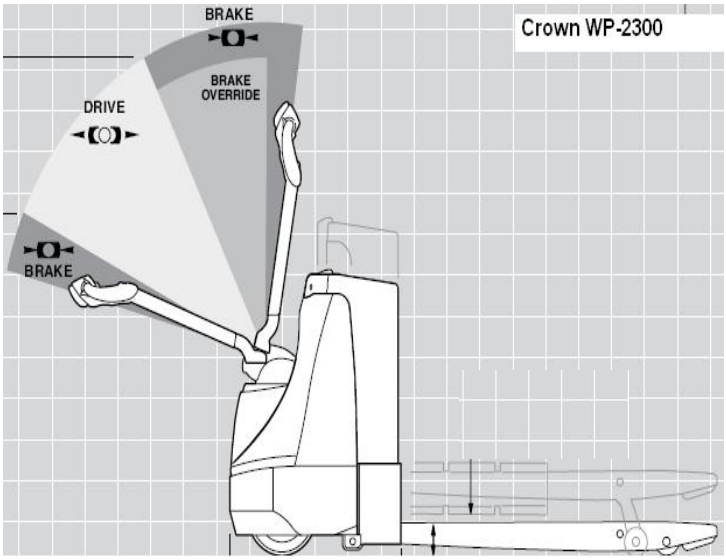
PALLET TRUCK PRE-OPERATIONAL INSPECTION

H&S-10.1 Introduction:

Pre operational inspection is completed to ensure safe operation of pallet trucks. Pre operational inspection is to be completed each day by employee operating the unit first.
Findings are to be documented on Form H&S-2: Pallet Truck Daily Check List.
If problems are detected, the pallet truck **MUST NOT** be used.
Report all problems to your lead hand, supervisor and / or maintenance.

H&S-10.2 Procedure:

1. Check the condition of the battery cables and vent caps. Make sure the battery connectors are clean and in good shape.
2. Inspect the lift and lower controls; ensure that the motions are free and smooth.
3. Make sure there are no hydraulic leaks at the lift/lower system.
4. Test the brakes by moving the control handle to both the raised and lowered position.
5. Make sure the safety reversing switch (red button on top of the control handle) is functioning.



6. Check directional speed control and plugging function.
7. Make sure steering is smooth without binding or exceed play.
8. Make sure the horn is functioning.
9. Check all wheels for signs of gouges or foreign objects.
10. Do not operate pallet truck if problem is detected.
11. Notify Lead Hand or maintenance staff if any problem is detected.

DUNN-RITE FOOD PRODUCTS

SOP # H&S-11

LIFT TRUCK PRE-OPERATIONAL INSPECTION

H&S-11.1 Key Off Inspection

1. Check the condition of the overhead guard. Make sure there are no broken welds, missing bolts or damaged areas.
2. Make sure there is no leakage or damage in the lift, tilt and attachment cylinders. Damp spots or drips may indicate a leak.
3. Check the mast assembly.
4. Checks lift chains and rollers. Look for the signs of rust, worn and damaged.
5. Make sure forks are not cracked, bent or mismatched. Ensure locking pins are engage.
6. Check the fire extinguisher.
7. Check all wheels and tires for sign of worn or damaged.
8. Inspect the battery. Make sure battery is fully charged and secure in place.
9. Make sure battery plug connections are not loose, worn or dirty.
10. Check the cable and make sure there are no exposed wires.

H&S-11.2 Key On Inspection

11. Make sure horn is working and loud enough to be heard in working environment.
12. Check other warning devices such as backup alarm and warning light.
13. Check floor brake. Make sure the pedal hold and lift truck can stop smoothly.
14. Check parking brake. Make sure it holds against slight acceleration.
15. Make sure steering is smooth.
16. Make sure clutch and gear shift without jumping or jerking.
17. Check the lift mechanism by raising forks to maximum height and lowering it completely.
18. Check the tilt mechanism by tilting mast all the way forward and backward. Make sure it move smoothly and hold.
19. Check cylinders and hoses. Make sure there are no leakages after above checks.
20. Check dash control panel. Make sure all lights and gauges are operational.
21. Make sure there are no unusual sounds during all the checks.

22. Notify Lead Hand or maintenance staff if any problem is detected.

RIGHT TO REFUSE DANGEROUS WORK

H&S-12.1 Hazards in the Workplace

Work involves safety and health hazards. Duties of employees are analyzed and hazards identified. All hazards are addressed through training, work instructions, safe work procedures, personal protective equipment etc.
In the case where an employee comes across work involving safety and health hazards that are not normal for the job and previously not identified, he/she must immediately report hazards and dangerous situations to the supervisor. This will prevent injuries or illnesses. Management will resolve the situation by removing the hazard. If the situation is not corrected, the employee can exercise his/her right to refuse work.

H&S-12.2 Right to Refuse

Under the law (*The Workplace Safety and Health Act*), employees can refuse to do any task that they reasonably believe is dangerous to their safety and health or the safety and health of others. Employees cannot be disciplined for exercising right to refuse in good faith, and they are entitled to the same wages and benefits that they would have received had the refusal not taken place. Employer may re-assign employee temporarily to alternate work while the situation is being remedied. Employee should stay at his/her workplace for his/her normal working hours unless permission to leave was given by employer.

H&S-12.3 Dangerous Work

"Dangerous" work generally means: work involving safety and health risks that are not normal for the job.

H&S-12.4 Steps Involved in Work Refusal Situation:

Step 1 – Report the Dangerous Condition
Employee reports immediately to supervisor or lead hand or to any other person in charge at the workplace giving reasons for refusing to work. If the matter is solved to employee satisfaction employee goes back to work. If the employer does not correct the dangerous condition, go to Step 2.

Step 2 – Involve the Safety and Health Committee, Representative or another Worker
If the employer does not correct the dangerous condition immediately, the person who received the report of refusal to work (or a person designated by them) must inspect the workplace in the presence of the refusing worker and the worker co-chair, or if they are unavailable, a committee member who represents workers.
If there is no safety and health committee member or representative available another worker selected by the worker who is refusing to work must be present.

If this inspection results in the matter being solved to employee satisfaction, go back to work. If the dangerous condition is still not remedied, go to Step 3.

Step 3 – Contact the Workplace Safety and Health Division

If, after the inspection in Step 2, the dangerous condition has not been removed, any of the persons present during the inspection may notify a safety and health officer of the refusal to work and the reasons for it. The safety and health officer will investigate the matter and decide whether the job situation or task the worker has refused is dangerous to the safety or health of the worker or any other worker or person at the workplace.

If the officer decides that the job situation or task the worker has refused is dangerous to the safety or health of the worker or any other worker or person at the workplace, they will provide the refusing worker, each committee co-chairperson, or the representative, and the employer with a written report stating their findings. They will also issue improvement orders or stop work orders to the employer as necessary to correct the dangerous condition.

If the officer decides that the work being refused is not dangerous, they will inform the employer and the refusing worker of that decision, and inform the worker that he or she is no longer entitled to refuse to do the work.

H&S-12.5 Appealing an Officer's Decision

Anyone directly affected by an officer's decision may appeal it to the Director of the Workplace Safety and Health Division. The Director will make a decision about the appeal, and provide written reasons. The decision of the Director may be appealed to the Manitoba Labour Board.

NOISE EXPOSURE ASSESSMENT

H&S-13 1.1 Introduction:

Noise is the most common workplace hazard in Dunn-Rite Food Products Ltd. Exposure to high noise levels may induce hearing loss and other health issues such as annoyance, stress, headaches and increased blood pressure.

H&S-13 1.2Objective:

The objective of noise exposure assessment is to detect the noise exposure of Dunn-Rite employees during daily operation.

H&S-13 1.3 Assessment Overview:

a. Frequency – Annually
b. Instrument – EXTECH Digital Sound Level Meter
c. Record – Form S.9

H&S-13 1.4 Procedures:

1. Turn on the Sound Level Meter.
2. Press the Weighting key to select 'A' weighting. Make sure there is an 'A' on the LCD display.
3. Press the Fast/Slow key to select 'SLOW' response. Make sure 'Slow' is shown on the LCD display.
4. Go to the selected department in the plant.
5. Upon entering the area, press the record key.
6. Walk around the department.
7. Before leaving the department, press the Record key to display the minimum reading recorded.
8. Press the Record key again to display the maximum reading recorded.
9. Press the Record key for the last time to resume normal meter operation.
10. Write down the maximum and minimum sound level reading of the department in Form S.9.

H&S-13 1.5 Noise Exposure Limit:

- Manitoba maximum permitted exposure level for 8 hours is 85dB(A).
- All Dunn-Rite employees are advised to wear hearing protectors.
- Ear plugs provided by Dunn-rite reduces noise by 25 dB.
- Therefore, outcome of maximum sound level reading minus 25 dB must be less than 85 dB.
- Notify QA Manager if results of measurement exceed the permitted limit. Control measures must be taken to reduce the noise exposure to acceptable level.

VIOLENCE PREVENTION POLICY

PREAMBLE

1. The Company is committed to providing a working environment free from violence.

2. The Company has adopted this Policy to make it clear that violence in the workplace will not be tolerated by the Company.

3. The Company will ensure, so far as is reasonably practicable, that no employee is subjected to work related violence. In doing so, the Company will also ensure, so far as is reasonably practicable, that all affected employees are made aware of potential risks of work related violence and of the appropriate action to protect themselves from such risks.

4. The Company encourages the reporting of all incidents of violence regardless of who the offender might be. The Company will take corrective action respecting any person under its direction who subjects an employee to violence. Any employee, regardless of position, found to have engaged in violent conduct will be subject to disciplinary action, up to and including termination of employment.

DEFINITION OF VIOLENCE

For the purpose of this Policy, "violence" means:

(a) the attempted or actual exercise of physical force against a person; and

(b) any threatening statement or behaviour that gives a person reasonable cause to believe that physical force will be used against him/her.

THE ROLE OF MANAGERS AND SUPERVISORS

Managers and supervisors are responsible for maintaining a work environment that is free from violence. This requires managers and supervisors to be sensitive to the work environment, to identify potential sources of violence and to address such situations before they become actual incidents of violence.

Any manager or supervisor who is aware of an act of violence or a risk of violence must take immediate action to address the situation. Such action includes, but is not limited to, the following:

(a) immediately informing the Plant Manager or his/her designate of the situation;

(b) assisting the Plant Manager or his/her designate in informing employees about any risk of violence, directing them in how to minimize such risk and ensuring that they comply with such directions; and

(c) assisting in any Company investigation.

A manager or supervisor who fails to fulfill these requirements will be subject to disciplinary action, up to and including termination of employment.

THE ROLE OF EMPLOYEES

Employees are required to treat each other with respect and dignity at all times.

Employees must not engage in any form of violence while on Company time or Company property or while otherwise conducting Company business and must take all reasonable steps, and follow all established procedures, to minimize the risk of work related violence to themselves and others.

Any employee whose actions are inconsistent with this Policy will be subject to disciplinary action, up to and including termination of employment.

RISK ASSESSMENT

The following risks of violence and their risk potential were identified in a risk assessment conducted by the Company in conjunction with the workplace safety and health committee:

- there is potential for physical altercations with and verbal threats from other employees in the workplace;
- there is some potential for criminal victimization for employees driving alone on the road (eg. Dunn-Rite shipping truck drivers)
- There is some potential for physical altercations with and verbal threats from other employees in the grounds outside the main building (eg. Parking lot)
- There is potential for criminal victimization for employees working alone in the retail store
- There is limited potential for criminal victimization for employees working at night and on weekends

STEPS TO ELIMINATE OR MINIMIZE RISKS OF VIOLENCE

The following measures have been taken by the Company to eliminate or minimize the identified risks:

- Yearly training of employees on the company's safety policies
- Making available Lead Hands, Lead Hand Back-ups and Supervisors on every work shift

- Making available communication radios for employees on the road (connects to the Shipping office and the Confirming desk), having a call in log and a GPS in each truck
- Providing adequate lighting in areas required
- Ensuring lock-up checks are done nightly as well as having a security alarm system in place
- Ensuring there are video surveillance cameras at all access points to the plant as well as office
- Ensuring the retail store's door has a lock and card access, and that the retail store is equipped with a phone and a video surveillance camera

The Company has also implemented the following safe work procedures to eliminate or minimize the identified risks:

- SOP H&S.9- Work Alone and/or in Isolation
- SOP H&S.2- Emergency Procedures

An employee may further eliminate or minimize the risk of violence by:

- taking all reasonable steps to protect his/her own personal safety;
- taking all reasonable steps to remove him/herself from violent situations;
- calling for help from a co-worker, manager or supervisor when a situation has become violent or has the potential to become violent; and
- notifying a manager or supervisor when he/she has concerns about violence or the potential for violence in the workplace.

REPORTING INCIDENTS OF VIOLENCE

Employees who have been involved in an act of work related violence, whether as victim or witness and whether the violent conduct was engaged in by a fellow employee, manager, supervisor, client or guest, should take the following steps:

1. inform their supervisor or manager immediately of the incident;
2. seek any necessary medical attention; and
3. keep a detailed written record of the event(s) including the name(s) of the individuals involved, place, date, time, witnesses (if any) and details of the offensive behaviour.

Employees who at any time have a question or concern regarding work related violence or potential work related violence are encouraged to speak with their supervisor or manager.

To summon immediate assistance when violent or threatening situations occur, employees may notify the Lead Hand or Back-up Lead Hand of their department/department they are currently in. They may also go to the Production Supervisor/Plant Managers office immediately, or call for help using the radio that each Lead Hand/designated employee has.

The company recommends that any worker who has been harmed as a result of a violent incident at the workplace consult their health care provider for treatment or for referral to post-incident counselling, if appropriate.

INVESTIGATION PROCESS

The Plant Manager or his/her designate will investigate reported incidents of violence or potential violence and determine the appropriate course of action, if any, to be followed by the Company.

Where the investigation results in a finding that an employee has engaged in any form of violence while on Company time or Company property or while otherwise conducting Company business, the outcome of the investigation and any resulting disciplinary action will be recorded in the personnel file of that employee.

Where the investigation results in a finding that an employee did not engage in violent conduct while on Company time or Company property or while otherwise conducting Company business as alleged, all records of the alleged incident shall be removed from the personnel file of the employee, unless the employee chooses to have such records kept in his/her personnel file.

Where the investigation results in a finding that an allegation of violent conduct had been brought frivolously or maliciously, the employee who made the allegation may be disciplined and the outcome of the investigation and any resulting disciplinary action will be recorded in the personnel files of the employee against whom the allegation was made and the employee who made the allegation.

An employee who is alleged to have engaged in violence and employees affected by the alleged violence will be informed by the Company of the outcome of the investigation and any resulting disciplinary action.

CONFIDENTIALITY

Confidentiality will be maintained throughout the investigatory process to the extent practicable and appropriate under the circumstances. The name of an employee who reports workplace violence will be disclosed only when necessary to investigate the alleged incident or to take corrective action in response to the alleged incident or as may be required by law.

PROTECTION AGAINST RETALIATION

Employees will be protected against retaliation for having made a report of an incident of violence or having participated or cooperated in an investigation under this Policy.

This Policy is not intended to discourage or prevent employees from exercising any other legal rights they may have with respect to violence in the workplace.

CHEMICALS IN THE PLANT

Dunn-Rite uses a variety of different chemicals in the plant. These chemicals exist in solid, liquid, or gas form.

1.0 Workplace Hazardous Material Information System (WHMIS)

The Workplace Hazardous Materials Information System (WHMIS) is Canada's national workplace hazard communication standard. The key elements of the system are cautionary labelling of containers of WHMIS controlled products, the provision of material safety data sheets (MSDSs) and worker education and site-specific training.

1.1 Material Safety Data Sheets (MSDS)

Material Safety Data Sheets, also referred to as MSDS, provide employees with comprehensive information regarding the controlled product they may be using. The MSDS will identify the following items:

- Product Information
- Hazardous Ingredients
- Physical Data
- Fire or Explosion Hazards
- Reactivity Data
- Toxicological Properties
- Preventive Measures
- First Aid Measures

Any chemical that Dunn-Rite purchases must be accompanied by an MSDS the first time of receiving, or prior to bringing the chemical into the plant. The MSDS has to be checked to ensure that it is less than 3 years old.

Binders containing an MSDS for each controlled product used in the plant are stored in these locations:

- Processing Plant Employee Lunchroom
- Laboratory
- End of hallway by Evisceration Entrance (only MSDS for chemicals used in the West Plant)

MSDS are also kept in four other locations. These locations only have MSDS for the chemicals that are stored at the location:

- Compressor room
- Laundry room
- Tub Wash room

- Chemical rooms (West Plant and East Plant)

The QA Manager or designee is in charge of checking MSDSs once a year. During this procedure, QA is to walk through the plant and ensure every chemical is labelled, is on the Approved Chemical list, has an MSDS in the MSDS binder (or on site if the chemical is in the Compressor Room, Laundry Room, Tub Wash Room or Chemical Rooms) and that the MSDS was updated within the last 3 years. If a chemical MSDS does not have a printed date that was updated in the last 3 years, the QA Manager/designee must contact the chemical company to request an updated MSDS. If the company does not have a newer one, the employee performing the checks must clearly indicate the date he/she called the company on the front page of the MSDS.

1.2 Education and Training

Supervisors are to read the MSDS before using a chemical for the first time. Supervisors are responsible for training employees on how to handle chemicals (if they are to handle them). If employees have any questions, they are to ask their supervisor for clarification. Employees are advised to consult the MSDS when the need arises. Instructions found on the MSDS should be followed at all times (eg. wearing safety goggles, wearing protective rain suits, etc.)

2.0 Chemical Locations

Chemicals in their concentrated forms are only located in the:

- Chemical Rooms (East Plant and West Plant)
- Tub Receiving Dock (temporary storage)
- Tub Wash Room
- Boiler 3 Receiving Dock (temporary storage)
- Maintenance Room
- Boiler Room and Laundry Room by Autocut
- Lab
- Engine Room
- Evisceration Office (Virkon only)
- Laundry Room by Live Receiving

Concentrated forms of chemicals are recommended to be kept in their original received containers that indicate the chemical name and information for safe use and safe handling of the chemical (as per WHMIS guidelines). If any chemical needs to be put into a separate container, the container must be labelled with the chemical name and may only be handled by a trained employee (Supervisor or designee, or Maintenance employee). Any chemical in its concentrated drums (original packaging received from suppliers) have to be upright at all times. Mechanical equipment is attached to the drums to automatically dilute the chemicals. If any chemical needs to be put into a separate container, the drum cannot be tilted- a pump must be used. Pumps can be obtained through the Sanitation Supervisor and Manager, or the QA Manager. All pumps used must be labelled with the chemical name. The pump used may only be used by a trained

employee as pumps may only be used for compatible chemicals (eg. The same pump can be used for Bleach and SPF Turbo, but it cannot be used for any acids). Containers used for transporting chemicals must have a lid on it so no splashing can occur.

The chemical rooms are kept locked. Only Supervisors and Management have keys/pass codes to the chemical rooms. Only trained employees should access the chemical room. Due to the security of the chemical room and the training and responsibilities key-holders have, there is a low risk of spillage or accidents occurring in the chemical room.

When entering the chemical rooms, make sure you leave the chemical room door open. This safety procedure allows proper air ventilation if a spill were to occur. Additionally, it also allows other employees to be able to access the chemical room or see you if case an accident occurs in the room.

In each chemical room is spill kit pail. If a spill occurs, use the sorbent socks in the spill kit to contain the spill. Make sure you are wearing rubber gloves when handling chemicals (there is a pair of gloves in the spill kit too). There is one drum of acid in the West Plant's chemical room. This drum is stored on a spill pallet and spills will be contained within the pallet. Do not attempt to remove the drum from the pallet if it still contains chemicals (only empty drums may be removed from the spill pallet).

Diluted chemicals are located throughout the plant. The majority of chemicals are diluted mechanically by the dispensing system located in the Chemical Room. The concentrations of chemicals are checked according to a specific daily or weekly schedule (see Form E.11). A trained QA employee performs the titration tests according to SOP Q.49. Pails used for diluted chemicals must have a tag identifying the chemical, or must have the chemical name written on the pail.

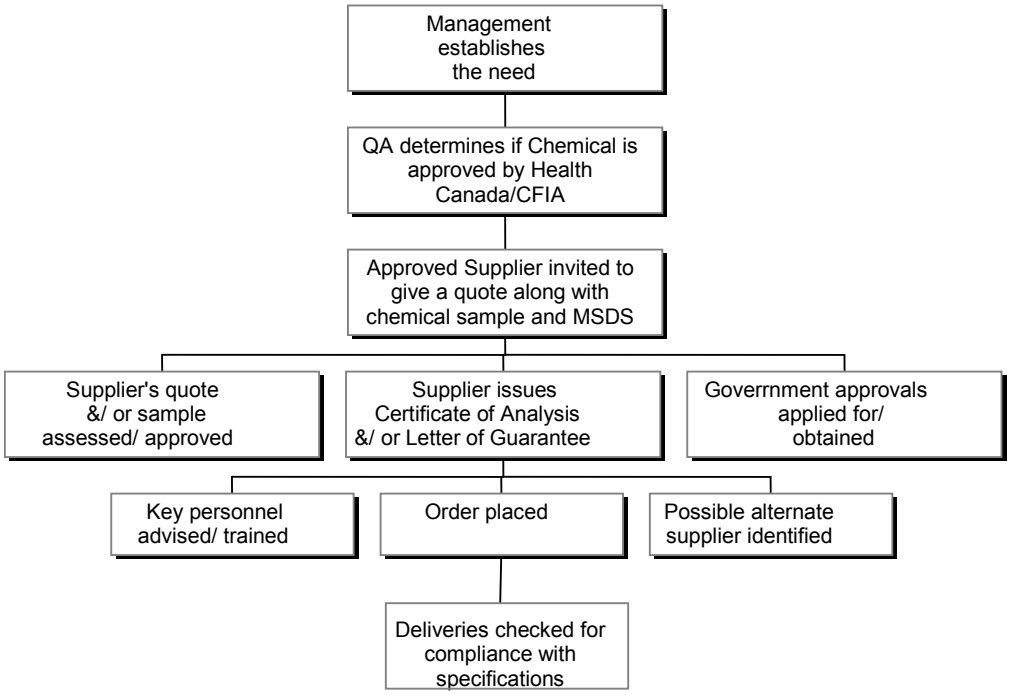
3.0 **Personal Protective Equipment (PPE)**

The company provides the following for all employees:

- Gloves (yellow rubber gloves or blue disposable non-latex gloves)
- Rain jackets
- Rain pants
- Steel-toed chemical resistant rubber boots
- Eye goggles (different types available)
- Face shields
- Aprons
- Plastic disposable sleeves

Employees are responsible for taking precautionary steps and wearing the appropriate PPE as advised by their Supervisor.

4.0 Steps in Purchasing a Chemical/ Approved Supplier Program



5.0 Diesel Fuel

There is an on-site diesel fuel tank for trucks located on Dunn-Rite Food Products. This location is segregated and contained. Safety precautions are to be taken when using the fuel pump, specifically:

a. Absolutely no smoking and/or open flames allowed
b. Do not use cell phones or any electronic devices
c. Turn off engine before fuelling up
d. Do not leave fuel nozzle unattended while filling truck up
e. Always make sure that the pump is in the “off” position before leaving

In case of emergencies:

a. Use the fire extinguisher mounted on the wall and contact the Live Haul Manager (Abe Shroeder, 204-781-4530) if a fire occurs. If the fire is bigger than a fire extinguisher can control, call 911 immediately
b. There are emergency shut off switches mounted on the fence electrical panel
c. If a spill occurs (no fire), use the spill kit (it is the 55 gallon drum). The spill kit contains all necessary equipment. Ensure you are wearing the gloves and goggles in the spill kit. Use the appropriate material to contain the spill (different items such as the boom, pads, etc. are in the spill kit) or soak up the spill. Notify the Live Haul Manager immediately. If the spill is small and can be cleaned up with the provided pads, the pads must be put into the hazmat disposal bags and disposed of appropriately (contact the Live Haul Manager on appropriate steps to take). The Live Haul Manager is to ensure all used items from the spill kit are replaced.

CONTRACTED EMPLOYERS

Dunn-Rite uses contracted employers or self-employed people to do certain work throughout the plant. As a contractor, Dunn-Rite is responsible for managing the safety and health risks that are under our control.

Any new contractor working in the plant has to go through a "Contractor Health & Safety Orientation" (see Appendix 1) whereby the Maintenance Manager or designee signs the contractors and their employees in, reviews plant safety rules and emergency responses with them as well as provide them with at least one Dunn-Rite contact in case of emergency (eg. Maintenance Manager or Weekend Duty Manager). The Dunn-Rite designee who signs the contractor in must fill up the checklist in Appendix 1.

Once the contractor (and his/her employees, if applicable) has gone through the Health and Safety Orientation, the contractor must read Dunn-Rite's Contractor Control form (see Appendix 2) and sign and date it.

All forms must be handed back to the receptionist on duty, who then hands it to the QA Manager to file.

SOP H&S-16 Contracted Employers: Appendix 1

Contractor Health & Safety Orientation Checklist

Sign in Contractors and their Employees

☐ Show them where First Aid supplies are located
☐ Note specific hazards in the area that the contractor is expected to work

Plant Safety Rules

☐ Go through Dunn-Rite's Contractor Control Form
☐ Lock-Out/Tag-Out (If Applicable)
☐ Working at Heights (If Applicable)
☐ Hot Work (If Applicable)
☐ Housekeeping expectations (do not leave equipment in regular walkways/employee traffic)

Emergency Response

☐ Explain fire alarms
☐ Show/explain where fire extinguishers are in the area
☐ Explain what to do if a fire/black-out occurs
☐ Explain or show emergency routes and exit

Contact People

☐ List name(s) and Phone Numbers

Contractor: _____ Date: _____

Dunn-Rite Designee: _____ Date: _____

SOP H&S-16 Contracted Employers: Appendix 1

Dunn-Rite's Contractor Control Form

1. All workers must sign in at the Reception Desk before entering the hallway or plant. Contractors must sign a "Non-Disclosure Form" upon entering the plant for the first time. A card explaining the basic rules and regulations will be provided
2. If you are suffering from or are a carrier of a disease transmissible through food, you MUST report it to the Production Manager and QA Manager
3. Properly dress all open cuts or wounds and wear a rubber glove if the cut is on your hand
4. Sensible behaviour is expected at all times.
5. Items not permitted in the plant (no exceptions):
   a. Jewellery
   b. Earrings and other exposed body piercings
   c. Cameras or any other item that can take photos or record videos
   d. Baseball caps
   e. Wedding bands with stones (rings without stones are allowed)
6. Fake fingernails must be covered with a glove
7. Medic-Alert bracelets are allowed but must be covered and the Production Manager or QA Manager must be notified of this in case an emergency arises
8. Hairnets and/or bouffant MUST be worn to ensure that all hair is covered
9. Beards and moustaches MUST be covered with a beard net
10. Do not wear smocks in the lunch room, washrooms or outside the plant
11. Do not have objects such as pens, thermometers, etc. in the upper pockets
12. Boot sanitizers are installed to minimize cross-contamination from less clean areas. Example- when leaving the Live Receival and Evisceration areas and when entering the Processing are from the lunchroom or outside the plant.
13. Do not consume food and drink anywhere except in the lunchroom or outside the building
14. All trash must be placed in trash containers
15. Scan cards are only provided to contractors based on prior arrangement with the company's management (Maintenance Manager, Production Manager or QA Manager)
16. All workers working at Dunn-Rite Food Products Ltd. must accept safety as a personal responsibility and is expected to maintain a safe working environment.
17. All Federal and Provincial Occupational Health and Safety Regulations are applicable on this site as a minimum standard. Unsafe work practices or other misconduct while working at Dunn-Rite Food Products Ltd. may result in immediate escort from the facility.
18. Bump-caps MUST be worn when working under moving product
19. Don't run in the plant

20. Don't stand or walk under the Vat-dumpers
21. Do not keep any outside doors open (propped or held) and do not open doors for anyone who has not signed in

SOP H&S-16 Contracted Employers: Appendix 1 (continued)

Dunn-Rite's Contractor Control Form (continued)

22. No open-toed/open heel shoes
23. Do not turn any equipment on if there is no Dunn-Rite Supervisor with you
24. You must discuss potential safety issues with the Maintenance Manager or Designee and sign the "Contractor Health & Safety Checklist"
25. You must work safely and be aware of the safety of others around you

Contractor: _____ Date: _____

HEALTH AND SAFETY COMMITTEE

Dunn-Rite's production plant requires a Health and Safety Committee as there are more than 20 workers at the plant.

The committee must have four to twelve members, with half the members from management and half the members not from management (under the Union). It is recommended that all shifts/departments are represented by the committee members. There must be two co-chairpersons in each meeting- a management co-chair and a worker co-chair.

1.0 Meetings

The committee must meet at regular intervals not exceeding three months. The date of meeting is set at the previous meeting and written down in the meeting minutes. This date may change as long as it does not exceed three months from the last meeting. Meetings are held in Dunn-Rite's board room. The time of the meetings are determined closer to the meeting date (but at least three days prior) and is communicated to Workplace Health and Safety members by email, Health and Safety Bulletin Board or verbally.

If a scheduled meeting needs to be changed, all members are notified by email, through the Workplace Health and Safety Bulletin Board or verbally.

Committee members must be given at least three days notice prior to a regularly scheduled committee meeting. Emergency meetings may be called such as when a Serious Incident (see SOP H&S-7- Serious Incidents at Workplace) occurs. These emergency meetings will not require 3 days prior notice.

During meetings, the following must be discussed:

- Old issues not addressed/closed that were on the previous meeting minutes
- The findings of members during their plant/department walk through (matters that require attention)
- New issues brought up by employees (if applicable)
- New issues brought up by members, not found through their plant/department walk through (if applicable)
- Any incidents involving health and safety that occurred in the workplace
- Green Cards
- Changes in Workplace Health and Safety Regulations (if applicable)
- Any new hazardous (chemical or biological) material that has been/will be brought into the plant (if applicable)
- New Safe Work Procedures, Health and Safety Standard Operating Procedures or Risk Assessments (if applicable)

The Committee may also choose to discuss the company's Safe Work Procedures (a minimum of six existing Safe Work Procedures must be reviewed every year) or Risk Assessments during the meetings
Minutes of the meetings must be signed by each co-chairperson (1 management and 1 unionized worker). Meeting minutes must be kept at the workplace for at least ten years and must be emailed to the Workplace Safety and Health Division at "cominutes@gov.mb.ca". Each committee member or the worker representative must be given a copy of the minutes. The minutes must also be placed in the Health and Safety Bulletin Board.

2.0 Training

Health and Safety Committee members are entitled to the equivalent of two normal working days each year for safety and health related training.

3.0 Expectations of Committee Members

All committee members must have their photos up on the Health and Safety Bulletin Board as well as the plant's employee orientation. Members are expected to take complaints from plant employees seriously. Once a complaint is brought to a committee member, the member must bring it up in the next Health and Safety Meeting to be discussed. If the matter requires urgent attention, Management must be notified immediately.

All committee members must try their best to attend all Health and Safety Meetings. If a member cannot make it to a meeting and that particular meeting agenda includes a vote for a decision to be made, there must be someone else attending in their place or the person may notify the committee of his/her vote before the meeting. A person replacing a unionized member must be chosen by the other unionized members on the committee. A person replacing a management member may be chosen by management.

All committee members (and guests who attend Health and Safety Meetings) must not disclose a worker's personal health information unless the disclosure is required or permitted by law.

Committee members must help in identifying safety and health risks in the workplace and follow up with risk assessments, recommendations, etc. Before each Health and Safety regular scheduled meeting, each committee member must take a walk through either the whole plant or one department and monitor the place and employees for safety issues. Any issues found must be discussed in the Health and Safety meeting

All committee members are expected to assist the employer in developing and promoting measures to protect workers. Members are also required to participate in investigations of incidents and dangerous occurrences (see SOP H&S #7).

*NOTE: The committee members should not be involved in disciplinary matters as maintaining health and safety compliance is the responsibility of the employer, managers and supervisors.

4.0 Committee Members Participation in Inspections and Investigations

4.1 Inspections

As mentioned in 3.0 (Expectations of Committee Members), members must perform regular inspections of the plant to identify safety or health hazards that may be present. Dunn-Rite will provide resources and time in helping the committee member plan and schedule inspections as required. As a guideline of what to look for, committee members may use Form H&S-1 (Job Safety Checklist) that the QA department uses when monitoring health and safety throughout the plant.

When performing general inspections, the following steps may be used as a guideline:

a. Choose a department and stand in a spot where you are out of the employees' regular paths (don't stand in the middle of the room where there is high traffic)
b. Observe specific tasks that employees are performing. If there is a Safe Work Procedure already written for that particular task, compare what the employees are doing with the Safe Work Procedure. Note down any deviations from the procedure.
c. Note down any safety concerns that you see. Example: Employee did not put on Kevlar gloves before putting on rubber gloves. The same employee went on the line to trim product.
d. Observe non-specific tasks that employees are performing, such as walking throughout the department. Note down any safety concerns that you see. Example: Floor has lots of fat build-up, causing the floors to be slippery. Area is a high traffic area so there is potential for slips and falls.
e. Note down suggestions that could be implemented as a corrective action. Example: Have Management constantly remind Lead Hands to perform mid-shift clean-up to ensure a minimum amount of fat build-up on the floors.

4.2 Investigations

"Serious Incidents" (SOP H&S#7) must be reported immediately to the Workplace Safety and Health Division. The co-chairs of the health and safety committee must be involved in the serious incident investigations as well as any other incidents that "injures a person, and results in the person requiring medical treatment, or that had the potential to cause a serious incident".

The co-chairs of the safety and health committee must be involved in the preparation of written incident investigations for serious incidents. They must also accompany a safety and health officer during an investigation if the officer requests it.

Health and Safety Committee members must also perform an inspection when a supervisor and worker cannot resolve a "Right to Refuse" incident (whereby an employee refuses to work citing health and safety reasons). During this investigation, the employee in question may be temporarily assigned to alternate work, as long as the employee has been trained for it. Before the employer reassigns the job to a different employee, this employee should be advised of the situation and the reasons for refusal. The alternative employee must also be advised by the first worker, or by a provincial government safety and health officer. If the dangerous condition is not remedied after the inspection, those present during the inspection may notify a provincial government safety and health officer of the refusal to work and the reasons for it. The officer will investigate the matter and decide whether the job situation or the task constitutes a danger to the health or safety of the worker or any other worker or person at the workplace. The officer will then provide a written decision to the refusing worker, each co-chairperson of the safety and health committee and the employer.

in Charles > Health & Safety > Health & Safety Program > Workplace Hazardous Materials Information System

Workplace Hazardous Materials Information System

(WHMIS)

WHMIS

- Purpose:
  - Provide information on hazardous materials used in the workplace
  - Facilitate the process of hazard identification in the workplace
  - Ensure consistency of hazard information in all Canadian workplaces

3 Main Components of WHMIS

Under WHMIS, there are 3 ways to provide information on hazardous materials:

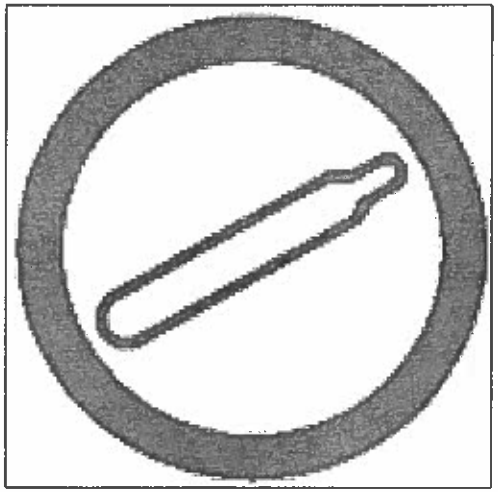
- Labelling
  - Supplier's WHMIS labels on containers
- MSDS
  - Material safety data sheets to supplement the supplier's label
- Training
  - Worker training programs provided by the employer

WHMIS Controlled Product

- A controlled product is any product that can be included in any of the following 6 classes:
  - Class A: Compressed Gas
  - Class B: Flammable and combustible material
  - Class C: Oxidizing material
  - Class D: Poisonous and infectious material
  - Class E: Corrosive material
  - Class F: Dangerously reactive material

WHMIS Hazard Symbols

- Class A: Compressed Gas



Any material which is a gas at normal temperature (20 degrees Celsius) and pressure, but is packaged as Pressurized Gas, Dissolved Gas or Gas Liquified by compresion or refrigeration.

Eg. Oxygen, Chlorine, Acetylene, etc.

WHMIS Hazard Symbols

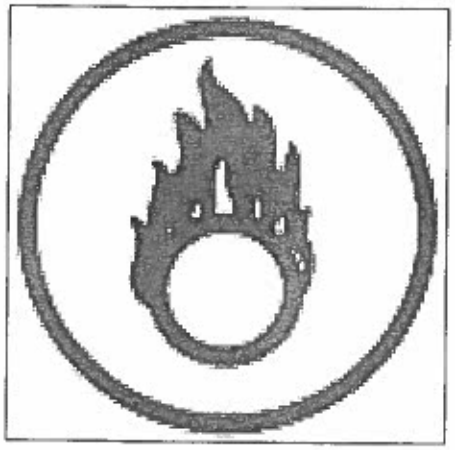
- Class B: Flammable & Combustible Material

Solids, Liquids and Gases that will ignite and continue to burn in air if exposed to a source of ignition/spark

Eg. Methane, Acetone, etc.

WHMIS Hazard Symbols

- Class C: Oxidizing Material



Will release oxygen contributing to the combustion of other material

Increases the risk of fire if they come in contact with flammable or combustible materials

Eg. Ozone, Chlorine, Nitrogen Dioxide, etc.

WHMIS Hazard Symbols

Class D: Poisonous and Infectious Material

Division 1: Materials causing Immediate and Serious toxic effect

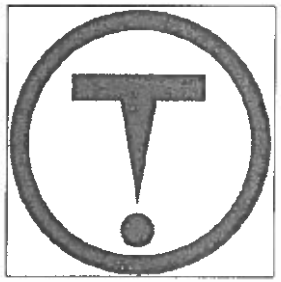
Can cause death or immediate injury when a person is exposed to small amounts

Eg. Styrene, Hydrogen Cyanide

Division 2: Materials causing Other Toxic Effects

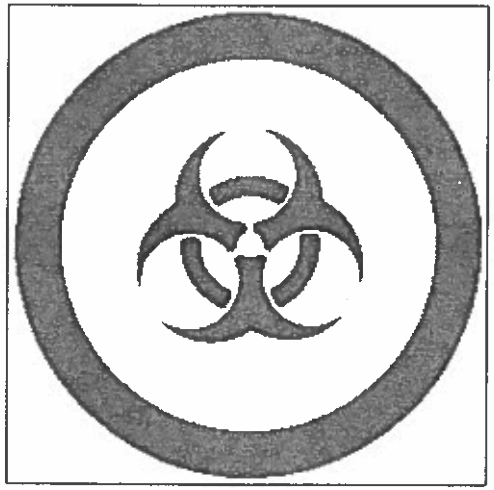
These materials can cause life-threatening and serious long-term health problems as well as less severe but immediate reactions in a person who is repeatedly exposed to small amounts

Eg. Ammonia, Asbestos



WHMIS Hazard Symbols

- Class D: Poisonous and Infectious Material (continued)



Division 3: Biohazardous Infectious Material

A biohazard can be either a living organism or the chemical toxin that it produces that cause disease in humans

Eg. Hepatitis B

WHMIS Hazard Symbols

- Class E: Corrosive Material

Can attack metals or cause permanent damage to human tissues

May weaken structural containers

Eg. Sodium hydroxide, hydrochloric acid, ammonia

WHMIS Hazard Symbols

- Class F: Dangerously Reactive Material

May self-react dangerously under conditions of shock or increases in temperature or pressure

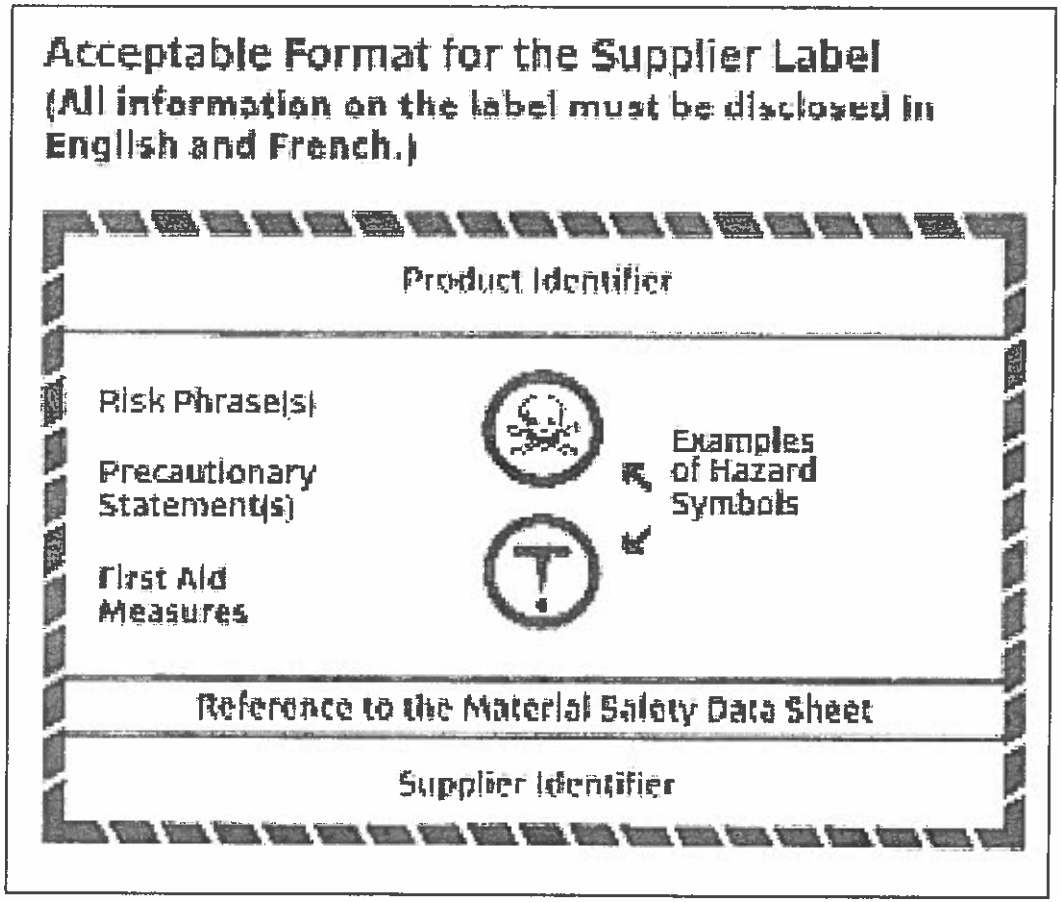
May react with water to create toxic gas

Eg. Ozone, benzoyl peroxide

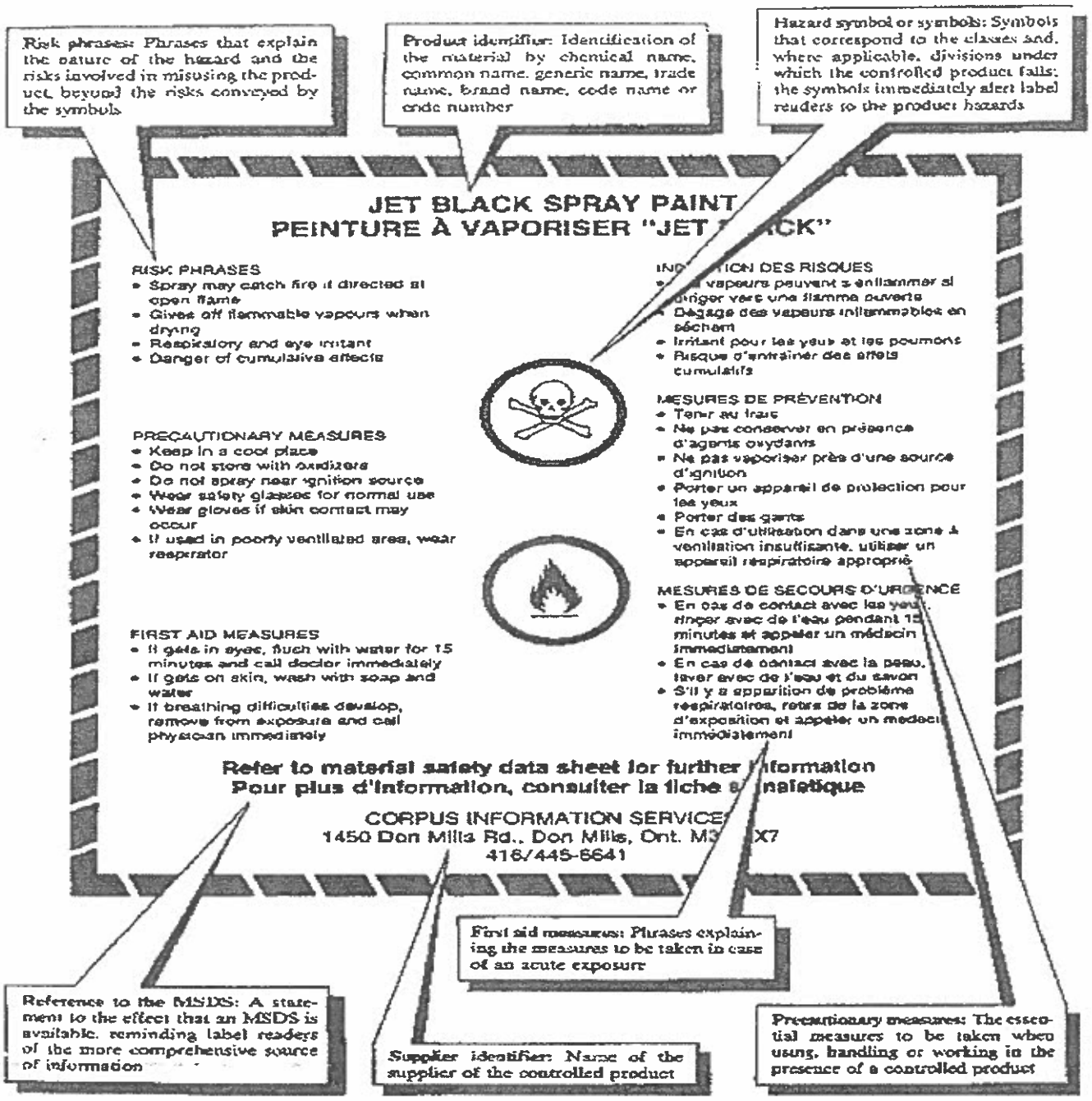
WHMIS Hazard Symbols

- Eight pieces of information in English & French:
  a. Product Identifier (common/chemical name)
  b. Hazard symbol(s)
  c. Risk phrase(s)
  d. First aid measures
  e. Supplier Identifier (name, address, etc.)
  f. Reference to MSDS
  g. Precautionary measures
  h. Border- must be distinctive & different from background of container

Supplier Labels



Sample supplier label



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The label shown above is a sample label only.

Workplace Labels

- If the supplier label becomes damaged or illegible, it must be replaced with a new supplier label or appropriate workplace label
- If you pour/dilute the chemical into a different container, you must put a workplace label on (may be written directly on the container using permanent marker)

Workplace Labels

- Workplace label must contain:
  - Product identifier
  - Specific safe handling information and personal protective clothing and equipment required
  - Reference to the MSDS

Acetone
Keep away from heat, sparks, and flames. Wear safety goggles and butyl rubber gloves. Use with local exhaust ventilation.
MSDS available.

Material Safety Data Sheet (MSDS)

Material Safety Data Sheets also referred to as MSDS provides the worker with comprehensive information regarding the controlled product they are using. The MSDS will identify the following nine items:

- Product Information
- Hazardous Ingredients
- Physical Data
- Fire or Explosion Hazards
- Reactivity Data
- Toxicological Properties
- Preventive Measures
- First Aid Measures
- Information of preparation for MSDS

Material Safety Data Sheet (MSDS)

Binders containing an MSDS for each controlled product used in the plant are stored in two separate locations:

- Employee Lunchroom
- Laboratory

MSDS are also kept in four other locations. These locations only have MSDS for the chemicals that are stored at the location:

- Compressor room
- Laundry room
- Tub Wash room
- Chemical room

Material Safety Data Sheet (MSDS)

- Employees are to read the MSDS before using a chemical for the first time. If they have any questions they are to ask their supervisor for clarification. Employees are advised to consult the MSDS when need arises. Instructions found on the MSDS should be followed at all times.
- MSDS are updated every three years after their effective date. They then are kept on file for seven years after their expiry date.

Storage

- Store chemicals according to manufacturer's specifications and consult your Supervisor/Manager before storing any chemical away for the first time.
- Before storing chemicals away, make sure the storage area designated does not have any other chemicals that can react dangerously with your chemical
- Make sure items are stored upright in their containers unless specified otherwise by the manufacturer or your Supervisor/Manager
- Make sure the item is labelled clearly before putting it away for storage

Management Responsibilities

- Establish education and training programs for employees exposed to hazardous products in the workplace.
- Make sure that the products are labeled and that an MSDS is present for each product and that they are readily available to employees
- Train employees on where to store chemicals
- Train employees on how to handle specific controlled product

Employee Responsibilities

- Employees are required to participate in the training programs and to use this information to help them work safely with hazardous materials.
- You may also inform management when labels on containers have been accidentally removed or if the label is no longer readable