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SAFETY DATA SHEET

Anhydrous Ammonia

Section 1. Identification

Product identifier : Anhydrous Ammonia
Product type : gas (Liquefied gas.)
Product code : PA001L

Uses

Area of application : Industrial applications, Professional applications
Material uses : Industrial USE as heat transfer fluid/refrigerant. Industrial USE as reactive agent in manufacturing of chemicals and fertilizers. Industrial USE as reagent in pollution control. Agricultural USE as a fertilizer Other USE in industrial and professional applications.

Supplier

Supplier's details : Yara Belle Plaine Inc.

Address

Street : 2 Kalium Road
Number : Box 39
Postal code : S0G 0G0
City : Belle Plaine
Country : Canada

Telephone number : 306 345 4200
Fax no. : 306 345 2353
e-mail address of person responsible for this SDS : BellePlaineHESQ@yara.com
Emergency telephone number (with hours of operation) : 1 (306) 345 4200 (24/7)

National advisory body/Poison Center

Name : Poisons and Drug Information Service
Telephone number : +1 403 944 1414, (800) 332 1414 (Alberta only)

Section 2. Hazards identification

Classification of the : FLAMMABLE GASES - Category 2

substance or mixture.

GASES UNDER PRESSURE - Liquefied gas
 ACUTE TOXICITY (inhalation) - Category 3
 SKIN CORROSION - Category 1B
 SERIOUS EYE DAMAGE - Category 1
 AQUATIC HAZARD (ACUTE) - Category 1
 AQUATIC HAZARD (LONG-TERM) - Category 2

GHS label elements**Hazard pictograms****Signal word**

: Danger

Hazard statements

- : H221 Flammable gas.
- : H280 Contains gas under pressure; may explode if heated.
- : H314 Causes severe skin burns and eye damage.
- : H331 Toxic if inhaled.
- : H400 Very toxic to aquatic life.
- : H411 Toxic to aquatic life with long lasting effects.

Precautionary statements**Prevention**

- : P260 Do not breathe gas or vapour.
- : P280 Wear protective gloves/clothing and eye/face protection.
- : P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- : P264 Wash thoroughly after handling.
- : P271 Use only outdoors or in a well-ventilated area.

Response

- : P273 Avoid release to the environment.
- : P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- : P381 In case of leakage, eliminate all ignition sources.
- : P305 IF IN EYES:
- : P351 Rinse cautiously with water for several minutes.
- : P338 Remove contact lenses, if present and easy to do. Continue rinsing.
- : P301 IF SWALLOWED:
- : P330 Rinse mouth.
- : P331 Do NOT induce vomiting.
- : P304 IF INHALED:
- : P340 Remove person to fresh air and keep comfortable for breathing.
- : P310 Immediately call a POISON CENTER or

		doctor/physician.
	P303	IF ON SKIN (or hair):
	P361	Take off immediately all contaminated clothing.
	P353	Rinse skin with water.
	P363	Wash contaminated clothing before reuse.
Storage	:	P410 + Protect from sunlight and do not expose to temperatures exceeding 50 °C/122 °F.
	P412	
	P403 +	Store container tightly closed in well-ventilated place.
	P233	
	P405	Store locked up.
Disposal	:	P501 Dispose of contents and container in accordance with all local, regional, national and international regulations.
Additional information	:	Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture	:	Substance
<u>CAS number/other identifiers</u>		
Other means of identification	:	ammonia, anhydrous
CAS number	:	7664-41-7

Ingredient name	CAS number	% (v/v)
Ammonia	7664-41-7	100

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

Chemical formula	:	H3 N
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Section 4. First aid measures

Description of necessary first aid measures

Eye contact	:	Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention immediately.
Inhalation	:	If inhaled, remove to fresh air. Get medical attention immediately. If not breathing, give artificial respiration. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If necessary, call a poison center or physician.
Skin contact	:	In case of contact, immediately flush skin with plenty of water

for at least 15 minutes while removing contaminated clothing and shoes. Flush contaminated skin with plenty of water. Do not rub affected area. Get medical attention immediately. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Chemical burns must be treated promptly by a physician.

Ingestion : Not applicable (gas). Get medical attention. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage. Liquid can cause burns similar to frostbite.

Inhalation : Toxic if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Causes severe burns. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : May cause burns to mouth, throat and stomach. Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following: pain, watering, redness, frostbite (Cryogenic burn)

Inhalation : Adverse symptoms include the following: wheezing and breathing difficulties, asthma

Skin contact : Adverse symptoms may include the following: pain or irritation, frostbite (Cryogenic burn), blistering may occur

Ingestion : Adverse symptoms may include the following: frostbite (Cryogenic burn)

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : In case of fire, allow gas to burn if flow cannot be shut off immediately. Use an extinguishing agent suitable for the surrounding fire. Apply water from a safe distance to cool container and protect surrounding area.

Unsuitable extinguishing media : None identified.

Specific hazards arising from the chemical : Contains gas under pressure. Flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials: nitrogen oxides, Avoid breathing dusts, vapors or fumes from burning materials., In case of inhalation of decomposition products in a fire, symptoms may be delayed.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

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. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Remark : Non-explosive.

Section 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions

- : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Contains gas under pressure. Do not breathe gas. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use.

Section 8. Exposure controls/personal protection

Control parameters**Occupational exposure limits**

Ingredient name	Exposure limits
Ammonia	CA Alberta Provincial (2004-04-30).

TWA 17 mg/m³ 25 ppm
CA Alberta Provincial (2009-07-01).
 STEL 24 mg/m³ 35 ppm
CA British Columbia Provincial (2004-08-01).
 TWA 25 ppm
 STEL 35 ppm
CA Ontario Provincial (2015-06-29).
 TWA 25 ppm
 STEL 35 ppm
CA Quebec Provincial (2000-01-12).
 TWA 17 mg/m³ 25 ppm
 STEL 24 mg/m³ 35 ppm

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : A washing facility or water for eye and skin cleaning purposes should be present. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Wash contaminated clothing before reusing.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. **Recommended:** full-face mask, Europe: CEN: EN136, If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. For general applications, we recommend gloves with a thickness typically greater than 0.35 mm. It should be emphasized that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn.
> 8 hours (breakthrough time): butyl rubber, PTFE, Viton®

Body protection	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved.
Other skin protection	: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Personal protective equipment (Pictograms)	:   

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : gas [Liquefied gas.]

Color : Colorless.,

Odor : Pungent.

Odor threshold : 5 ppm

pH : Not applicable.

Melting point/freezing point : -78 °C (-108 °F)

Boiling point, initial boiling point, and boiling range : -33 °C (-27 °F)

Flash point : Not applicable.

Evaporation rate : Not determined.

Flammability : Flammable

Lower and upper explosion limit/flammability limit : Lower: 15 % (V)
Upper: 27 % (V)

Vapor pressure : 8,611 hPa @ 20 °C (68 °F)

Relative vapor density : 0.6 [Air = 1]

Relative density : 0.682 @ -33.4 °C (-28.1 °F)

Density : Not applicable.

Solubility in water : 510 - 531 g/l @ 20 °C (68 °F)

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : 651 °C (1204 °F)

Decomposition temperature	: Not determined.
Viscosity	: Dynamic: 0.22 mPa.s Kinematic: Not determined.
Molecular weight	: 17.04 g/mol
Explosive properties	: Non-explosive.
Oxidizing properties	: Non-oxidizer. No oxidizing ingredients present.
<u>Particle characteristics</u>	
Median particle size	: Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Method	Species	Result	Exposure
Ammonia				
	LC50 Inhalation Vapor	Rat	7.939 mg/l	1 h

Conclusion/Summary	: Information on the likely routes of exposure Toxic by inhalation. Corrosive to eyes and skin. Information on the likely routes of exposure Toxic by inhalation. Corrosive to eyes and skin.
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Irritation/Corrosion

Conclusion/Summary

Skin	: Corrosive.
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Eyes : Causes serious eye damage.

Respiratory : Corrosive to the respiratory system.

Sensitization

Conclusion/Summary

Skin : Not sensitizing
Respiratory : Not sensitizing

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Product/ingredient name	Method	Species	Result	Exposure
Ammonia	OECD 453 Oral	Rat	Negative NOAEL 67 mg/kg bw/day	Not applicable.

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Product/ingredient name	Method	Species	Result	Exposure
Ammonia				
	OECD 422 Oral	Rat	Fertility effects- Negative NOAEL 408 mg/kg bw/day	28 days
	OECD 414 Oral	Rabbit	Developmental- Negative NOAEL 100 mg/kg bw/day	28 days
	Inhalation	Pig	Developmental- Negative NOAEC 25 mg/m ³	6 weeks

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

No known significant effects or critical hazards.

Aspiration hazard

No known significant effects or critical hazards.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye damage. Liquid can cause burns similar to frostbite.
- Inhalation** : Toxic if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes severe burns. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Ingestion** : May cause burns to mouth, throat and stomach. Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following: pain, watering, redness, frostbite (Cryogenic burn)
- Inhalation** : Adverse symptoms include the following: wheezing and breathing difficulties, asthma
- Skin contact** : Adverse symptoms may include the following: pain or irritation, frostbite (Cryogenic burn), blistering may occur
- Ingestion** : Adverse symptoms may include the following: frostbite (Cryogenic burn)

Delayed and immediate effects and also chronic effects from short and long term exposure**Short term exposure**

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.
- Effects on or via lactation** : No known significant effects or critical hazards.
- Other effects** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following: pain, watering, redness, frostbite (Cryogenic burn)
- Inhalation** : Adverse symptoms include the following: wheezing and breathing difficulties, asthma
- Skin contact** : Adverse symptoms may include the following: pain or irritation, frostbite (Cryogenic burn), blistering may occur
- Ingestion** : Adverse symptoms may include the following: frostbite

(Cryogenic burn)

Numerical measures of toxicity**Acute toxicity estimates**

Product/ingredient name	Oral	Dermal	Inhalation (gases)	Inhalation (vapors)	Inhalation (dusts and mists)
Anhydrous Ammonia	N/A	N/A	700 ppm	4 mg/l	N/A
Ammonia	N/A	N/A	700 ppm	3.9695 mg/l	N/A

Section 12. Ecological information**Toxicity**

Product/ingredient name	Method	Species	Result	Exposure
Ammonia				
	Acute LC50 Fresh water	Fish	0.89 mg/l	96 h
	Acute LC50 Fresh water	Daphnia	101 mg/l	48 h
	Acute EC50 Fresh water	Algae	2,700 mg/l	18 d
	Chronic NOEC Fresh water	Daphnia	0.79 mg/l	4 d

Conclusion/Summary : Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Persistence and degradability

Conclusion/Summary : Readily biodegradable in plants and soils.

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Ammonia	0.23	Not applicable.	low

Conclusion/Summary : No known significant effects or critical hazards.

Mobility in soil

Soil/water partition coefficient (KOC) : Not available.

Mobility : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations**Product**

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and

any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

Regulation: UN Class	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS
14.3 Transport hazard class(es)	2.3 
14.4 Packing group	
14.5 Environmental hazards	Yes.
Additional information <u>Environmental hazards</u>	: Yes.

Regulation: IMDG	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS Marine pollutant (ammonia, anhydrous)
14.3 Transport hazard class(es)	2.3 
14.4 Packing group	
14.5 Environmental hazards	Yes.
Additional information <u>Marine pollutant</u>	: No.
<u>IMDG Code Segregation group</u>	: SG18

Emergency schedules (EmS) : F-C, S-U

Regulation: IATA	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS
14.3 Transport hazard class(es)	2.3 
14.4 Packing group	
14.5 Environmental hazards	Yes.
Additional information	
<u>Marine pollutant</u>	: Yes.

Regulation: DOT Classification	
14.1 UN number	UN1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS
14.3 Transport hazard class(es)	
14.4 Packing group	
14.5 Environmental hazards	Yes.
Additional information	
<u>Marine pollutant</u>	: Not available.

Regulation: TDG Class	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS
14.3 Transport hazard class(es)	2.3 
14.4 Packing group	
14.5 Environmental hazards	Yes.
Additional information	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.7 (Marine pollutant mark)

Environmental hazards : Yes.

14.6 Special precautions for user : Transport within user's premises: Ensure that persons transporting the product know what to do in the event of an accident or spillage.

IMsBC : Not applicable.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : The following components are listed: Ammonia

CEPA Toxic substances : The following components are listed: Ammonia

Inventory list

Philippines inventory (PICCS): All components are listed or exempted.

New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.

Korea inventory: All components are listed or exempted.

Japan inventory (CSCL): All components are listed or exempted.

China inventory (IECSC): All components are listed or exempted.

Australia inventory (AIIC): All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI): All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI): All components are listed or exempted.

United States inventory (TSCA 8b): All components are active or exempted.

EC INVENTORY (EINECS/ELINCS): All components are listed or exempted.

Canada: All components are listed or exempted.

Thailand: All components are listed or exempted.

Turkey: All components are listed or exempted.

Viet Nam: All components are listed or exempted.

Section 16. Other information

Key to abbreviations

- : ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- : ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- : ATE = Acute Toxicity Estimate
- : BCF = Bioconcentration Factor
- : bw = Body weight
- : GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- : HPR = Hazardous Products Regulations
- : IATA = International Air Transport Association
- : IBC = Intermediate Bulk Container
- : IMDG = International Maritime Dangerous Goods
- : LogPow = logarithm of the octanol/water partition coefficient
- : MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- : N/A = Not available
- : RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail

SUSMP - Standard Uniform Schedule of Medicine and Poisons
 SGG = Segregation Group
 UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 2	Expert judgment
GASES UNDER PRESSURE - Liquefied gas	On basis of test data
ACUTE TOXICITY (inhalation) - Category 3	Calculation method
SKIN CORROSION - Category 1B	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method
AQUATIC HAZARD (ACUTE) - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method

Key data sources : EU REACH ECHA/IUCLID5 CSR.
 National Institute for Occupational Safety and Health, U.S.
 Dept. of Health, Education, and Welfare, Reports and
 Memoranda Registry of Toxic Effects of Chemical
 Substances.

Sphera Solutions Inc., 4777 Levy Street, St Laurent, Quebec
 HAR 2P9, Canada.

EU REACH ECHA/IUCLID5 CSR.
 National Institute for Occupational Safety and Health, U.S.
 Dept. of Health, Education, and Welfare, Reports and
 Memoranda Registry of Toxic Effects of Chemical
 Substances.

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Version : 6.0
Prepared by : Product Stewardship and Compliance (PSC).

|| Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of

suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.