SAFETY DATA SHEET
according to the Hazardous Products Regulations

NGL - Natural Gas

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SECTION 1. IDENTIFICATION

Product name : NGL - Natural Gas

Product code : X3501

Manufacturer or supplier's details

Manufacturer/Supplier : **Shell Chemicals Canada**
PO Box 4280 STN C
CALGARY AB T2T 5Z5
Canada

Telephone : 1-855-697-4355

Telefax : 1-866-213-7508

Emergency telephone number

CHEMTREC (24 hr) : 1-800-424-9300

Recommended use of the chemical and restrictions on use

Recommended use : Chemical intermediate.

Restrictions on use :
This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Flammable gases : Category 1A

Gases under pressure : Liquefied gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : PHYSICAL HAZARDS:
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
HEALTH HAZARDS:

Not classified as a health hazard under GHS criteria.
ENVIRONMENTAL HAZARDS:
Not classified as an environmental hazard under GHS criteria.

Precautionary statements : P102 Keep out of reach of children.

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response:

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.

Storage:

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Disposal:

No precautionary phrases.

Other hazards which do not result in classification
In use, may form flammable/explosive vapour-air mixture.
High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen.
Has the potential to contribute to Global Warming.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Substance name : NGL - Natural Gas

CAS-No. : Not Assigned

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
Natural Gas	Natural gas (Gas)	8006-14-2	<= 100

Further information

Contains:

Chemical name	Identification number	Concentration (% w/w)
methane	74-82-8	>= 90 - <= 99
ethane	74-84-0	>= 0 - <= 6
Nitrogen	7727-37-9	>= 0 - <= 3
propane	74-98-6	>= 0 - <= 3
butane	106-97-8	>= 0 - <= 3
pentane	109-66-0	>= 0 - <= 3

SECTION 4. FIRST-AID MEASURES

General advice	:	Not expected to be a health hazard when used under normal conditions.
If inhaled	:	Call emergency number for your location / facility. Remove to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or Cardio-Pulmonary Resuscitation as required and transport to the nearest medical facility.
In case of skin contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. In the event of frostbite, slowly warm the exposed area by rinsing with warm water. Transport to the nearest medical facility for additional treatment.
In case of eye contact	:	Flush eye with copious quantities of water. Remove contact lenses, if present and easy to do. Continue rinsing. If persistent irritation occurs, obtain medical attention. In the event of frostbite, slowly warm the exposed area by rinsing with warm water. Transport to the nearest medical facility for additional treatment.
If swallowed	:	In the unlikely event of ingestion, obtain medical attention immediately.
Most important symptoms and effects, both acute and delayed	:	High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache and nausea. Rapid release of gases which are liquids under pressure may cause frost burns of exposed tissues (skin, eye) due to evaporative cooling.
Protection of first-aiders	:	When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
Notes to physician	:	IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT! Potential for cardiac sensitisation, particularly in abuse situations. Hypoxia or negative inotropes may enhance these effects. Consider: oxygen therapy.

Artificial respiration and/or oxygen may be necessary.
Call a doctor or poison control center for guidance.
Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Shut off supply. If not possible and no risk to surroundings, let the fire burn itself out. Dry chemical or carbon dioxide. For large fires use water spray or fog.
Unsuitable extinguishing media	:	Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire.
Specific hazards during fire-fighting	:	Forms flammable mixture with air. If released, the resulting vapours will disperse with the prevailing wind. If a source of ignition is present where the vapour exists at 4-17% concentration in air, the vapour will burn along the flame front toward the source of the fuel. Vapours may travel a considerable distance to a source of ignition and flash back. Vapours may accumulate in confined spaces.
Special protective equipment for firefighters	:	Wear full protective clothing and self-contained breathing apparatus.
Further information	:	Keep storage tanks, pipelines, fire exposed surfaces cool with water delivered as a fine spray. Clear fire area of all non-emergency personnel.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter. Attempt to disperse vapour or to direct its flow to a safe location for example using fog sprays. Take precautionary measures against static discharges.
Environmental precautions	:	Gases volatilize readily in air therefore the product is unlikely to pose a significant hazard to the environment. Has the potential to contribute to Global Warming.
Methods and materials for containment and cleaning up	:	Allow to evaporate. Attempt to disperse the gas or to direct its flow to a safe location, for example by using fog sprays.

Additional advice	:	For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Advice on safe handling	:	Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Earth all equipment. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. Ensure that all local regulations regarding handling and storage facilities are followed. This product is intended for use in closed systems only.
Avoidance of contact	:	Strong oxidising agents.
Product Transfer	:	Earth all equipment. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Delivery lines may become cold enough to present a cold burns hazard.
Further information on storage stability	:	Keep away from sources of ignition - No smoking. Keep container tightly closed and in a cool, well-ventilated place. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions. These include issuing of work permits, gas-freeing of tanks, using a manned harness and lifelines and wearing air-supplied breathing apparatus.

Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
Prior to entry and whilst cleaning is underway, the atmosphere within the tank must be monitored using an oxygen meter and explosimeter.
Electrostatic charges will be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.

Packaging material : Suitable material: For containers or container linings, use stainless steel., For lines and fittings, use mild steel, stainless steel.
Unsuitable material: Elastomers (gaskets, seals): Natural rubber (NR). Nitrile rubber (NBR), Ethylene propylene rubber (EPDM), Butyl rubber (IIR), Chlorosulphonated polyethylene (CSM), Styrene butadiene rubber (SBR), Neoprene rubber (CR)., PVC.

Specific end use(s)

Specific use(s) : See additional references that provide safe handling practices: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).
IEC/TS 60079-32-1: Electrostatic hazards, guidance

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
butane	106-97-8	STEL	1,000 ppm	ACGIH
pentane	109-66-0	TWA	1,000 ppm	CA BC OEL
		TWA	1,000 ppm	ACGIH

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp
L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Engineering measures : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances.
Appropriate measures include:
Use sealed systems as far as possible.
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
Local exhaust ventilation is recommended.
Firewater monitors and deluge systems are recommended.

General Information

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.
Practice good housekeeping.
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Personal protective equipment

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.

Select a filter suitable for organic gases and vapours [Type AX boiling point ≤65°C (149°F)].

Hand protection

Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Neoprene rubber. Nitrile rubber. For continuous contact we recommend gloves with break-through time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.
Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Eye protection : Wear goggles for use against liquids and gas, combined with face shield with chin guard.

Skin and body protection : Chemical and cold resistant gloves/gauntlets, boots, and apron.
Wear antistatic and flame-retardant clothing. Wear appropriate anti-static safety footwear.

Protective measures : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Environmental exposure controls

General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.
Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.
Information on accidental release measures are to be found in section 6.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	:	Gas.
Colour	:	colourless
Odour	:	Slight hydrocarbon
Odour Threshold	:	Data not available
Melting point/freezing point	:	-187 - -182 °C
Boiling point/boiling range	:	-162 °C estimated value(s)
Lower explosion limit / Lower flammability limit	:	>= 4 %(V)
Flash point	:	-188 °C
Auto-ignition temperature	:	575 °C
Decomposition temperature	:	Data not available
pH	:	Not applicable
Viscosity		
Viscosity, dynamic	:	Data not available
Solubility(ies)		
Water solubility	:	negligible
Solubility in other solvents	:	Data not available
Partition coefficient: n-octanol/water	:	Data not available

Vapour pressure	:	> 1,333 hPa (20 °C)
Relative density	:	Data not available
Density	:	Data not available
Relative vapour density	:	0.65 estimated value(s) (Air = 1.0)
Particle characteristics		
Particle size	:	Data not available

9.2 Other information

Evaporation rate	:	Data not available
Conductivity	:	The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semiconductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid This material is not expected to be a static accumulator.
Surface tension	:	Data not available
Molecular weight	:	> 16 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No. Hazardous, exothermical polymerization cannot occur.
Chemical stability	:	Stable under normal conditions of use.
Possibility of hazardous reac-	:	No. Hazardous, exothermical polymerization cannot occur.

tions

Conditions to avoid	:	Heat, flames, and sparks. May form explosive mixture on contact with air. In certain circumstances product can ignite due to static electricity.
Incompatible materials	:	Strong oxidising agents.
Hazardous decomposition products	:	Hazardous decomposition products are not expected to form during normal storage.

SECTION 11. TOXICOLOGICAL INFORMATION

Basis for assessment	:	Information given is based on product testing. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Information on likely routes of exposure
Inhalation is the primary route of exposure although exposure may occur through skin or eye contact.

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: Not applicable
Acute inhalation toxicity	:	LC 50 (Rat): > 20000 ppmV Exposure time: 4 h Remarks: Low toxicity by inhalation. Based on available data, the classification criteria are not met.
Acute dermal toxicity	:	Remarks: Not applicable

Components:

Natural Gas:

Acute oral toxicity	:	Remarks: Not applicable
Acute inhalation toxicity	:	LC 50 (Rat): >20000 ppmV Exposure time: 4 h Remarks: Low toxicity
Acute dermal toxicity	:	Remarks: Not applicable

Skin corrosion/irritation

Product:

Remarks : Not irritating to skin.
Based on available data, the classification criteria are not met.

Components:

Natural Gas:

Remarks : Not irritating to skin.

Serious eye damage/eye irritation

Product:

Remarks : Not irritating to eye.
Based on available data, the classification criteria are not met.

Components:

Natural Gas:

Remarks : Essentially non-irritating to eyes.

Respiratory or skin sensitisation

Product:

Remarks : Not a sensitiser.
Based on available data, the classification criteria are not met.

Components:

Natural Gas:

Remarks : Not a sensitiser.
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

Genotoxicity in vivo : Remarks: Non mutagenic
Based on available data, the classification criteria are not met.

Components:

Natural Gas:

Genotoxicity in vivo : Remarks: Non mutagenic
Based on available data, the classification criteria are not met.

Carcinogenicity

Product:

Remarks : Not a carcinogen.
Based on available data, the classification criteria are not met.

Components:

Natural Gas:

Remarks : Not a carcinogen.
Based on available data, the classification criteria are not met.

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Remarks : Not a developmental toxicant.
Does not impair fertility.
Based on available data, the classification criteria are not met.

STOT - single exposure

Product:

Remarks : High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea.

Components:

Natural Gas:

Remarks : High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness.

STOT - repeated exposure

Product:

Remarks : Low systemic toxicity on repeated exposure.
Based on available data, the classification criteria are not met.

Components:

Natural Gas:

Remarks : Low systemic toxicity on repeated exposure.

Aspiration toxicity

Product:

Not an aspiration hazard.

Components:

Natural Gas:

Not an aspiration hazard.

Further information

Product:

Remarks	:	Rapid release of gases which are liquids under pressure may cause frost burns of exposed tissues (skin, eye) due to evaporative cooling. High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen. Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.
Remarks	:	Classifications by other authorities under varying regulatory frameworks may exist.

Components:

Natural Gas:

Remarks	:	High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen. Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.
Remarks	:	Rapid release of gases which are liquids under pressure may cause frost burns of exposed tissues (skin, eye) due to evaporative cooling.
Remarks	:	Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12. ECOLOGICAL INFORMATION

Basis for assessment	:	Incomplete ecotoxicological data are available for this product. The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for

individual component(s).
Physical properties indicate that petroleum gases will rapidly volatilise from the aquatic environment and that acute and chronic effects would not be observed in practice.

Ecotoxicity

Product:

Toxicity to fish	:	Remarks: Data not available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: Data not available
Toxicity to algae/aquatic plants	:	Remarks: Data not available
Toxicity to fish (Chronic toxicity)	:	Remarks: Data not available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Remarks: Data not available
Toxicity to microorganisms	:	Remarks: Data not available

Components:

Natural Gas:

Toxicity to fish	:	Remarks: LC/EC/IC50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to algae/aquatic plants	:	Remarks: LC/EC/IC50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to fish (Chronic toxicity)	:	Remarks: Data not available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Remarks: Data not available
Toxicity to microorganisms	:	Remarks: LL/EL/IL50 > 100 mg/l Practically non toxic: Based on available data, the classification criteria are not met.

Persistence and degradability

Product:

Biodegradability : Remarks: Oxidises rapidly by photo-chemical reactions in air. Readily biodegradable.

Components:

Natural Gas:

Biodegradability : Remarks: Oxidises rapidly by photo-chemical reactions in air. Readily biodegradable.
Not Persistent per IMO criteria.
International Oil Pollution Compensation (IOPC) Fund definition: “A non-persistent oil is oil, which, at the time of shipment, consists of hydrocarbon fractions, (a) at least 50% of which, by volume, distills at a temperature of 340ºC (645ºF) and (b) at least 95% of which, by volume, distils at a temperature of 370ºC (700ºF) when tested by the ASTM Method D-86/78 or any subsequent revision thereof."

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

Components:

Natural Gas:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

Mobility in soil

Product:

Mobility : Remarks: Because of their extreme volatility, air is the only environmental compartment that hydrocarbon gases will be found.

Components:

Natural Gas:

Mobility : Remarks: Because of their extreme volatility, air is the only environmental compartment that hydrocarbon gases will be found.

Other adverse effects

Product:

Additional ecological information : In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

Components:

Natural Gas:

Additional ecological information : In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Given the nature and uses of this product, the need for disposal seldom arises. If necessary, dispose by controlled combustion in purpose-designed equipment. If this is not possible, contact the supplier.
Do not discharge extinguishing waters into the aquatic environment.
Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Contaminated packaging : In commercial premises empty containers should be disposed of to a recognised waste contractor. Do not pierce or burn empty containers.
Do not pollute the soil, water or environment with the waste container.
Return part-used or empty cylinders to the supplier.
For tanks seek specialist advice from suppliers.

SECTION 14. TRANSPORT INFORMATION

TDG

UN number	:	1971
Proper shipping name	:	NATURAL GAS, COMPRESSED
Class	:	2.1
Packing group	:	Not Assigned
Labels	:	2.1
Marine pollutant	:	no

International Regulations

IATA-DGR

UN/ID No.	:	UN 1971
Proper shipping name	:	NATURAL GAS, COMPRESSED
Class	:	2.1
Packing group	:	Not Assigned
Labels	:	2.1

IMDG-Code

UN number	:	UN 1971
Proper shipping name	:	NATURAL GAS, COMPRESSED
Class	:	2.1
Packing group	:	Not Assigned
Labels	:	2.1
Marine pollutant	:	no

Maritime transport in bulk according to IMO instruments

Pollution category	:	Not applicable
Ship type	:	Not applicable
Product name	:	Not applicable

Special precautions for user

Remarks	:	Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA BC OEL	:	Canada. British Columbia OEL
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
CA BC OEL / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Con-

centration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Revision Date	:	2025-05-08
Date format	:	mm/dd/yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

CA / EN