

## CAN 17 17-0-0 Calcium Ammonium Nitrate Solution

### Section 1. Identification

**GHS product identifier** : CAN 17 17-0-0 Calcium Ammonium Nitrate Solution  
**Other means of identification** : Product code: 2503-14208  
**Product type** : Liquid.

#### Relevant identified uses of the substance or mixture and uses advised against

<b>Identified uses</b>	
Fertilizer solution	
<b>Uses advised against</b>	<b>Reason</b>
None.	Risk assessment.

**Supplier's details** :  Agrium Canada Partnership  
 13131 Lake Fraser Drive, S.E.  
 Calgary, Alberta, Canada, T2J 7E8  
  
 Agrium U.S. Inc.  
 5296 Harvest Lake Drive  
 Loveland, CO 80538  
  
 Company phone number (North America):  
 1-800-403-2861 (Customer Service)

**Emergency telephone number (with hours of operation)** : Agrium North American 24 Hr Emergency Telephone Numbers:  
 English:  
 Transportation Emergencies: 1-800-792-8311  
 Medical Emergencies: 1-303-389-1653  
  
 French or Spanish:  
 Transportation or Medical Emergencies: 1-303-389-1654

### Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

#### GHS label elements

**Hazard pictograms** :



**Signal word** : Warning

**Hazard statements** : Causes serious eye irritation.

#### Precautionary statements

**Prevention** : Wear eye or face protection. Wash hands thoroughly after handling.

**Response** : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

**Storage** : Not applicable.

**Disposal** : Not applicable.

**Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture.

### CAS number/other identifiers

**CAS number** : See below.

Ingredient name	%	CAS number
Nitric acid, calcium salt, tetrahydrate	37	13477-34-4
Water	33	7732-18-5
Ammonium nitrate	29	6484-52-2
Urea	1	57-13-6

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

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. If irritation persists, get medical attention.
- Inhalation** : No known significant effects or critical hazards. If any ill effects are felt, proceed as follows. Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor.
- Skin contact** : No known effect after skin contact. Rinse with water for a few minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
- Ingestion** : Ammonium nitrate based product. May be irritating to mouth, throat and stomach. May cause methemoglobinemia (a condition that interferes with the oxygen-carrying capacity of the blood) if ingested in large quantities or over a prolonged period of time. Oral exposures: if the affected person requires CPR, avoid mouth to mouth contact. Do not induce vomiting. If vomiting occurs, attempt to keep head lower than chest so that vomit does not enter the lungs. Wash (decontaminate) face and mouth with water to remove visible material. If the exposed person is conscious and can swallow, give 1-2 sips of water. Do not give anything else by mouth. Loosen tight clothing such as collar, tie, belt or waistband to prevent any breathing restrictions. Call for emergency transportation to a hospital if the exposed person feels sick or has breathing difficulties, or a large amount is suspected ingested. For additional advice, call the medical emergency number on this SDS or your poison center or doctor.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : May cause irritation of the digestive tract with accompanying nausea, vomiting and diarrhea. May interfere with the oxygen carrying capacity of the blood if ingested in large quantities or over a prolonged period of time. Persons with anemia, bowel diseases, or infants, are more likely to develop effects. Over-exposure by ingestion is unlikely under normal working conditions.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness

## Section 4. First aid measures

- Inhalation** : When exposed to high temperatures, may produce hazardous decomposition products, such as carbon monoxide and dioxide, smoke, oxides of nitrogen etc. Adverse symptoms may include the following:  
headache  
respiratory tract irritation  
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Skin contact** : No specific data.
- Ingestion** : May cause irritation of the digestive tract with accompanying nausea, vomiting and diarrhea.

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

- Notes to physician** : In case of inhalation of decomposition products (carbon monoxide, carbon dioxide, nitrogen oxides) in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for up to 72 hours. In cases of suspected methemoglobinemia, monitor methemoglobin blood levels. Treatment is supportive; methylene blue may be indicated based on patient severity. 24 Hr Medical Emergency telephone number for professional support: English: 1-303-389-1653; French or Spanish: 1-303-389-1654.
- Specific treatments** : Call the medical emergency number on this SDS or your poison center or doctor immediately if large quantities have been ingested. In cases of suspected methemoglobinemia, methylene blue may be indicated based on patient severity.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. Mouth-to-mouth resuscitation of oral exposure patients is not recommended. First-aiders with contaminated clothing should be properly decontaminated.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Non-flammable. Material will not burn. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

- Specific hazards arising from the chemical** : Not an oxidizer at the manufactured concentration. It may become an oxidizing liquid if concentrated by evaporation. If evaporated to dryness, the product acts as an oxidizing agent, and supports combustion by liberating oxygen even if smothered. Cool containing vessels with flooding quantities of water until well after fire is out. A self contained breathing apparatus should be used to avoid inhalation of toxic fumes. When heated to decomposition it emits toxic fumes (NH<sub>3</sub>, NO, NO<sub>2</sub>...). Contaminated water can cause environmental damage. Contain and collect water used to fight fire.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
Carbon monoxide  
nitrogen oxides

- 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.

- 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.

- Remark** : Non-combustible. Decomposes on heating. Evolves toxic fumes when heated to decomposition.

- Remark** : Dangerous if allowed to dry out. Residue may exhibit oxidizing properties.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Put on appropriate personal protective equipment.
- 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** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused adverse impacts (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

- Small spill** : Use personal protective equipment as required. Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Use personal protective equipment as required. Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Pump spilled material to a suitable, labeled container for recycling or disposal. Dispose of via a licensed waste disposal contractor. 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 ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use.
- 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 accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Incompatible with copper alloys. May form corrosive sludge on prolonged storage. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment. While this product, as produced, is not classified as an oxidizer, it is important to prevent conditions during handling and storage which may result in concentration of the product which may encourage it to behave as an oxidizer. Ensure that pumps are thermally protected against exceeding a temperature of 66 deg. C (150 deg. F). Also ensure that piping systems, if insulated, are not externally heated (heat traced).

Refer to NFPA 400 Hazardous Materials Code for further information on the safe storage and handling of hazardous materials.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

## Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Ammonium nitrate	<b>OSHA (United States):</b> Particulates not otherwise regulated (PNOR) TWA (8 hours), Total dust: 15 mg/m <sup>3</sup> ; Respirable fraction: 5 mg/m <sup>3</sup> .
Calcium nitrate	<b>OSHA (United States):</b> Particulates not otherwise regulated (PNOR) TWA (8 hours), Total dust: 15 mg/m <sup>3</sup> ; Respirable fraction: 5 mg/m <sup>3</sup> .
Urea	<b>OSHA (United States):</b> Particulates not otherwise regulated (PNOR) TWA (8 hours), Total dust: 15 mg/m <sup>3</sup> ; Respirable fraction: 5 mg/m <sup>3</sup> . <b>AIHA WEEL</b>
Water	None assigned.

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor 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.
- 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** : 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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- 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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : The personal protective equipment required varies, depending upon your risk assessment. No special measures are typically indicated.
- Body protection** : No special protective clothing is required.
- Other skin protection** : Hazard of slipping on spilled product. Recommended: Impervious rubber safety boots.
- Respiratory protection** : No personal respiratory protective equipment is normally required.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid. [Clear to slightly hazy liquid.]
- Color** : Not available.
- Odor** : Ammoniacal. [Slight]
- Odor threshold** : Not available.
- pH** : 5 to 6
- Melting point** : -2°C (28.4°F)
- Boiling point** : 121°C (249.8°F)
- Flash point** : [Product does not sustain combustion.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Non-combustible. Decomposes on heating. Evolves toxic fumes when heated to decomposition.
- Lower and upper explosive (flammable) limits** : Not applicable.
- Vapor pressure** : Not available.
- Vapor density** : Not available.

## Section 9. Physical and chemical properties

<b>Relative density</b>	: 1.5
<b>Solubility</b>	: Easily soluble in the following materials: cold water and hot water.
<b>Solubility in water</b>	: Water-soluble liquid
<b>Partition coefficient: n-octanol/water</b>	: Not available.
<b>Auto-ignition temperature</b>	: Not applicable.
<b>Decomposition temperature</b>	: Not applicable.
<b>Viscosity</b>	: Not available.

## Section 10. Stability and reactivity

<b>Reactivity</b>	: Not an oxidizer at the manufactured concentration. It may become an oxidizing liquid if concentrated by evaporation. May react explosively when mixed with chlorinated materials such as hypochlorites.
<b>Chemical stability</b>	: The product is stable.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	: Do not allow to dry out. Avoid high temperatures in combination with high pressures.
<b>Incompatible materials</b>	: Incompatible with halogens. May be incompatible with some materials of construction. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.
<b>Hazardous decomposition products</b>	: 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	Result	Species	Dose	Exposure
CAN 17 17-0-0 Calcium Ammonium Nitrate Solution	LD50 Dermal	Rat - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	2950 mg/kg	-
Nitric acid, calcium salt, tetrahydrate	LD50 Oral	Rat	3900 mg/kg	-
Water Ammonium nitrate	LD50 Oral	Rat	>90 g/kg	-
	LD50 Oral	Rat	2217 mg/kg	-
	LD50 Oral	Rat - Male, Female	2950 mg/kg	-
Urea	LD50 Oral	Rat	8471 mg/kg	-

**Conclusion/Summary** : Very low toxicity to humans or animals. Not considered to be acutely toxic.

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Ammonium nitrate	Skin	Rabbit	0	-	72 hours
	Eyes - Edema of the conjunctivae	Rabbit	3	-	3 days

#### Conclusion/Summary

**Skin** : Non-irritating to the skin.

**Eyes** : Irritating to the eyes.

#### Sensitization

## Section 11. Toxicological information

Product/ingredient name	Route of exposure	Species	Result
Ammonium nitrate	skin	Mouse	Not sensitizing

### Conclusion/Summary

**Skin** : Non-sensitizer.

### Mutagenicity

Product/ingredient name	Test	Experiment	Result
Ammonium nitrate	OECD 471 Bacterial Reverse Mutation Test OECD 476 <i>In vitro</i> Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Bacteria Experiment: In vitro Subject: Mammalian-Animal	Negative Negative

**Conclusion/Summary** : No mutagenic effect.

### Carcinogenicity

**Conclusion/Summary** : No known significant effects or critical hazards. Potential for nitrosamine formation if ingested. Do not ingest.

### Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Ammonium nitrate	Negative	Negative	Negative	Rat - Male, Female	Oral: 1500 mg/kg	-

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

### Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Ammonium nitrate	Negative - Oral	Rat - Female	1500 mg/kg	-

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

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Eye contact  
Skin contact

### Potential acute health effects

**Eye contact** : Causes serious eye irritation.  
**Inhalation** : No known significant effects or critical hazards.  
**Skin contact** : No known significant effects or critical hazards.  
**Ingestion** : May cause irritation of the digestive tract with accompanying nausea, vomiting and diarrhea. May interfere with the oxygen carrying capacity of the blood if ingested in large quantities or over a prolonged period of time. Persons with anemia, bowel diseases, or infants, are more likely to develop effects. Over-exposure by ingestion is unlikely under normal working conditions.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness



## Section 11. Toxicological information

- Inhalation** : When exposed to high temperatures, may produce hazardous decomposition products, such as carbon monoxide and dioxide, smoke, oxides of nitrogen etc. Adverse symptoms may include the following:  
headache  
respiratory tract irritation  
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Skin contact** : No specific data.
- Ingestion** : May cause irritation of the digestive tract with accompanying nausea, vomiting and diarrhea.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : See above

**Potential delayed effects** : See above

#### Long term exposure

**Potential immediate effects** : See above

**Potential delayed effects** : See below.

#### Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Ammonium nitrate	Chronic NOAEL Oral	Rat - Male, Female	256 mg/kg	-

**Conclusion/Summary** : Repeated or prolonged overexposure may result in chronic health effects. May interfere with the oxygen carrying capacity of the blood if ingested in large quantities or over a prolonged period of time. Persons with anemia, bowel diseases, or infants, are more likely to develop effects. Over-exposure by ingestion is unlikely under normal working conditions.

**General** : No known significant effects or critical hazards.

**Carcinogenicity** : No known significant effects or critical hazards. Potential for nitrosamine formation if ingested. Do not ingest.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
Ammonium nitrate	Chronic NOEC 6 to 12 mg/l Fresh water NOEC >1700 mg/l Marine water Acute EC50 490 mg/l Fresh water Acute LC50 447 mg/l Fresh water	Crustaceans - Cladocera Algae Daphnia Fish	21 days 10 days 48 hours 48 hours

**Conclusion/Summary** : Very low acute toxicity to fish. May be harmful to the environment if released in large quantities.

### Persistence and degradability

Not available.

**Conclusion/Summary** : Readily biodegradable



## Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
CAN 17 17-0-0 Calcium Ammonium Nitrate Solution	-	-	Readily

### Bioaccumulative potential

Not available.

### Mobility in soil

Soil/water partition coefficient ( $K_{oc}$ ) : Not available.

Mobility : Not available.

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

## Section 13. Disposal considerations

**Disposal methods** : 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. Waste packaging should be recycled. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.
Additional information	-	-	-	-	-	-

**Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## Section 15. Regulatory information

**U.S. Federal Regulations:** : **TSCA 4(a) final test rules:** biuret; Urea, reaction products with formaldehyde  
**TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**TSCA 8(b) inventory:** All components are listed or exempted.

## Section 15. Regulatory information

**Clean Air Act Section 112** : Not listed

**(b) Hazardous Air Pollutants (HAPs)**

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Immediate (acute) health hazard  
Delayed (chronic) health hazard.

### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard.
Nitric acid, calcium salt, tetrahydrate	37	No.	No.	No.	Yes.	No.
Ammonium nitrate	29	No.	No.	No.	Yes.	Yes.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	Nitric acid, calcium salt, tetrahydrate Ammonium nitrate	13477-34-4 6484-52-2	37 29
<b>Supplier notification</b>	Nitric acid, calcium salt, tetrahydrate Ammonium nitrate	13477-34-4 6484-52-2	37 29

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

**Massachusetts** : The following components are listed: Ammonium nitrate

**New York** : None of the components are listed.

**New Jersey** : The following components are listed: Calcium nitrate; Nitric acid, calcium salt

**Pennsylvania** : The following components are listed: Nitric acid, ammonium salt

### California Prop. 65

Not listed.

### International regulations

#### International lists

#### National inventory

**Canada** : All components are listed or exempted.

**Europe** : All components are listed or exempted.

## Section 16. Other information

### History

**Date of issue/Date of revision** : 7/1/2017

**Date of previous issue** : 6/1/2017

**Version** : 1.2

## Section 16. Other information

### Key to abbreviations

: ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 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)  
 UN = United Nations

### References

: Transportation of Dangerous Goods Act and Clear Language Regulations, current edition at time of (M)SDS preparation, Transport Canada;  
 Hazardous Products Act and Regulations, current revision at time of (M)SDS preparation, Health Canada;  
 Domestic Substances List, current revision at time of (M)SDS preparation, Environment Canada;  
 29 CFR Part 1910, current revision at time of SDS preparation, U.S. Occupational Safety and Health Administration;  
 40 CFR Parts 1-799, current revision at time of SDS preparation, U.S. Environmental Protection Agency;  
 49 CFR Parts 1-199, current revision at time of SDS preparation, U.S. Department of Transport;  
 Threshold Limit Values for Chemical Substances, current edition at time of SDS preparation, American Conference of Governmental Industrial Hygienists;  
 NFPA 400, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;  
 NFPA 704, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;  
 Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers;  
 ERG 2016, Emergency Response Guidebook, U.S. Department of Transport, Transport Canada, and the Secretariat of Transportation and Communications of Mexico  
 Hazardous Substances Data Bank, current revision at time of SDS preparation, National Library of Medicine, Bethesda, Maryland  
 Integrated Risk Information System, current revision at time of SDS preparation, U.S. Environmental Protection Agency, Washington, D.C.  
 Pocket Guide to Chemical Hazards, current revision at time of SDS preparation, National Institute for Occupational Safety and Health, Cincinnati, Ohio ;  
 Agency for Toxic Substances and Disease Registry Databank, current revision at time of SDS preparation, U.S. Department of Health and Human Services, Atlanta, Georgia  
 National Toxicology Program, Report on Carcinogens, Division of the National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina.  
 Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio  
 The Fertilizer Institute, Product Toxicology Testing Program Results, TFI, Washington , D.C., 2003

Indicates information that has changed from previously issued version.

### Notice to reader

The information and recommendations contained in this Safety Data Sheet ("SDS") relate only to the specific material referred to herein (the "Material") and do not relate to the use of such Material in combination with any other material or process. The information and recommendations contained herein are believed to be current and correct as of the date of this SDS. HOWEVER, THE INFORMATION AND RECOMMENDATIONS ARE PRESENTED WITHOUT WARRANTY, REPRESENTATION OR LICENSE OF ANY KIND, EXPRESS OR IMPLIED, WITH RESPECT TO THEIR ACCURACY, CORRECTNESS OR COMPLETENESS, AND THE SELLER, SUPPLIER AND MANUFACTURER OF THE MATERIAL AND THEIR RESPECTIVE AFFILIATES (COLLECTIVELY, THE "SUPPLIER") DISCLAIM ALL LIABILITY FOR RELIANCE ON SUCH INFORMATION AND RECOMMENDATIONS. This SDS is not a guarantee of safety. A buyer or user of the Material (a "Recipient") is responsible for ensuring that it has all current information necessary to safely use the Material for its specific purpose. FURTHERMORE, THE RECIPIENT ASSUMES ALL RISK IN CONNECTION WITH THE USE OF THE MATERIAL. THE RECIPIENT ASSUMES ALL RESPONSIBILITY FOR ENSURING THE MATERIAL IS USED IN A SAFE MANNER IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL, HEALTH, SAFETY AND SECURITY LAWS, POLICIES AND GUIDELINES. THE SUPPLIER DOES NOT WARRANT THE MERCHANTABILITY OF THE MATERIAL OR THE FITNESS OF THE MATERIAL FOR ANY PARTICULAR USE AND ASSUMES NO RESPONSIBILITY FOR INJURY OR DAMAGE CAUSED DIRECTLY OR INDIRECTLY BY OR RELATED TO THE USE OF THE MATERIAL.