Ammonium Nitrate Solution

Safety Data Sheet

Classified according to the UN-GHS as adopted in the US Hazard Communication Standard (HCS 2012), the Canada Hazardous Products Regulations (WHMIS 2015) and Mexico NOM-018-STPS-2000

Revision Date: 19 February 2016 Date of issue: 19 February 2016 Supersedes Date: 1 September 2015 Version: 2.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Name: Ammonium Nitrate Solution

Formula: NH_4NO_3 in H_2O

Synonyms: ANS, Ammonium Nitrate Liquor, Ammonium Nitrate Fertilizer, Ammonium Nitrate Liquid

STCC: 4918774

1.2. Intended Use of the Product

Uses of the substance/mixture: Fertilizers, Nitrous Oxide manufacturing, Industrial Chemicals manufacturing.

Uses advised against: Consumer use

1.3. Name, Address, and Telephone of the Responsible Party

Company

CF Industries Sales, LLC
4 Parkway North, Suite 400
Deerfield, Illinois 60015-2590
847-405-2400
www.cfindustries.com

1.4. Emergency Telephone Number

Emergency Number : 800-424-9300
For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Ox. Liq. 3 H272
Eye Irrit. 2A H319
Full text of H-phrases: see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS03 GHS07

Signal Word (GHS-US) : Warning

Hazard Statements (GHS-US) : H272 - May intensify fire; oxidizer.
H319 - Causes serious eye irritation.

Precautionary Statements (GHS-US) : P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking.
P220 - Keep/Store away from combustible material, oxidizable materials, and incompatible materials.
P221 - Take any precaution to avoid mixing with combustible material, oxidizable materials, and incompatible materials.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P280 - Wear protective gloves, protective clothing, and eye protection.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P370+P378 - In case of fire: Use Water to extinguish.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards

Contact with combustible material will increase fire hazard. May undergo detonation if heated under confinement causing pressure buildup or if subjected to strong shocks. Solid or liquid ammonium nitrate when sensitized or during decomposition may become unstable and/or explosive. When ammonium nitrate is heated to decomposition, it may produce vapors which contain nitrogen oxides (NOx).

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Overexposure may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia.

2.4. Unknown Acute Toxicity (GHS-US) No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable

3.2. Mixture

Name	Product Identifier	% (w/w)	Classification (GHS-US)
Ammonium nitrate	(CAS No) 6484-52-2	83 - 90	Ox. Sol. 3, H272 Eye Irrit. 2A, H319
Water	(CAS No) 7732-18-5	10 - 17	Not classified
Ammonia	(CAS No) 7664-41-7	< 0.05	Flam. Gas 2, H221 Liquefied gas, H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Nitric acid	(CAS No) 7697-37-2	< 0.05	Ox. Liq. 3, H272 Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Seek medical attention immediately.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Eye irritation.

Inhalation: May cause respiratory irritation.

Skin Contact: May cause skin irritation.

Eye Contact: Causes serious eye irritation. Symptoms may include: Redness, pain, swelling, itching, burning, tearing, and blurred vision.

Ingestion: Ammonium Nitrate: Ingestion may cause methemoglobinemia. Intial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and possibly shock.

Chronic Symptoms: Overexposure to this material may result in methemoglobinemia.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. Hot Ammonium Nitrate burns skin, allowing rapid absorption of Ammonium Nitrate through the skin and toxic effects can occur quite rapidly. Causes methemoglobinemia – emergency response should treat appropriately, such as by intravenous administration of methylene blue in addition to thermal burn treatment.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Flood fires involving ammonium nitrate fertilizer with large volumes of low pressure water.

Unsuitable Extinguishing Media: Do not use salt water, carbon dioxide, dry chemicals or foam extinguishers. Never attempt to smother fire, such as by sealing off, closing a compartment, or building's doors when fire occurs. Do not add steam.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Ammonium nitrate is an oxidizer and as such may increase the flammability and/or explosiveness of other substances.

Explosion Hazard: May undergo detonation if heated under confinement causing pressure buildup or if subjected to strong shocks. Solid ammonium nitrate when sensitized or during decomposition may become unstable and/or explosive. Contamination of ammonium nitrate with oil, diesel fuel, charcoal, sulfur, metal fines or other combustible substances could possibly cause an explosion. If an explosion is expected, surrounding area should be evacuated.

Reactivity: Contact with combustible material will increase fire hazard. Smothering or contact with organic material may cause an explosive situation.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Flood fire area with water from a distance. Move containers from the fire area if you can do it without risk. Do not move cargo or vehicle if cargo has been exposed to heat. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Never attempt to smother fire, such as by sealing off, closing a compartment, or building's doors when fire occurs. Stay away from tanks due to exploding potential when tanks are exposed to a fire.

For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. If tank, rail car or truck is involved in a fire, isolate for 1/2 mile in all directions; also, consider initial evacuation for 1/2 mile in all directions.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Positive pressure self-contained breathing apparatus (SCBA) should be used when there is a potential for inhalation of vapors and/or fumes.

Hazardous Combustion Products: Nitrogen oxides. Carbon oxides (CO, CO_2). Ammonia. Nitric Acid. Highly toxic and corrosive gases are released.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Handle in accordance with good industrial hygiene and safety practice. Avoid breathing dust. Do not get in eyes, on skin, or on clothing. Keep away from combustible material.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection. Use appropriate personal protection equipment (PPE).

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Collect spillage.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Absorb and/or contain spill with inert material, then place in suitable container. Keep combustibles (wood, paper, oil, etc.) and incompatible materials away from spilled material. Spills that have become contaminated with organic matter or other combustible material may present a fire and explosion hazard. Such material should be shoveled into drums and dissolved in water to obtain at least 50% water solution. After cleaning, flush traces away with water. Contact competent authorities after a spill. For small spills (less than 55 gallons), wash contaminated areas with large volumes of water, if approved by local, state, and federal environmental agencies. Runoff may cause pollution. For large spills, the area should be diked for later recovery and proper disposal.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Keep away from open flames, hot surfaces and sources of ignition. When heated to decomposition ammonium nitrate emits nitrous oxide and water vapors and may explode if confined. Avoid dust production. Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained. See *NFPA 400: Hazardous Materials Code* (latest edition) for all the fire and life safety requirements applicable to handling, storage, and use of this material.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Storage construction should be of non-combustible materials and preferably equipped with an automatic sprinkler system. Storage should be designed for safe release of pressure. Ensure ammonium nitrate is stored in accordance with all applicable local, regional, national, provincial, and territorial regulations, including 29 CFR 1910.109(i). Contact your local authority having jurisdiction to determine any additional specific handling, storage and approval requirements. See *NFPA 400: Hazardous Materials Code* (latest edition) for all the fire and life safety requirements applicable to handling, storage, and use of this material.

Storage Conditions: Store in well-ventilated area away from acute fire hazards and easily oxidizable materials. Avoid contamination. Do not store near dynamite, blasting caps or other explosives. Store away from combustible materials, extremely high temperatures, ignition sources, incompatible materials. Floor drains, recesses or other areas of possible confinement should be eliminated to prevent entrapment of flowing molten ammonium nitrate during fire. Product is mildly corrosive to concrete and steel structures. Avoid materials made of copper and bronze.

Incompatible Materials: Acetic Acid, Acetic Anhydride, Alkali Metals, Aluminum + Calcium Nitrate, Aluminum, Ammonium Chloride, Ammonium Dichromate, Ammonium Phosphate + Potassium, Antimony, Barium Chloride, Bismuth, Brass, Cadmium, Charcoal + Metal Oxides, Chloride Salts, Chromium, Cobalt, Copper Iron II Sulfide, Copper, Cyanoguanidine, Hydrocarbon Oils, Iron, Lead, Magnesium, Manganese, Nickel, Organic Fuels, Potassium Chromate, Potassium Dichromate, Potassium Nitrate, Potassium Nitrite, Potassium Permanganate, Sawdust, Sodium Chloride, Sodium Perchlorate, Sugar, Sulfide Ores, Sulfur, Tin, Titanium, Trinitroanisole, Wood Chips and Zinc.

7.3. Specific End Use(s)

Fertilizer, nitrous oxide manufacture and industrial chemicals.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Ammonia (7664-41-7)		
Mexico	OEL TWA (mg/m³)	18 mg/m³
Mexico	OEL TWA (ppm)	25 ppm
Mexico	OEL STEL (mg/m³)	27 mg/m³
Mexico	OEL STEL (ppm)	35 ppm
USA ACGIH	ACGIH TWA (ppm)	25 ppm
USA ACGIH	ACGIH STEL (ppm)	35 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	35 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	50 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	18 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	25 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	27 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	35 ppm
USA IDLH	US IDLH (ppm)	300 ppm
Alberta	OEL STEL (mg/m³)	24 mg/m³
Alberta	OEL STEL (ppm)	35 ppm
Alberta	OEL TWA (mg/m³)	17 mg/m³
Alberta	OEL TWA (ppm)	25 ppm
British Columbia	OEL STEL (ppm)	35 ppm
British Columbia	OEL TWA (ppm)	25 ppm
Manitoba	OEL STEL (ppm)	35 ppm
Manitoba	OEL TWA (ppm)	25 ppm
New Brunswick	OEL STEL (mg/m³)	24 mg/m³
New Brunswick	OEL STEL (ppm)	35 ppm
New Brunswick	OEL TWA (mg/m³)	17 mg/m³
New Brunswick	OEL TWA (ppm)	25 ppm
Newfoundland & Labrador	OEL STEL (ppm)	35 ppm
Newfoundland & Labrador	OEL TWA (ppm)	25 ppm
Nova Scotia	OEL STEL (ppm)	35 ppm
Nova Scotia	OEL TWA (ppm)	25 ppm
Nunavut	OEL STEL (mg/m³)	24 mg/m³
Nunavut	OEL STEL (ppm)	35 ppm
Nunavut	OEL TWA (mg/m³)	17 mg/m³
Nunavut	OEL TWA (ppm)	25 ppm
Northwest Territories	OEL STEL (mg/m³)	24 mg/m³
Northwest Territories	OEL STEL (ppm)	35 ppm
Northwest Territories	OEL TWA (mg/m³)	17 mg/m³
Northwest Territories	OEL TWA (ppm)	25 ppm
Ontario	OEL STEL (ppm)	35 ppm
Ontario	OEL TWA (ppm)	25 ppm
Prince Edward Island	OEL STEL (ppm)	35 ppm
Prince Edward Island	OEL TWA (ppm)	25 ppm
Québec	VECD (mg/m³)	24 mg/m³
Québec	VECD (ppm)	35 ppm
Québec	VEMP (mg/m³)	17 mg/m³
Québec	VEMP (ppm)	25 ppm
Saskatchewan	OEL STEL (ppm)	35 ppm
Saskatchewan	OEL TWA (ppm)	25 ppm
Yukon	OEL STEL (mg/m³)	30 mg/m³
Yukon	OEL STEL (ppm)	40 ppm

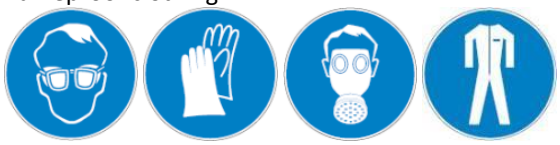
Yukon	OEL TWA (mg/m³)	18 mg/m³
Yukon	OEL TWA (ppm)	25 ppm
Nitric acid (7697-37-2)		
Mexico	OEL TWA (mg/m³)	5 mg/m³
Mexico	OEL TWA (ppm)	2 ppm
Mexico	OEL STEL (mg/m³)	10 mg/m³
Mexico	OEL STEL (ppm)	4 ppm
USA ACGIH	ACGIH TWA (ppm)	2 ppm
USA ACGIH	ACGIH STEL (ppm)	4 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	2 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	5 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	2 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	10 mg/m³
USA NIOSH	NIOSH REL (STEL) (ppm)	4 ppm
USA IDLH	US IDLH (ppm)	25 ppm
Alberta	OEL STEL (mg/m³)	10 mg/m³
Alberta	OEL STEL (ppm)	4 ppm
Alberta	OEL TWA (mg/m³)	5.2 mg/m³
Alberta	OEL TWA (ppm)	2 ppm
British Columbia	OEL STEL (ppm)	4 ppm
British Columbia	OEL TWA (ppm)	2 ppm
Manitoba	OEL STEL (ppm)	4 ppm
Manitoba	OEL TWA (ppm)	2 ppm
New Brunswick	OEL STEL (mg/m³)	10 mg/m³
New Brunswick	OEL STEL (ppm)	4 ppm
New Brunswick	OEL TWA (mg/m³)	5.2 mg/m³
New Brunswick	OEL TWA (ppm)	2 ppm
Newfoundland & Labrador	OEL STEL (ppm)	4 ppm
Newfoundland & Labrador	OEL TWA (ppm)	2 ppm
Nova Scotia	OEL STEL (ppm)	4 ppm
Nova Scotia	OEL TWA (ppm)	2 ppm
Nunavut	OEL STEL (mg/m³)	10 mg/m³
Nunavut	OEL STEL (ppm)	4 ppm
Nunavut	OEL TWA (mg/m³)	5.2 mg/m³
Nunavut	OEL TWA (ppm)	2 ppm
Northwest Territories	OEL STEL (mg/m³)	10 mg/m³
Northwest Territories	OEL STEL (ppm)	4 ppm
Northwest Territories	OEL TWA (mg/m³)	5.2 mg/m³
Northwest Territories	OEL TWA (ppm)	2 ppm
Ontario	OEL STEL (ppm)	4 ppm
Ontario	OEL TWA (ppm)	2 ppm
Prince Edward Island	OEL STEL (ppm)	4 ppm
Prince Edward Island	OEL TWA (ppm)	2 ppm
Québec	VECD (mg/m³)	10 mg/m³
Québec	VECD (ppm)	4 ppm
Québec	VEMP (mg/m³)	5.2 mg/m³
Québec	VEMP (ppm)	2 ppm
Saskatchewan	OEL STEL (ppm)	4 ppm
Saskatchewan	OEL TWA (ppm)	2 ppm

Yukon	OEL STEL (mg/m³)	10 mg/m³
Yukon	OEL STEL (ppm)	4 ppm
Yukon	OEL TWA (mg/m³)	5 mg/m³
Yukon	OEL TWA (ppm)	2 ppm

8.2. Exposure Controls

Appropriate Engineering Controls: Ensure all national/local regulations are observed. Ensure adequate ventilation, especially in confined areas. Use explosion-proof equipment. Gas detectors should be used when toxic gases may be released. Provide sufficient ventilation to keep ammonia vapors below the permissible exposure limit.

Personal Protective Equipment: Protective goggles. Gloves. Insufficient ventilation: wear respiratory protection. Full protective flameproof clothing.



Materials for Protective Clothing: Flame retardant antistatic protective clothing.

Hand Protection: Wear chemically resistant protective gloves. If material is hot, wear thermally resistant protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wear fire/flame resistant/retardant clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Thermal Hazard Protection: Since AN is used and shipped as a hot liquid, it is recommended that personal protective equipment which protects the whole body be used when there is a potential for contact. This could include the above hand and eye protection plus an apron and boots, which are compatible.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	Colorless to slightly opaque
Odor	:	Slight ammonia odor (pungent)
Odor Threshold	:	Not available
pH	:	4 - 6 (Depends on free nitric acid and free ammonia)
Evaporation Rate	:	Not available
Melting Point	:	Not available
Freezing Point	:	168 °F (75.5 °C) (Starts to solidfy or crystallize)
Boiling Point	:	266 °F (130 °C) (Water will start to separate out of solution)
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	(starts at) ≥ 338 °F (≥ 170 °C)
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	Not available
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	11.43 lb/gal @ 60 °F (16 °C)
Specific Gravity	:	1.37
Solubility	:	Water: 100%
Partition Coefficient: N-Octanol/Water	:	Not available
Viscosity	:	Not available
Explosion Data – Sensitivity to Mechanical Impact	:	May form shock sensitive compounds that may explode when dry.

Explosion Data – Sensitivity to Static Discharge : Not expected to present an explosion hazard due to static discharge.

Molecular Weight : 80.05

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Ammonium nitrate starts to dissociate and decompose at temperatures above 410°F. Upon decomposition, it emits nitrogen oxide (NOx) and water vapors and may explode if confined. Hazardous decomposition products can include ammonia, oxides of nitrogen, and nitric acid. If the product has been contaminated with another substance, the decomposition temperature and effects of the decomposition may be varied. See Incompatible Materials.

10.2. Chemical Stability: Ammonium nitrate is an oxidizer and as such may increase the flammability and/or explosiveness of other substances. Ammonium nitrate does not have the property of spontaneous combustion.

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4. Conditions to Avoid: Extremely high temperatures. Heat. Sparks. Overheating. Open flame. Storage in or near combustible materials. Sources of ignition. Confinement. Incompatible materials.

10.5. Incompatible Materials: Acetic Acid, Acetic Anhydride, Alkali Metals, Aluminum + Calcium Nitrate, Aluminum, Ammonium Chloride, Ammonium Dichromate, Ammonium Phosphate + Potassium, Antimony, Barium Chloride, Bismuth, Brass, Cadmium, Charcoal + Metal Oxides, Chloride Salts, Chromium, Cobalt, Copper Iron II Sulfide, Copper, Cyanoguanidine, Hydrocarbon Oils, Iron, Lead, Magnesium, Manganese, Nickel, Organic Fuels, Potassium Chromate, Potassium Dichromate, Potassium Nitrate, Potassium Nitrite, Potassium Permanganate, Sawdust, Sodium Chloride, Sodium Perchlorate, Sugar, Sulfide Ores, Sulfur, Tin, Titanium, Trinitroanisole, Wood Chips and Zinc.

10.6. Hazardous Decomposition Products: Nitrogen oxides. Toxic vapors. Corrosive vapors. Ammonia. Carbon oxides (CO, CO_2) Nitric acid.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

pH: 4 - 6 (Depends on free nitric acid and free ammonia)

Serious Eye Damage/Irritation: Causes serious eye irritation.

pH: 4 - 6 (Depends on free nitric acid and free ammonia)

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: May cause skin irritation.

Symptoms/Injuries After Eye Contact: Causes serious eye irritation. Symptoms may include: Redness, pain, swelling, itching, burning, tearing, and blurred vision.

Symptoms/Injuries After Ingestion: Ammonium Nitrate: Ingestion may cause methemoglobinemia. Intial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and possibly shock.

Chronic Symptoms: Overexposure to this material may result in methemoglobinemia.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ammonium nitrate (6484-52-2)	
LD50 Oral Rat	2217 mg/kg
LC50 Inhalation Rat	> 88.8 mg/l/4h

Ammonia (7664-41-7)	
LC50 Inhalation Rat	5.1 mg/l (Exposure time: 1 h)
LC50 Inhalation Rat	2000 ppm/4h (Exposure time: 4 h)

Nitric acid (7697-37-2)	
LC50 Inhalation Rat	67 ppm/4h
ATE US (dust, mist)	130.00 mg/l/4h

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Can be toxic to aquatic life, and spills may cause algae blooms in static waters.

Ammonia (7664-41-7)	
LC50 Fish 1	0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio)
EC50 Daphnia 1	25.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	0.26 - 4.6 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus)

12.2. Persistence and Degradability

Ammonium Nitrate Solution	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

Ammonium Nitrate Solution	
Bioaccumulative Potential	Not established.

Ammonium nitrate (6484-52-2)	
BCF Fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)

Ammonia (7664-41-7)	
Log Pow	-1.14 (at 25 °C)

Nitric acid (7697-37-2)	
Log Pow	-2.3 (at 25 °C)

12.4. Mobility in Soil

Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Clean up even minor leaks or spills if possible without unnecessary risk.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT

Proper Shipping Name : AMMONIUM NITRATE, LIQUID (hot concentrated solution)

Hazard Class : 5.1

Identification Number : UN2426

Label Codes : 5.1

ERG Number : 140

14.2. In Accordance with IMDG

Proper Shipping Name : AMMONIUM NITRATE, LIQUID (hot concentrated solution)
Hazard Class : 5.1
Identification Number : UN2426
Label Codes : 5.1
EmS-No. (Fire) : F-H
EmS-No. (Spillage) : S-Q

14.3. In Accordance with IATA

Proper Shipping Name : FORBIDDEN (PAX/CAO)
Identification Number :
Hazard Class :
Label Codes :
ERG Code (IATA) :

14.4. In Accordance with TDG

Proper Shipping Name : AMMONIUM NITRATE, LIQUID (hot concentrated solution)
Hazard Class : 5.1
Identification Number : UN2426
Label Codes : 5.1
ERP : >1000 L

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Ammonium Nitrate Solution	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Reactive hazard

Ammonium nitrate (6484-52-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Water (7732-18-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ammonia (7664-41-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Listed on United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	500
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Sudden release of pressure hazard
SARA Section 313 - Emission Reporting	1.0 % (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)

Nitric acid (7697-37-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Listed on United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	1000
SARA Section 313 - Emission Reporting	1.0 %

15.2. US State Regulations

Ammonium nitrate (6484-52-2)
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
RTK - U.S. - Massachusetts - Right To Know List
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Ammonia (7664-41-7)

U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Connecticut - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Connecticut - Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities
U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities
U.S. - Delaware - Accidental Release Prevention Regulations - Toxic Endpoints
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Essential Chemicals List
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Criteria Pollutants
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - STELs
U.S. - Michigan - Polluting Materials List
U.S. - Michigan - Process Safety Management Highly Hazardous Chemicals
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - STELs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List

RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New Jersey - TCPA - Extraordinarily Hazardous Substances (EHS)
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New Mexico - Precursor Chemicals
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Carolina - Control of Toxic Air Pollutants
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 1-Hour
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Ohio - Accidental Release Prevention - Threshold Quantities
U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Oregon - Precursor Chemicals
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - Rhode Island - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Acute Saltwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Saltwater Aquatic Life Criteria
U.S. - Tennessee - Occupational Exposure Limits - STELs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - STELs
U.S. - Virginia - Water Quality Standards - Acute Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Acute Saltwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Saltwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Virginia - Water Quality Standards - Surface Waters Not Used for the Public Water Supply Effluent Limits
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet
U.S. - Wyoming - Process Safety Management - Highly Hazardous Chemicals
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Acute Aquatic Life Criteria for Marine Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Marine Water
U.S. - Alaska - Ambient Air Quality Standards

Nitric acid (7697-37-2)

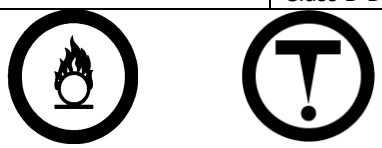
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute
U.S. - California - SCAQMD - Toxic Air Contaminants With Proposed Risk Values
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities
U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities

U.S. - Delaware - Accidental Release Prevention Regulations - Toxic Endpoints
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
RTK - U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - STELs
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Michigan - Process Safety Management Highly Hazardous Chemicals
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - STELs
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New Jersey - TCPA - Extraordinarily Hazardous Substances (EHS)
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Carolina - Control of Toxic Air Pollutants
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 1-Hour
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - Ohio - Accidental Release Prevention - Threshold Quantities
U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities
U.S. - Oregon - Permissible Exposure Limits - TWAs
RTK - U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations
U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories
U.S. - Tennessee - Occupational Exposure Limits - STELs
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Permissible Exposure Limits - STELs
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater

U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet
U.S. - Wyoming - Process Safety Management - Highly Hazardous Chemicals

15.3. Canadian Regulations

Ammonium Nitrate Solution	
WHMIS Classification	Class C - Oxidizing Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects



Ammonium nitrate (6484-52-2)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class C - Oxidizing Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Water (7732-18-5)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Ammonia (7664-41-7)	
Listed on the Canadian DSL (Domestic Substances List) Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class E - Corrosive Material

Nitric acid (7697-37-2)	
Listed on the Canadian DSL (Domestic Substances List) Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class C - Oxidizing Material Class E - Corrosive Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects

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

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 19 February 2016

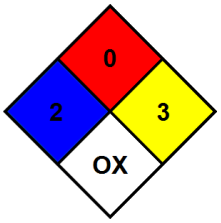
Revision Comments : Section 1.2 updated
Section 14.3 updated

GHS Full Text Phrases:

Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 2	Flammable gases Category 2
Liquefied gas	Gases under pressure Liquefied gas
Met. Corr. 1	Corrosive to metals Category 1

Ox. Liq. 3	Oxidizing liquids Category 3
Ox. Sol. 3	Oxidizing solids Category 3
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Corr. 1B	Skin corrosion/irritation Category 1B
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H221	Flammable gas
H272	May intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H319	Causes serious eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

NFPA Rating



Health Hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

Fire Hazard : 0 - Materials that will not burn.

Reactivity : 3 - Capable of detonation or explosive reaction, but requires a strong initiating source or must be heated under confinement before initiation.

Specific Hazard : OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.

HMIS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 0 Minimal Hazard

Physical : 3 Serious Hazard

Party Responsible for the Preparation of This Document

CF Industries, Corporate EHS Department, 847-405-2400

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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