THAI NITRATE COMPANY LIMITED

AMMONIUM NITRATE
SAFETY DATA SHEET

SECTION 1 CHEMICAL PRODUCTS & COMPANY IDENTIFICATION

SUBSTANCE: Ammonium Nitrate
TRADE NAMES/ Nitric Acid, Ammonium Salt; Nitram; Ammonia Nitrate; Nitric Acid.
Manufacturer Thai nitrate Co., Ltd
140/7 Moo 4, Tambol Tapong
Muang Rayong District Rayong Province 21000 Thailand
Tel. 038 942407-17 Fax. 038942400
For More Product Information: 038942407-17 Ext.805 Technical Service
Monday-Friday: 08:00 AM - 05:00 PM
In Case Of Emergency: 038942403 (Control Room), 038942407-17 Ext 801 (HSEQ)

SYNONYMS Ammonium Salt; STCC 4918311;
UN NUMBER UN 1942; H4N203; OHSO1290
CHEMICAL FAMILY Inorganic Salt

SECTION 2 HAZARDS IDENTIFICATION

Danger
May intensify fire; oxidizer

Warning
Causes serious eye irritation 2A

Warning
May be harmful if swallowed

Physical State And Appearance
Solid (Deliquescent crystals solid)

CERCLA RATINGS (Scale 0-3)
Health = 3 Fire = 0 Reactivity = 1 Persistence = 0
NFPA RATINGS (Scale 0-4)
Health = 3 Fire = 0 Reactivity = 0 Specific Hazard = OXY

Odorless, colorless to white, deliquescent, rhombic crystals or granules.
Causes respiratory tract, skin and eye irritation. May cause blood disorders. May affect the kidneys. May damage the lungs.
May explode from heat, shock or friction. Strong oxidizer.
Contact with other material may cause fire.
Do not grind or subject to heat or shock. Keep away from heat, sparks and flame. Avoid berating dust. Avoid contact with eyes, skin and clothing. Keep from contact with clothing and other combustible materials. Store away from combustible materials.
Avoid contamination by any source. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation. Handle with caution.

POTENTIAL HEALTH EFFECTS:

INHALATION:
SHORT TEAM EFFECTS: May cause irritation. Additional effects may include coughing, bluish skin color and lung damage.
LONG TERM EFFECTS: No information available on significant adverse effects.

SKIN CONTACT:
SHORT TEAM EFFECTS: May cause irritation. Additional effects may include burns.
LONG TERM AFFECTS: Same effects as short term exposure.

EYE CONTACT:
SHORT TEAM EFFECTS: May cause irritation. Additional effects may include burns.
LONG TERM AFFECTS: Same effects as short term exposure.

INGESTION:
SHORT TEAM EFFECTS: May cause nausea and bluish skin color.
LONG TERM EFFECTS: In addition to effects from short term exposure. Anemia and kidney damage may occur.

CARCINOGEN STATUS:
OSHA : N
NTP : N
IARC : N

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT: Ammonium Nitrate
CAS NUMBER: 6484-52-2
PERCENTAGE: 100.0

SECTION 4 FIRST AID MEASURES

INHALATION:
FIRST AID: Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.

SKIN CONTACT:
FIRST AID: Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.

EYE CONTACT:
FIRST AID: Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.
INGESTION:
FIRST AID: Treat symptomatically and supportively. If person is conscious and able to swallow, give large amounts of water or milk to dilute substance. Get medical attention immediately. If vomiting occurs, keep head below hips to help prevent aspiration.

NOTE TO PHYSICIAN:
ANTIDOTE: The following antidote has been recommended. However, the decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be made by qualified medical personnel.

METHEMOGLOBINEMIA:
(When met hemoglobin concentration is over 25/40 % or in presence of symptoms.) Give methane blue, 1% solution, 0.1 ml/kg intravenously over a 10-minute period. Gayness may disappear within minutes or persist longer depending on degree of methemoglobinemia. Intravenous administration of therapeutic doses of ethylene blue may cause a rise in blood pressure, nausea, and dizziness. Larger doses (>500 mg) cause vomiting, diaries, chest pain, mental confusion, cyanosis, and sweating. Hemolytic anemia has also occurred several days after administration. These effects are temporary, and fatalities have not been reported. If methylene blue is not available, give ascorbic acid, 1 gram slowly intravenously. Without treatment, methemoglobinemia levels of 20-30% revert to normal within 3 days (dreisbach, Handbook of Poisoning, 12th Ed.) Antidote should be administered by qualified medical personnel.

SECTION 5  FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD:
Negligible fire hazard when exposed to heat or flame.
Dangerous explosion hazard when exposed to heat, or flame.
Oxidizer: Oxidizers decompose, especially when heated, to yield oxygen or other gases which will increase the burning rate of combustible matter.
Contact with easily oxidizable, organic, or other combustible materials may result in ignition, violent combustion or explosion.

EXTINGUISHING MEDIA:
Water only, no dry chemical, carbon dioxide or halo (1990 Emergency Response Guidebook, DOT P 5800.5).
For larger fires, flood area with water from a distance (1990 Emergency Response Guidebook, DOT P 5800.5).

FIREFIGHTING:
Do not move cargo or vehicle if cargo has been exposed to heat. Apply cooling water to sides of containers exposed to flames until well after fire is out.
For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire (1990 Emergency Response Guidebook, DOT P 5800.5, Guide Page 43).
Flood with water. Cool containers with flooding amounts of water from as far a distance as possible. If fire is uncontrollable, evacuate for a radius of 5000 feet.

HASZRDUS COMBUSTION PRODUCTS:
Thermal decomposition products may include toxic and corrosive fumes of ammonia and toxic oxides of nitrogen.

SECTION 6 ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL:
Keep combustibles (wood, paper, oil, etc.) away from spilled material. Do not touch spilled material. Stop leak if you can do it without risk. Use water spray to reduce vapors. For small spills, take up absorbent material and place in containers for later disposal. For larger spills, died spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry.

SECTION 7 HANDLING AND STORAGE

Absolve all federal, state and local regulations when storing this substance. Protect containers against physical damage. Store in well-ventilated buildings, preferably of noncombustible construction and preferably equipped with automatic sprinkler protection. Floor drains and recesses should be plugged or eliminated to prevent entrapment of flowing molten nitrate during fire. Separate from all organic materials or other contaminating substances such as flammable liquids, organic chemicals, chlorates, sulfur and finely divided metals or charcoal, coke, cork and sawdust (NFPA 490, Hazardous Chemicals Date, 1975). Consult NFPA 490, Storage of ammonium nitrate, for applicable storage requirements. Store away from incompatible substances.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:
No occupational exposure limits established by OSHA, ACGTH, or NIOSH.

VENTILATION:
Provide local exhaust ventilation. Ventilation equipment should be explosion-proof if explosive concentrations of dust, vapor or fume are present.

EYE PROTECTION:
Employee must wear splash-proof or dust-resistant safety goggles to prevent eye contact with this substance. Emergency eye wash: Where there is any possibility that an employee’s eyes may be exposed to this substance, the employer should provide an eye wash fountain within the immediate work area for emergency use.

CLOTHING:
Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

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

RESPIRATOR:
The following respirators are recommended based on information found in the physical date, toxicity and health effects sections. They are ranked in order from minimum to maximum respiratory protection.
The specific respirator selected must be based on contamination levels found in the workplace, must be based on the specific operation, must not exceed the working limits of the respirator and must be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

Any dust and mist respirator.
Any air-purifying respirator with a high-efficiency particulate filter.
Any powered air-purifying respirator with a dust and mist filter.
Any powered air-purifying respirator with a high-efficiency particulate filter.
Any type “C” supplied-air respirator operated in the pressure-demand or other positive pressure or continuous-flow mode.
Any self-contained breathing apparatus.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or there positive-pressure mode.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Odorless, color less to white, deliquescent, rhombic crystals or granules.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOLECULAR WEIGHT</td>
<td>80.04</td>
</tr>
<tr>
<td>MOLECULAR FORMULA</td>
<td>NH4N03</td>
</tr>
<tr>
<td>BOLING POINT</td>
<td>410 F (210 C) @ 11 mmHg (decomposes)</td>
</tr>
<tr>
<td>MELTING POINT</td>
<td>338 F (170 C)</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td>1.725 @ 25C</td>
</tr>
<tr>
<td>WATER SOLUBILITY</td>
<td>118% @ 0 C</td>
</tr>
<tr>
<td>pH</td>
<td>5.4 @ 0.1 M solution</td>
</tr>
<tr>
<td>SOLVENT SOLUBILITY</td>
<td>Soluble in acetone, ammonia, methanol; moderately soluble in ethanol.</td>
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</tbody>
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SECTION 10 STABILITY AND REACTIVITY

REACTIVITY:
Capable of undergoing detonation if heated under convenient, or if subjected to strong shocks. Organic or there easily oxidizable matter can sensitizze to a more readily explosive state.

CONDITIONS TO AVOID:
May ignite other combustible materials (wood, paper, oil, etc.). May explode with mixture of fuels, from friction, heat or contamination. Container may explode in heat of fire. Runoff to sewer may create fire or explosion hazard.

HAZARDOUS DECOMPOSITION:
Thermal decomposition products may include toxic and corrosive fumes of ammonia and toxic oxides of nitrogen.

POLYMERIZATION:
Hazardous polymerization has not been reported to occur under normal temperatures and pressures.
SECTION 11  TOXICOLOGY INFORMATION

TOXICITY DATA
- 2217 mg/kg oral-rat LD 50.
CARCINOGEN STATUS
- None.
LOCAL EFFECTS
- Irritant-inhalation, skin, eye.
ACUTE TOXICITY LEVEL
- Moderately toxic by ingestion
TARGET EFFECTS
- Poisoning may affect the blood.

HEALTH EFFECTS

INHALATION
- ACUTE EXPOSURE - May be irritating to the respiratory tract and cause sore throat, coughing, difficult breathing, severe lung congestion, acidosis, and methemoglobinemia. Pulmonary edema and chemical pneumonitis may be delayed.
- CHRONIC EXPOSURE - Prolonged or repeated exposure may cause allergic response in the respiratory tract.

SKIN CONTRACT
- ACUTE EXPOSURE - May be irritating causing redness, pain and possibly burns.
- CHRONIC EXPOSURE - Repeated or prolonged contact with irritants may cause dermatitis.

EYE CONTACT:
- ACUTE EXPOSURE - May be irritating causing redness, pain and possibly burns.
- CHRONIC EXPOSURE - Repeated or prolonged contact with irritants may cause conjunctivitis.

INGESTION:
- ACUTE EXPOSURE - May cause mild gastric irritation, abdominal spasms, nausea, and faintness. Large decease may cause systemic acidosis and methemoglobinemia with cyanosis. Rarely inorganic nitrates may be converted to nitrites by nitrate-reeducating bacteria in the digestive tract, resulting in methemoglobinemia.
- CHRONIC EXPOSURE - Repeated or prolonged exposure to nitrates may cause anemia, nephritis, and possibly methemoglobinemia.

SECTION 12  ECOLOGICAL INFORMATION

- ECOTOXICITY: Not available
- BOD&COD: Not available
- BIODEGRADIENT: The products of degradation are less toxic than Product itself

SECTION 13  DISPOSAL CONSIDERATION

- EPA WASTE NUMBER: D001
- TREATMENT: Specified Technology – Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to ensure compliance with current regulations.
SECTION 14  TRANSPORTATION INFORMATION

UN number                                      : UN1942
Proper Shipping Name : Ammonium Nitrate
Transport Hazard Class  : Class 5.1
Packaging Group                             : PG III
Transport in accordance with UNTDG and local regulation for transportation of oxidizing agent (class 5.1)
Information for transportation contact HSEQ Department of Thainitrate Co., Ltd

SECTION 15  REGULATORY INFORMATION

INTERNATIONAL
EINECS: Ammonium Nitrate 229-347-8
DSCL (EEC) R36/37/38 – Irritating to eyes, Respiratory system and Skin
Australia (MITI): Ammonium Nitrate.
Japan (MITI): Ammonium Nitrate.
Korea (TCCL): Ammonium Nitrate.
US (TSCA 8b Inventory): Ammonium Nitrate.

SECTION 16  OTHER INFORMATION

The Statements Contained herein are based upon technical data the Thai Nitrate Co., Ltd. Believes to be reliable, are offered for information purposes only and as a guide to appropriate precautionary and emergency handling of material by a properly trained person having the necessary technical skill. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these material and the safety and health of employees and customers and the protection of the environment.

Prepared by       HSEQ Department of Thainitrate Co., Ltd
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