SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product form : Mixture
Product name : Ammonium Nitrate Solution
Product code : ANS54, SOL19
Formula : NH₄NO₃ (aq)
Synonyms : Ammonium Nitrate Aqueous Solution; Aqueous Solutions of Ammonium Nitrate;

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Agricultural chemical
Industrial use

1.3. Details of the supplier of the safety data sheet

PCS Sales (USA), Inc.
1101 Skokie Blvd.
Suite 400
Northbrook, IL 60062
T 800-241-6908 / 847-849-4200

Suite 500
122 1st Avenue South
Saskatoon, Saskatchewan Canada S7K7G3
T 800-667-0403 (Canada) / 800-667-3930 (USA)

SDS@PotashCorp.com - www.PotashCorp.com

1.4. Emergency telephone number

Emergency number : 800-424-9300
CHEMTREC

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Ox. Liq. 3 H272
Eye Irrit. 2B H320
STOT SE 2 H371
Aquatic Acute 3 H402
2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US):

Signal word (GHS-US): Warning

Hazard statements (GHS-US):
- H272 - May intensify fire; oxidizer
- H320 - Causes eye irritation
- H371 - May cause damage to organs (blood)
- H402 - Harmful to aquatic life

Precautionary statements (GHS-US):
- P210 - Keep away from heat, hot surfaces, open flames. - No smoking
- P220 - Keep/Store away from combustible materials
- P221 - Take any precaution to avoid mixing with combustible materials
- P260 - Do not breathe vapours, mist, spray, fume
- P264 - Wash hands thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P273 - Avoid release to the environment
- P280 - Wear eye protection, protective gloves
- 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 appropriate media for extinction
- P405 - Store locked up
- P501 - Dispose of contents/container according to local, regional, national, and international regulations

2.3. Other hazards

Hazardous to the aquatic environment

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product Identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>(CAS No.) 7732-18-5</td>
<td>45 - 60</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

Note: AN554 and SOL19 - Ammonium Nitrate is 54% as NH₄NO₃
SECTION 4: First aid measures

4.1. Description of first aid measures
First-aid measures general: If medical advice is needed, have product container or label at hand.

First-aid measures after inhalation: If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Obtain medical attention if breathing difficulty persists.

First-aid measures after skin contact: Wash skin thoroughly with mild soap and water. Obtain medical attention if irritation develops or persists.

First-aid measures after eye contact: Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Obtain medical attention if irritation develops or persists.

First-aid measures after ingestion: Do not induce vomiting. Seek medical attention if a large amount is swallowed. Get medical advice and attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/injuries: Irritation to eyes, skin and respiratory tract.

Symptoms/injuries after inhalation: Overexposure may be irritating to the respiratory system.

Symptoms/injuries after skin contact: May cause skin irritation.

Symptoms/injuries after eye contact: May cause eye irritation.

Symptoms/injuries after ingestion: If a large quantity has been ingested: Abdominal pain; Nausea; Vomiting; Diarrhea; Convulsions; Collapse

Chronic symptoms: Overexposure to this material may result in methemoglobinemia. Methemoglobinemia decreases the blood’s ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

4.3. Indication of any immediate medical attention and special treatment needed
If medical advice is needed, have product container or label at hand. Symptoms may be delayed.

Note to physician: Ammonium nitrate has been used as a diuretic [oral dose 2-4 grams]). Average or large does may cause nausea and vomiting. Acidosis may occur in the presence of impaired renal function. Nitrate formation in intestine may cause methemoglobinemia.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media: Water spray. Not flammable but will support combustion. Flood burning ammonium nitrate with large volumes of straight stream water application.

Unsuitable extinguishing media: Do not use smothering agents such as dry chemical, carbon dioxide, or regular foam or steam. Will not extinguish burning ammonium nitrate. Do not use salt water.
5.2. Special hazards arising from the substance or mixture

Fire hazard: May cause or intensify fire; oxidizer. Under conditions of fire this material may produce: Nitrogen oxides; Ammonia; Nitric acid. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity: Stable at ambient temperature and under normal conditions of use.

5.3. Advice for firefighters

Firefighting instructions: Keep upwind. Under conditions of fire this material may produce: Nitrogen oxides; Ammonia; Nitric acid

Protection during firefighting: Wear full fire-fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Do not breathe fumes from fires or vapours from decomposition.

6.1.1. For non-emergency personnel

Protective equipment: Wear suitable protective clothing, (impervious apron, sleeves and boots), neoprene or nitrile gloves and eye/face protection including safety glasses and protective chemical safety goggles.

Emergency procedures: Ventilate area. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Wear suitable protective clothing, gloves and eye/face protection.


6.2. Environmental precautions

If spill could potentially enter any waterway, including intermittent dry creeks, contact the U.S. COAST GUARD NATIONAL RESPONSE CENTER at 800-424-8802. In case of accident or road spill notify CHEMTREC at 800-424-9300. In other countries call CHEMTREC at (International code) +1-703-527-3887.

6.3. Methods and material for containment and cleaning up

For containment: Remove sources of heat and ignition. Do not allow to mix with sawdust or other combustible organic substances. Contain any spills with dikes or inert absorbents to prevent migration and entry into sewers or streams. Do not allow into drains or water courses or dispose of where ground or surface waters may be affected.

Methods for cleaning up: Clean up any spills as soon as possible. Collect absorbed material and place into a sealed, labelled container to be disposed at an appropriate disposal facility according to current applicable laws and regulations and product characteristics at time of disposal.

Practice good housekeeping - spillage can be slippery on smooth surface either wet or dry.
6.4. Reference to other sections
No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: When heated, material emits irritating fumes.

Precautions for safe handling: Handle in accordance with good industrial hygiene and safety procedures. Avoid contact with skin and eyes. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Minimize contact with skin and eyes. Avoid welding on pipes or tanks that have contained ammonium nitrate solution until they have been thoroughly washed out with water. Residual ammonium nitrate may explode under conditions of confinement and high temperature. Avoid containers, piping, or fittings made of brass, bronze or other copper containing alloys or galvanized metals. Do not run pumps with the discharge or suction valves closed; pump must be on circulation. If material is evaporated to dryness, special hazards are involved and special firefighting precautions and methods are recommended. Ammonium nitrate is a strong oxidizer. It is capable of undergoing detonation if heated under confinement or if subjected to very strong shocks.

Hygiene measures: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Keep away from combustible materials.

Incompatible materials: Avoid mixing with strong oxidizers, wood chips, organic materials, sulfur, chlorides, phosphorus, acids, flammable of combustible liquids, and charcoal.

Special rules on packaging: Keep container closed when not in use.

7.3. Specific end use(s)

Agricultural chemical. Industrial use.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No exposure limits were found for this product’s components.

8.2. Exposure controls

Appropriate engineering controls: Ensure adequate ventilation, especially in confined areas. Mechanical ventilation, process or personnel enclosure, control of process conditions, and process modifications significantly reduce exposure. Local exhaust (ventilation) control as close to the point of generation is both the most economical and safest method to minimize personnel exposure to airborne concentrations.
Personal protective equipment: Gloves. Safety glasses. Protective clothing.

Hand protection: Impermeable protective gloves.
Eye protection: Safety glasses.
Skin and body protection: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Wear suitable protective clothing. Wash contaminated clothing before reuse. Handle in accordance with good industrial hygiene and safety practice. Wash clothing frequently.
Respiratory protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.
Environmental exposure controls: Ensure adequate ventilation, especially in confined areas.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid
Appearance: Clear
Colour: Colorless
Odour: Odorless
Odour threshold: No data available
pH: 5.43 in aqueous solution
Molecular mass: 80.05 (Ammonium nitrate)
Relative evaporation rate (butylacetate=1): No data available
Melting point: 60% solution salts out at 10.6 °C (51 °F)
Freezing point: No data available
Boiling point: 116.9 °C (242.5 °F) (60% solution)
Flash point: No data available
Self ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): No data available
Vapour pressure: 15 hPa at 20 °C (68 °F)
Relative vapour density at 20 °C: No data available
Relative density: 1.28 (60% solution)
Bulk density: 10.44 lbs/gal (54% solution)
Solubility: Water: Miscible
Log Pow: No data available
Log Kow: No data available
Viscosity: No data available
Explosive properties: Ammonium nitrate is capable of undergoing detonation if heated under confinement, or is subjected to very strong shocks.

Oxidising properties: This material is an oxidizer. It will contribute to the intensity of a fire by supplying oxygen and it will promote combustion of surrounding materials.

Explosive limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable at ambient temperature and under normal conditions of use.

10.2. Chemical stability
Stable at standard temperature and pressure.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Keep away from heat or open flame. Welding or hot work on equipment or plant which may have contained fertilizer should not be done without first washing thoroughly to remove all fertilizer.

10.5. Incompatible materials
Avoid mixing with strong oxidizers, wood chips, organic materials, sulfur, chlorides, phosphorus, acids, flammable or combustible liquids, and charcoal.

10.6. Hazardous decomposition products
Under conditions of fire this material may produce: Nitrogen oxides; Ammonia; Nitric acid.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Ammonium nitrate (6484-52-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
pH: 4.3

Serious eye damage/irritation: Causes eye irritation.
pH: 4.3

Respiratory or skin sensitisation: Not classified

Germ cell mutagenicity: Bacterial Genetic Toxicity In-Vitro: (Salmonella typhimurium): Bacterial reverse mutation assay: Negative

Carcinogenicity: Not classified

Reproductive toxicity: Developmental Toxicity/Teratogenicity: Not teratogenic to rats at 57 mg/kg (NOAEL > 57 mg/kg/day).

Specific target organ toxicity (single exposure): May cause damage to organs (blood).
<table>
<thead>
<tr>
<th>Specific target organ toxicity (repeated exposure)</th>
<th>Not classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>EPA Ecological Toxicity rating:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity to Fish:</td>
<td><em>(Cyprinus carpio)</em> L: 48-h: LC50= 1.15 – 1.72 mg un-ionized NH3/L;</td>
</tr>
<tr>
<td></td>
<td>(Chinook Salmon, rainbow trout, bluegill) 96-h: LC50= 420 – 1360 mg NO3/L</td>
</tr>
<tr>
<td>Chronic Toxicity to Fish:</td>
<td>No data available</td>
</tr>
<tr>
<td>Acute Toxicity to Aquatic Invertebrates:</td>
<td><em>(Daphnia magna)</em> EC50 = 555 mg/L</td>
</tr>
<tr>
<td>Chronic Toxicity to Aquatic Invertebrates:</td>
<td><em>(Bullia digitalis)</em> Up to 7 days: NOEC = 300 mg/L. Based on the standard Federal Insecticide</td>
</tr>
<tr>
<td></td>
<td>Fungicide and Rodenticide Act (FIFRA) acute toxicity ratings for fish and Daphnia, the</td>
</tr>
<tr>
<td></td>
<td>compounds in this category are considered practically non-toxic. Ammonium nitrate is a</td>
</tr>
<tr>
<td></td>
<td>plant nutrient; however, large spills can kill vegetation. It should be reported to the</td>
</tr>
<tr>
<td></td>
<td>proper authorities.</td>
</tr>
<tr>
<td>Toxicity to Aquatic Plants:</td>
<td><em>(Algae) (Scenedesmus quadricauda)</em>: Up to 7 days: NOEC = 300 mg/L</td>
</tr>
<tr>
<td>Toxicity to Soil Dwelling Organisms:</td>
<td><em>(Algae) (Scenedesmus quadricauda)</em>: Up to 7 days: NOEC = 300 mg/L</td>
</tr>
<tr>
<td>Toxicity to Terrestrial Plants:</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Environmental Fate:

| Stability in Water:                | Stable to hydrolytic degradation.                                                              |
| Stability in Soil:                 | Ammonium ions bind to clay particles and leach slowly or not at all to ground water, whereas |
|                                   | the nitrate can leach significantly. Monitoring Data: NH3 background: 0.01 - 10mg N/L.       |
|                                   | NO3 background: 0.3 - 100 mg N/L.                                                             |
| Transport and Distribution:        | Transport: Worldwide loss after application 0.004 - 1.2 Tg/yr.                               |
|                                   | Distribution: 0.251% to air; 45.4% to water; 54.2% to soil; 0.0757% to sediment. *(Calculated, |
|                                   | Fugacity, Level III) *(Calculated, Fugacity Level III)*                                       |

Toxicity: No data available

Degradation Products:

| Biodegradation:                    | Readily Biodegradable; Does not bioaccumulate.                                                 |
| Photodegradation:                  | Does not photodegrade.                                                                         |

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations: Do not flush into surface water or sewer system.

Waste disposal recommendations: Place in an appropriate container and dispose of the contaminated material at a licensed site.

Additional information: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Ecology - waste materials: This material is highly water soluble. Landfills receiving this material should be equipped to contain leachate.

SECTION 14: Transport information

In accordance with DOT and TDG

In accordance with DOT / TDG / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable
14.3. Additional information

Other information : No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>Ammonium Nitrate Solution</th>
<th>SARA Section 311/312 Hazard Classes</th>
<th>Immediate (acute) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reactive hazard</td>
<td></td>
</tr>
</tbody>
</table>

| SARA Section 313 - Emission Reporting | Ammonium Nitrate dissociates into aqueous ammonia and water dissociable nitrate compounds in aqueous solutions, which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. |

**Water (7732-18-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

**Ammonium nitrate (6484-52-2)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on SARA Section 313 (water dissociable aqueous ammonia and nitrate compounds)

15.2. US State regulations

The following states have an OSH program approved by OSHA. If you are located in any of these states you may be under state jurisdiction rather than federal jurisdiction and your state may have more stringent requirements than OSHA. You should consult your state regulations to ensure compliance.

| Alaska      | Indiana | Minnesota | North Carolina | Utah |
| Arizona     | Iowa    | Nevada    | Oregon         | Vermont |
| California  | Kentucky | New Mexico | Puerto Rico | *Virgin Islands |
| *Connecticut | Maryland | *New Jersey | South Carolina | Virginia |
| Hawaii      | Michigan | *New York | Tennessee | Washington |
| *Illinois   |         |           |                | Wyoming |

*The state plans in these states apply only to public sector employers. In these states private sector employers are subject to USOL – OSHA jurisdiction. All other state plans apply to both public and private sector employers.

**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 Conc. - Reporting Category 1 |
| U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Conc. - 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 |
| U.S. - Massachusetts - Right To Know List |
| U.S. - New Jersey - Right to Know Hazardous Substance List |
| U.S. - New Jersey - Special Health Hazards Substances List |
### 15.3. Canadian regulations

<table>
<thead>
<tr>
<th>Ammonium Nitrate Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHMIS Classification</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

### Water (7732-18-5)

Listed on the Canadian DSL (Domestic Sustances List) inventory.

| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |

### Ammonium nitrate (6484-52-2)

Listed on the Canadian DSL (Domestic Sustances List) inventory.

| WHMIS Classification | Class C - Oxidizing Material |

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

### SECTION 16: Other information

<table>
<thead>
<tr>
<th>NFPA health hazard</th>
<th>0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFPA fire hazard</td>
<td>0 - Materials that will not burn.</td>
</tr>
<tr>
<td>NFPA reactivity</td>
<td>3 - Capable of detonation or explosive reaction, but requires a strong initiating source or must be heated under confinement before initiation, or reacts explosively with water.</td>
</tr>
<tr>
<td>NFPA specific hazard</td>
<td>OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.</td>
</tr>
</tbody>
</table>

**Full text of H-phrases:**

<table>
<thead>
<tr>
<th>Aquatic Acute 3</th>
<th>Hazardous to the aquatic environment - Acute Hazard Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2B</td>
<td>Serious eye damage/eye irritation Category 2B</td>
</tr>
<tr>
<td>Ox. Sol. 3</td>
<td>Oxidising solids Category 3</td>
</tr>
<tr>
<td>STOT SE 2</td>
<td>Specific target organ toxicity (single exposure) Category 2</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity (single exposure) Category 3</td>
</tr>
<tr>
<td>H272</td>
<td>May intensify fire; oxidizer</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H371</td>
<td>May cause damage to organs</td>
</tr>
</tbody>
</table>

**Previous PotashCorp MSDS Number**: MSDS 62 Ammonium Nitrate Solution

**Logo Change**: No other information changes; kept same date
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