Section 1. Product and Company Identification

Product Name Ammonium Oxalate Monohydrate
CAS Number 6009-70-7

Parchem - fine & specialty chemicals
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EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture
Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute Toxicity, Oral: Category 4 [H302]
Acute Toxicity, Dermal: Category 4 [H312]

GHS Label Elements

Pictograms:

Signal word: WARNING

Hazard and precautionary statements
Hazard statement(s)
H302: Harmful if swallowed
H312: Harmful in contact with skin.
Precautionary statements
P264: Wash hands and other skin areas exposed to material thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves, protective clothing and eye protection.
P301 + P330 + P312 - IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.
P303 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P312: Call a POISON CENTER or doctor if you feel unwell.
P322 - Specific treatment: Contact a POISON CENTER or doctor.
P363: Wash contaminated clothing before reuse.
P501: Dispose of contents and containers in accordance with national and local regulations.

Hazards not otherwise classified (HNOC) or not covered by GHS: None identified

Section 3. Composition / Information on Ingredients

Common Name Ammonium Oxalate Monohydrate
Synonym(s) Diammonium oxalate, monohydrate; Ethanedioic acid, diammonium salt monohydrate; Oxalic acid, diammonium salt monohydrate
Formula $(NH_4)_2C_2O_4 \cdot H_2O$
CAS Number 6009-70-7

COMPONENT	CAS NUMBER	CONCENTRATION
Ammonium Oxalate Monohydrate	6009-70-7	> 99%

Section 4. First Aid Measures

Description of first aid measures
Inhalation: If product dust causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing Is difficult or irregular, administer oxygen; if respiratory arrest occurs, start artificial respiration by trained personnel. Loosen tight fitting clothing such as a collar, tie, belt or waistband. If symptoms persist, seek medical attention immediately
Eyes: Do not rub eyes. Immediately flush eyes with large amounts of water for 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do, after the first 2 minutes of rinsing and continue rinsing. Seek immediate medical attention, preferably from an ophthalmologist.
Skin: Flush skin with large amounts of water while removing contaminated clothing and continue rinsing for at least 15 minutes. Wash contaminated clothing thoroughly before reuse. Discard contaminated shoes. If irritation persists, seek medical attention.
Ingestion: Rinse mouth with water if the victim is conscious. Remove dentures, if any. Give 1- 2 glasses of water to drink if the victim is conscious, alert and able to swallow. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious or convulsing person. Do not leave the victim unattended. Obtain medical attention immediately.

Most important symptoms and effects, both acute and delayed
Potential health symptoms and effects
Eyes: Causes eye irritation. Symptoms may include redness, swelling, pain, tearing and possible coneal injury. Particulates may cause irritation the eye.
Skin: Harmful if absorbed through the skin. Symptoms include redness, itching, swelling and possible blistering and burns. May cause dermatitis. Skin lesions begin with epithelial cracking and the formation of slow-healing ulcers. The fingers may appear cyanotic.
Inhalation: Causes irritation of the respiratory system and ulceration of the mucous membranes. Symptoms include cough, sore throat, headache, vomiting, nervousness. Additional symptoms may include emaciation, back pain (due to kidney injury) and weakness.
Ingestion: Harmful if swallowed. Causes severe irritation and burns to the gastrointestinal tract.

Causes ulcerations of the mouth, vomiting blood, rapid appearance of shock, convulsions, twitching, tetany and cardiovascular collapse. Systemic effects may be due to the formation of calcium oxalate, which is insoluble at physiological pH and can be deposited in the brain and kidney tubules. Resultant hypocalcemia might disturb the function of the heart and nerves. Mean lethal dose for oxalates in adults is estimated at 10 - 30 grams (143 - 428 mg/kg).
Chronic: Prolonged and repeated inhalation of oxalic acid dust may result in weight loss, respiratory tract inflammation and urolithiasis.

Indication of any immediate medical attention and special treatment needed
Advice to Doctor and Hospital Personnel: Treat symptomatically and supportively. Intravenous administration of calcium gluconate or calcium chloride may be required if hypocalcemia or hypocalcemic tetany occurs.

Section 5. Firefighting Measures

Extinguishable media
Suitable methods of extinction: Use extinguishing media suitable for surrounding material.
Unsuitable methods of extinction: None known

Special hazards arising from the substance or mixture: Closed containers may rupture due to the buildup of pressure when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.
Explosion hazards: Not considered to be explosion hazard
Advice for firefighters: Full protective equipment including self-contained breathing apparatus should be used. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion when exposed to extreme heat. Water contaminated by this material must be contained from being discharged to any waterway, sewer or drain to prevent environmental contamination.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Evacuate non-essential personnel. Wear appropriate protective clothing designated in Section 8.2. Do not inhale dust. Ventilate the area. Remove all sources of ignition. No smoking. Clean up spills immediately.

Environmental precautions: Avoid dispersal of spilled material or runoff and prevent contact with soil and entry into drains, sewers or waterways.

Methods and materials for containment and cleaning up: Cover drains and contain spill. Avoid dust generation during cleanup. Collect material and place into an approved container for proper disposal. Observe possible material restrictions (Sections 7.2 and 10.5). Dispose of via a licensed waste disposal contractor. Releases should be reported, if required, to appropriate agencies. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. Section 304). If release occurs in the U.S. and is

reportable under CERCLA Section 103, notify the National Response Center at (800) 424-8802 (USA) or (202) 426-2675 (USA).

Section 7. Handling and Storage

Precautions for safe handling: Wear all appropriate personal protective equipment specified in Section 8.2. Avoid dust generation and accumulation during use. Do not get in eyes or on skin or clothing. Do not breathe dust. No smoking. If normal use of material presents a respiratory hazard, use only adequate ventilation or wear an appropriate respirator. Discard contaminated shoes.

Advice on protection against fire and explosion: Material does not present a fire or explosion hazard.

Conditions for safe storage, including any incompatibilities: Store in dry, cool, well-ventilated areas away from incompatible materials (see Section 10.5), food and drink. Transfer only to approved containers having correct labeling. Keep container tightly closed when not in use. Protect containers from physical damage. Containers that have been opened must be carefully resealed and kept upright to prevent spillage. Use appropriate containment to avoid environmental contamination. Ventilate closed areas. Do not take internally. Keep out of reach of children.

Section 8. Exposure Controls / Personal Protection

Control parameters: Contains no substances with occupational exposure limit values.

Exposure controls
Engineering Measures: Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Use adequate ventilation. Local exhaust is preferable. Refer to Section 7.1 for additional data.
Individual protection measures: Wear protective clothing to prevent repeated or prolonged contact with product. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the representative supplier.
Hygiene measures: Facilities storing or using this material should be equipped with an eyewash station and safety shower. Change contaminated clothing. Preventive skin protection is recommended. Wash hands thoroughly after use, before eating, drinking, smoking or using the lavatory.
Eye/face protection: Wear protective goggles or safety glasses with non-perforated side shields. Refer to 29 CFR 1910.133, ANSI Z87.4 or Standard EN 166.
Hand Protection: Wear gloves butyl rubber or neoprene gloves, or those recommended by glove supplier for protection against materials in Section 3. Gloves should be impermeable to chemicals and oil. Breakthrough time of gloves must be greater than the intended use period.
Other protective equipment: Wear protective clothing. Wear protective boots if the situation requires.
Respiratory Protection: Wear an approved filter type dust respirator when handling this product. Where risk assessment shows air purifying respirators are appropriate use a half mask respirator

with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or GEN (EU). Follow OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.
Environmental exposure controls: None known

Section 9. Physical and Chemical Properties

Appearance: White solid
Odor: Odorless
Odor Threshold: No data available
Molecular Weight: 142.11
Chemical Formula: $(NH_4)_2C_2O_4 \cdot H_2O$
pH: 6.4
Freezing/Melting Point, Range: 70 °C (158 °F)
Initial Boiling Point: Not applicable
Evaporation Rate: Not applicable
Flammability (solid, gas): Not applicable
Flash Point: Not applicable
Autoignition Temperature: Not applicable
Decomposition Temperature: >70 °c (>158 °F)
Lower Explosive Limit (LEL): Not applicable
Upper Explosive Limit (UEL): Not applicable
Vapor Pressure: Not determined
Vapor Density: Not determined
Specific Gravity: 1.50
Viscosity: No data available
Solubility in Water: Complete
Partition Coefficient: n-octanol/water -2.3
Oxidizing Properties: Not applicable
Explosive Properties: Not applicable
Volatiles by Weight @ 21°C: 0%
Other data: No data available

Section 10. Stability and Reactivity

Reactivity: No special reactivity has been reported.
Chemical stability: This product is stable under recommended storage conditions, handling and use. Releases water of crystallization when heated.
Possibility of hazardous reactions: Hazardous polymerization does not occur.
Conditions to avoid: Extreme temperatures. Contact with incompatible materials. Dust generation. Oxalates slowly corrode steel.
Incompatible materials: Strong oxidizing agents

Hazardous decomposition products: Thermal decomposition products include oxides of carbon, oxides of nitrogen, formic acid, ammonia and irritating and toxic fumes and gases.

Section 11. Toxicological Information

Information on toxicological effects
Acute Oral Toxicity: No data available
Acute inhalation toxicity: No data available
Acute dermal toxicity: No data available
Skin irritation/corrosion: Causes skin irritation and possible burns.
Eye irritation/corrosion: Causes eye irritation; may cause corneal damage
Sensitization: No data available
Genotoxicity In vitro: No data available
Mutagenicity: No data available
Specific organ toxicity single exposure: No data available
Specific organ toxicity repeated exposure: No data available
Aspiration hazard: No data available
Further information: Oxalic acid caused kidney damage in fetal sheep and rats, and disturbed the estrus cycle in rats. Increased sperm abnormalities were seen in the second generation of mice administered 0.2% oxalic acid in drinking water. This material is not listed as a carcinogen by IARC, ACGIH, NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this material, nor is there available data that indicates that it causes adverse developmental or fertility effects. Handle in accordance with good industrial hygiene and safety practice.

Section 12. Ecological Information

Toxicity: Toxic to aquatic organisms.
Persistence and degradability: Expected to biodegrade
Bioaccumulation potential: This material will not bioaccumulate.
Mobility in soil: This product has high mobility in soil.
Results of PBT and vPvB assessment: PBT/vPvB assessment not available.

Other adverse effects
Additional ecological information: Harmful to the aquatic environment. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

Note: Transportation information provided is for reference only. Customer is urged to consult 49 CFR 100 - 177, IMDG, IATA, EC, United Nations Transportation of Dangerous Goods (TDG) and

WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

Not regulated for transport in single packages weighing <10 pounds
Note: When shipped as a single package weighing 2:10 pounds this material is regulated as a U.S. DOT hazardous material and should be labeled as follows:
US DOT (Domestic Ground Transportation)
Proper Shipping Name: Toxic solid, organic, n.o.s. (Ammonium Oxalate Monohydrate)
Hazard Class: 6.1
UN/NA: UN2811
Packing Group: III
NAERG: Guide #154
Packaging Authorization: Non-Bulk: 49 CFR 173.213; Bulk: 173.240
Packaging Exceptions: 49 CFR 173.153

IMO/IMDG (Water Transportation)
Proper Shipping Name: Toxic solid, organic, n.o.s. (Ammonium Oxalate Monohydrate)
Hazard Class: 6.1
UN/NA: UN2811
Packing Group: III
Marine Pollutant: No
EMS Number: F-A, S-A

ICAO/IATA (Air Transportation)
Proper Shipping Name: Toxic solid, organic, n.o.s. (Ammonium Oxalate Monohydrate)
Hazard Class: 6.1
UN/NA: UN2811
Packing Group: III
Quantity Limitations: 49 CFR 173.27 and 175.75 - Cargo Aircraft Only: 200 kg;
Passenger Aircraft: 100 kg

RID/ADR (Rail Transportation)
Proper Shipping Name: Toxic solid, organic, n.o.s. (Ammonium Oxalate Monohydrate)
Hazard Class: 6.1
UN/NA: UN2811
Packing Group: III

Section 15. Regulatory Information

U. S. Federal Regulations
OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910.1200.
OSHA Process Safety Management Standard: This substance is not regulated under OSHA PSM Standard 29 CFR 1910.119.

EPA Risk Management Planning Standard: This substance is not regulated under EPA RMP Standard (RMP) 40 CFR Part 68.
EPA Federal Insecticide, Fungicide and Rodenticide Act: This product is not a registered Pesticide under the FIFRA, 40 CFR Part 150.
Toxic Substance Control Act (TSCA) Inventory: Ammonium Oxalate Monohydrate (GAS #6009-70-7) is not on the TSCA Inventory. It is a hydrate and exempt from TSCA Inventory requirements. Ammonium Oxalate, Anhydrous (CAS #1113-38-8) is listed. This material is not subject to TSCA 12(b) Export Notification.
Drug Enforcement Administration (DEA) List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.4(f)(2) and Chemical Code Number: Not listed
Drug Enforcement Administration (DEA) List s1 & 2, Exempt Chemical Mixtures (21 CFR 1310.12(c)) and Code Number: Not listed
Department of Homeland Security (OHS) Chemical Facility Anti-Terrorism Standards (CFATS) Chemicals: Not listed

Superfund Amendments and Reauthorization Act (SARA)
SARA 313 Information: None of the chemicals in this product are subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to Know Act of 1986.
SARA Section 311/312 Hazard Categories: Acute Health Hazard, Chronic Health Hazard
SARA 302/304 Extremely Hazardous Substance: None of the chemicals in this product are subject to reporting requirements of these sections of Title 111 of SARA.
SARA 302/304 Emergency Planning & Notification: None of the chemicals in this product are subject to reporting requirements of these sections of Title Ill of SARA.
Comprehensive Response Compensation and Liability Act (CERCLA): This product contains the following CERCLA reportable substance: Ammonium Oxalate Monohydrate (CAS #6009-70-7): RQ = 2,268 kg (5,000 lbs); listed under "Ammonium Oxalate"

Clean Air Act (CAA): None of the chemicals in this product are listed as Hazardous Air Pollutants (HAPs) designated in CAA Section 112 (b). This product does not contain any Class 1 Ozone depletors. This product does not contain any Class 2 Ozone depletors.

Clean Water Act (CWA): Ammonium Oxalate Monohydrate (GAS #6009-70-7) is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

U.S. State Regulations
California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986: This product contains no chemical{s) known to the State of California to cause cancer, birth defects or other reproductive harm.
Other U.S. State Inventories: Ammonium oxalate monohydrate (GAS #6009-70-7) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: CA, DE, MA, NY, PA.

Canada
WHMIS Classification: Causes serious eye irritation
Canadian National Pollutant Release Inventory (NPRI): None of the substances in this product are listed on the NPRL

European Economic Community: Labeling (67/548/EEC or 1999/45/EC)
WGK, Germany (Water danger/protection): No data available

Global Chemical Inventory Lists
Canada: Domestic Substance List (DSL). No
Canada: Non-Domestic Substance List (NDSL) No
Europe: Inventory of New and Existing Chemicals (EINECS) Yes
United States: Toxic Substance Control Act (TSCA) No
Australia: Australian Inventory of Chemical Substances (AICS) Yes
New Zealand: New Zealand Inventory of Chemicals. (NZIoC) Yes
China: Inventory of Existing Chemical Substances in China (IECSC) Yes
Japan: Inventory of Existing and New Chemical Substances (ENCS) Yes
Korea: Existing Chemicals List (KECI) No
Philippines: Philippine Inventory of Chemicals and Chemical Substances (PICCS) Yes
***Yes:** All components of this product are in compliance with the inventory requirements administered by the governing country.
No: One or more components of this product are not on the inventory and are not exempt from listing.

Chemical safety assessment: For this product a chemical safety assessment was not carried out.

HMIS
Health: 2
Flammability: 0
Physical Hazard: 0
Personal Protection: C

NFPA
Health: 2
Flammability: 2
Instability: 2

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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