Material Safety Data Sheet
Ammonium oxalate, monohydrate, p.a.

ACC# 96020

Section 1 - Chemical Product and Company Identification

MSDS Name: Ammonium oxalate, monohydrate, p.a.
Catalog Numbers: AC206270000, AC206270010, AC206275000
Synonyms: Diammonium oxalate, monohydrate; Ethanedioic acid, diammonium salt monohydrate; Oxalic acid, diammonium salt monohydrate.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
6009-70-7	Ammonium oxalate, monohydrate	> 99.5	unlisted
1113-38-8	Ammonium oxalate anhydrous	-	214-202-3

Hazard Symbols: XN
Risk Phrases: 21/22

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white solid. May cause kidney damage. **Warning!** Harmful in contact with skin and if swallowed. May cause eye and skin irritation with possible burns. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns.
Target Organs: Kidneys, heart, eyes, skin, brain, nerves, mucous membranes.

Potential Health Effects
Eye: May cause eye irritation. May result in corneal injury.
Skin: Harmful if absorbed through the skin. Oxalate is an irritant and may cause dermatitis. Skin lesions begin with epithelial cracking and the formation of slow-healing ulcers. The fingers may appear cyanotic.
Ingestion: Ulcerations of the mouth, vomiting of blood, and rapid appearance of shock, convulsions, twitching, tetany, and cardiovascular collapse may occur following ingestion of oxalic acid or its soluble salts. Systemic effects may be due to 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).
Inhalation: Inhalation of oxalic acid produces irritation of the respiratory tract, ulceration of the mucous membranes, headaches, nervousness, cough, vomiting, emaciation, back pain (due to kidney injury), and weakness.
Chronic: Inhalation of oxalic acid dust or mist over a long period of time might result in weight loss and respiratory tract inflammation. Rats administered oxalic acid at 2.5 and 5% in the diet for 70 days developed depressed thyroid function and weight loss. A study of railroad car cleaners in Norway who were heavily exposed to oxalic acid solutions and vapors revealed a 53% prevalence of urolithiasis (the formation of urinary stones), compared to a rate of 12% among unexposed workers from the same company.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.
Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.
Ingestion: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.
Antidote: Intravenous administration of calcium gluconate or calcium chloride may be required if hypocalcemia or hypocalcemic tetany occur.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.

Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes. Use only with adequate ventilation.
Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Oxalates slowly corrode steel.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ammonium oxalate, monohydrate	none listed	none listed	none listed
Ammonium oxalate anhydrous	none listed	none listed	none listed

OSHA Vacated PELs: Ammonium oxalate, monohydrate: No OSHA Vacated PELs are listed for this chemical. Ammonium oxalate anhydrous: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: white
Odor: odorless
pH: 6.4 @ 0.1M
Vapor Pressure: Not applicable.
Vapor Density: 4.3
Evaporation Rate: Not applicable.
Viscosity: Not available.
Boiling Point: Decomposes.
Freezing/Melting Point:70 deg C (dec)
Decomposition Temperature:70 deg C
Solubility: Soluble.
Specific Gravity/Density:1.5
Molecular Formula:C2H8N2O4.H2O
Molecular Weight:142.11

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Dust generation, excess heat, Oxalates slowly corrode steel..
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, formic acid, ammonia.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 6009-70-7 unlisted.
CAS# 1113-38-8: RO2750000
LD50/LC50:

Not available.
Not available.

Carcinogenicity:
CAS# 6009-70-7: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 1113-38-8: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: A study of railroad car cleaners in Norway who were heavily exposed to oxalic acid solutions and vapors revealed a 53 % prevalence of urolithiasis (the formation of urinary s tones), compared to a rate of 12% among unexposed workers fr om the same company.
Teratogenicity: No information available.
Reproductive Effects: 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 the drinking water.
Neurotoxicity: No information available.
Mutagenicity: No information available.
Other Studies: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	TOXIC SOLIDS, ORGANIC, N.O.S.				No information available.
Hazard Class:	6.1				
UN Number:	UN2811				
Packing Group:	III				

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 6009-70-7 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).
CAS# 1113-38-8 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA

CERCLA Hazardous Substances and corresponding RQs
CAS# 6009-70-7: 5000 lb final RQ (Listed under Ammonium oxalate); 2270 kg final RQ (Listed
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 6009-70-7: acute, chronic. CAS # 1113-38-8: acute, chronic.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 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.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 6009-70-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.
CAS# 1113-38-8 can be found on the following state right to know lists: New Jersey.
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols:
XN
Risk Phrases:
R 21/22 Harmful in contact with skin and if swallowed.

Safety Phrases:
S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)
CAS# 6009-70-7: 1
CAS# 1113-38-8: No information available.
Canada - DSL/NDSL
CAS# 1113-38-8 is listed on Canada's DSL List.
Canada - WHMIS
This product has a WHMIS classification of D1B, E.
Canadian Ingredient Disclosure List
Exposure Limits

Section 16 - Additional Information

MSDS Creation Date: 9/14/1998
Revision #3 Date: 5/23/2001