Material Safety Data Sheet
Hydrazine monohydrochloride, 98+%

ACC# 79739

Section 1 - Chemical Product and Company Identification

MSDS Name: Hydrazine monohydrochloride, 98+%
Catalog Numbers: AC201990000, AC201990010, AC201990050, AC201992500
Synonyms:
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
2644-70-4	Hydrazine monohydrochloride	>98	220-154-4

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white crystals.
Warning! Harmful if swallowed, inhaled, or absorbed through the skin. May cause allergic skin reaction. Cancer suspect agent.
Target Organs: Skin.

Potential Health Effects
Eye: Not available.
Skin: May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.
Ingestion: Harmful if swallowed.
Inhalation: Not available.
Chronic: May cause cancer in humans.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure. Get medical aid if symptoms occur.
Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. Get medical aid. Do NOT use mouth-to-mouth resuscitation.
Notes to Physician: Treat symptomatically and supportively.

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.
Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use agent most appropriate to extinguish fire.
Flash Point: 240 deg C (464.00 deg F)
Autoignition Temperature: Not available.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Provide ventilation. Clean up residual material by washing area with a 2-5% solution of soda ash.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use only in a well-ventilated area. Minimize dust generation and accumulation. Avoid breathing dust, vapor, mist, or gas. Avoid contact with eyes, skin, and clothing. Keep container tightly closed.
Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Hydrazine monohydrochloride	none listed	none listed	none listed
Hydrazine	0.01 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous r oute	50 ppm IDLH	1 ppm TWA; 1.3 mg/m3 TWA

OSHA Vacated PELs: Hydrazine monohydrochloride: No OSHA Vacated PELs are listed for this chemical. Hydrazine: 0.1 ppm TWA; 0.1 mg/m3 TWA
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 and clothing to prevent skin exposure.
Clothing: Wear appropriate protective clothing to minimize contact with skin.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Crystals
Appearance: white
Odor: None reported.
pH: Not available.
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: Decomposes
Freezing/Melting Point:89 deg C
Decomposition Temperature:240 deg C
Solubility: soluble in liquid ammoniak
Specific Gravity/Density: Not available.
Molecular Formula:H4N2.HCl
Molecular Weight:68.51

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Dust generation, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Hydrogen chloride, nitrogen oxides.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 2644-70-4: MV4625000
CAS# 302-01-2: MU7175000
LD50/LC50:
CAS# 2644-70-4:
Oral, mouse: LD50 = 126 mg/kg;
Oral, rat: LD50 = 128 mg/kg;
.

CAS# 302-01-2:
Dermal, guinea pig: LD50 = 190 mg/kg;
Inhalation, mouse: LC50 = 252 ppm/4H;
Inhalation, mouse: LC50 = 1000 mg/m3/2H;
Inhalation, mouse: LC50 = 320 mg/m3/4H;
Inhalation, rat: LC50 = 570 ppm/4H;
Inhalation, rat: LC50 = 130 mg/m3/2H;
Oral, mouse: LD50 = 59 mg/kg;

Oral, mouse: LD50 = 59 mg/kg;
Oral, rat: LD50 = 60 mg/kg;
Oral, rat: LD50 = 60 mg/kg;
Skin, rabbit: LD50 = 91 mg/kg;
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Carcinogenicity:
CAS# 2644-70-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 302-01-2:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 1/1/88
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

Epidemiology: No data available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

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:
CAS# 302-01-2: waste number U133 (Reactive waste, Toxic waste).

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	TOXIC SOLID, INORGANIC, N.O.S.	TOXIC SOLID INORGANIC NOS
Hazard Class:	6.1	6.1
UN Number:	UN3288	UN3288
Packing Group:	II	II
Additional Info:		HYDRAZINE MONOHYDROCHLORIDE

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 2644-70-4 is listed on the TSCA inventory.
CAS# 302-01-2 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.
CERCLA Hazardous Substances and corresponding RQs
CAS# 302-01-2: 1 lb final RQ; 0.454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
CAS# 302-01-2: 1000 lb TPQ
SARA Codes
CAS # 302-01-2: immediate, delayed, fire, reactive.
Section 313
This material contains Hydrazine (CAS# 302-01-2, -%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 302-01-2 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances 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# 2644-70-4 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 302-01-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

WARNING: This product contains Hydrazine, a chemical known to the state of California to cause cancer.
California No Significant Risk Level: CAS# 302-01-2: 0.04 æg/day NSRL

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T

Risk Phrases:

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R 43 May cause sensitization by skin contact.
R 45 May cause cancer.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.

WGK (Water Danger/Protection)

CAS# 2644-70-4: No information available.
CAS# 302-01-2: 3

Canada - DSL/NDSL

CAS# 302-01-2 is listed on Canada's DSL List.
CAS# 2644-70-4 is listed on Canada's NDSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2B.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 302-01-2 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 12/23/1998
Revision #4 Date: 11/16/2005