

Material Safety Data Sheet

Chlorosulfonyl isocyanate, 98+%

ACC# 54436

Section 1 - Chemical Product and Company Identification

MSDS Name: Chlorosulfonyl isocyanate, 98+%

Catalog Numbers: AC162040000, AC162040050, AC162040100, AC162040250, AC162040500, AC162041000 AC162041000, AC162042500, AC162045000

Synonyms: CSI; Sulfuryl chloride isocyanate; N-Carbonylsulfamyl chloride; Carbonylsulfamoyl chloride; Sulfonyl chloride isocyanate.

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 |
|-----------|---------------------------|---------|---------------|
| 1189-71-5 | Chlorosulfonyl isocyanate | >98 | 214-715-2 |

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear colorless to slightly yellow liquid.

Danger! Causes eye and skin burns. Causes digestive and respiratory tract burns. Reacts violently with water. May cause allergic respiratory and skin reaction. May be harmful if swallowed, inhaled, or absorbed through the skin.

Target Organs: Lungs, respiratory system, eyes, skin, mucous membranes.

Potential Health Effects

Eye: Causes eye burns. Lachrymator (substance which increases the flow of tears).

Skin: Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May be harmful if absorbed through the skin.

Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May be harmful if swallowed.

Inhalation: Causes chemical burns to the respiratory tract. May be harmful if inhaled. The vapors have a tussive effect.

Chronic: Chronic overexposure to isocyanates has been reported to cause lung damage, including decreased lung function, which may be permanent.

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: Do not induce vomiting. Get medical aid immediately.

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.

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. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Reaction with water may generate much heat which will increase the concentration of fumes in the air. Contact with metals may evolve flammable hydrogen gas. Avoid water contamination in closed containers or confined spaces because carbon dioxide (CO₂) is evolved.

Extinguishing Media: DO NOT USE WATER! Use dry chemical, dry sand, or carbon dioxide.

Flash Point: > 110 deg C (> 230.00 deg F)

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 1; Instability: 3; Special Hazard: -W-

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm

sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Do not get water on spilled substances or inside containers.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Do not allow water to get into the container because of violent reaction. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Use with adequate ventilation. Discard contaminated shoes. Systems and equipment must be scrupulously dry. Cotton fabrics will char immediately on contact with chlorosulfonyl isocyanate and produce a dense smoke.

Storage: Store in a tightly closed container. Keep refrigerated. (Store below 4°C/39°F.) Store protected from moisture. Store absolutely dry.

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. Use a corrosion-resistant ventilation system.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|---------------------------|-------------|-------------|-------------------|
| Chlorosulfonyl isocyanate | none listed | none listed | none listed |

OSHA Vacated PELs: Chlorosulfonyl isocyanate: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical splash goggles and face shield.

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. 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: Liquid

Appearance: clear colorless to slightly yellow

Odor: pungent odor

pH: Not available.

Vapor Pressure: 25.6 hPa @ 20 deg C

Vapor Density: 4.88

Evaporation Rate: Not available.

Viscosity: 0.996 mPa.s @ 20 deg C

Boiling Point: 106 deg C

Freezing/Melting Point: -44 deg C

Decomposition Temperature: > 300 deg C

Solubility: Reacts violently

Specific Gravity/Density: 1.626

Molecular Formula: CCINO3S

Molecular Weight: 141.53

Section 10 - Stability and Reactivity

Chemical Stability: Reacts with water. Fumes in moist air.

Conditions to Avoid: Excess heat, exposure to moist air or water.

Incompatibilities with Other Materials: Water, strong oxidizing agents, alcohols, amines.

Hazardous Decomposition Products: Hydrogen chloride, nitrogen oxides, oxides of sulfur, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 1189-71-5 unlisted.

LD50/LC50:

Not available.

LD50 oral (rat): 640 mg/kg.

Carcinogenicity:

CAS# 1189-71-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information 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: None listed.

Section 14 - Transport Information

| | US DOT | Canada TDG |
|-----------------------|--------------------------------------|---------------------------|
| Shipping Name: | WATER-REACTIVE LIQUID, TOXIC, N.O.S. | No information available. |
| Hazard Class: | 4.3 | |
| UN Number: | UN3130 | |
| Packing Group: | I | |

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 1189-71-5 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

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

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 depleters.

This material does not contain any Class 2 Ozone depleters.

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# 1189-71-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

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:

C

Risk Phrases:

R 14 Reacts violently with water.

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R 34 Causes burns.

R 42/43 May cause sensitization by inhalation and skin contact.

Safety Phrases:

S 23 Do not inhale gas/fumes/vapour/spray.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 30 Never add water to this product.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 8 Keep container dry.

WGK (Water Danger/Protection)

CAS# 1189-71-5: No information available.

Canada - DSL/NDSL

CAS# 1189-71-5 is listed on Canada's NDSL List.

Canada - WHMIS

This product has a WHMIS classification of E.

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

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| Section 16 - Additional Information |
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MSDS Creation Date: 11/03/1998

Revision #4 Date: 3/22/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.