

Safety Data Sheet per OSHA HazCom 2012

1 Identification Product identifier Product name: 3-Chloropropanesulfonyl chloride Stock number: L00607 CAS Number: 1633-82-5 EC number: 216-646-3 Relevant identified uses of the substance or mixture and uses advised against. Identified use: SU24 Scientific research and development Details of the supplier of the safety data sheet Manufacturer/Supplier: Alfa Aesar Thermo Fisher Scientific Chemicals, Inc. Inerrito Fisher Scheman C. 30 Bond Street Ward Hill, MA 01835-8099 Tel: 800-343-0660 Fax: 800-322-4757 Email: tech @alfa.com www.alfa.com Information Department: Health, Safety and Environmental Department Emergency telephone number: During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789. 2 Hazard(s) identification Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS) EZ GHS05 Corrosion Skin Corr. 1B H314 Causes severe skin burns and eye damage. Eye Dam. 1 H318 Causes serious eye damage. Hazards not otherwise classified No information known. Label elements GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Hazard pictograms E.F. GHS05 Signal word Danger Hazard statements H314 Causes severe skin burns and eye damage. Precautionary statements P260 Do not b Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapours/spray. P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P405 Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations. WHMIS classification D2B - Toxic material causing other toxic effects E - Corrosive material of the Classification system HMIS ratings (scale 0-4) (Hazardous Materials Identification System) 3 Health (acute effects) = 31 Flammability = 1 EACTIVITY] Physical Hazard = 1 Other hazards Results of PBT and vPvB assessment PBT: Not applicable. vPvB: Not applicable. 3 Composition/information on ingredients Chemical characterization: Substances CAS# Description: 1633-82-5 3-Chloropropanesulfonyl chloride Identification number(s): EC number: 216-646-3 4 First-aid measures Description of first aid measures General information Immediately remove any clothing soiled by the product. After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice. After skin contact Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice. (Contd. on page 2)

Product name: 3-Chloropropanesulfonyl chloride

(Contd. of page 1) After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor. After swallowing Seek medical treatment. Information for doctor Most important symptoms and effects, both acute and delayed Causes severe skin burns. Causes serious eye damage. Indication of any immediate medical attention and special treatment needed No further relevant information available. 5 Fire-fighting measures Extinguishing media Suitable extinguishing agents CO2, sand, extinguishing powder. Do not use water. Special hazards arising from the substance or mixture If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide Sulfur oxides (SOx) Hydrogen chloride (HCl) Advice for firefighters **Protective equipment:** Wear self-contained respirator. Wear fully protective impervious suit. 6 Accidental release measures Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away Ensure adequate ventilation Ensure adequate ventilation Environmental precautions: Do not allow material to be released to the environment without proper governmental permits. Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent. Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation. **Prevention of secondary hazards:** No special measures required. **Reference to other sections**

See Section 7 for information on safe handling See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7 Handling and storage

Handling

Precautions for safe handling Handle under dry protective gas. Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace. Information about protection against explosions and fires: No information known. Conditions for safe storage, including any incompatibilities Storage Requirements to be met by storerooms and receptacles: No special requirements. Information about storage in one common storage facility: Store away from oxidizing agents. Store away from strong bases. Store away from water/moisture. Further information about storage conditions: Store under dry inert gas. This product is moisture sensitive. Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Protect from humidity and water. Specific end use(s) No further relevant information available. 8 Exposure controls/personal protection

Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Control parameters

Components with limit values that require monitoring at the workplace: Not required. Additional information: No data Exposure controls Personal protective equipment General protective and hygienic measures The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment. Pronthing aquimment. **Breathing equipment:** Use suitable respirator when high concentrations are present. **Protection of hands:** Impervious gloves The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer. **Eve protection:** Tightly sealed goggles Full face protection: **Body protection:** Protective work clothing.

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(Contd. of page 2)

Information on toxicological effects Acute toxicity: Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach. LD/L C50 values that are relevant for classification: No data Skin irritation or corrosion: Causes severe skin burns. Eye irritation or corrosion: Causes serious eye damage. Sensitization: No sensitizing effects known. Germ cell mutagenicity: No effects known. Carcinogenicity: No effects known. Specific target organ system toxicity - repeated exposure: No effects known. Specific target organ system toxicity - single exposure: No effects known. Aspiration hazard: No effects known. Subacute to chronic toxicity: No effects known. Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.			(Contd. of page 2)	
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Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal.	Aquatic toxicity: No further relevant information available. Persistence and degradability No further relevant information available. Bioaccumulative potential No further relevant information available. Mobility in soil No further relevant information available. Additional ecological information: General notes: Do not allow material to be released to the environment without proper governmental permits. Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. Avoid transfer into the environment. Results of PBT and vPvB assessment PBT: Not applicable. vPvB: Not applicable.			
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	Waste treatment methods	or national regulations to ensure proper disposal.	(Contd on page 4)	

Product name: 3-Chloropropanesulfonyl chloride (Contd. of page 3) Uncleaned packagings: Recommendation: Disposal must be made according to official regulations. 14 Transport information **UN-Number** DOT, IMDG, IATA UN3265 UN proper shipping name DOT Corrosive liquid, acidic, organic, n.o.s. (3-Chloropropanesulfonyl chloride) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (3-Chloropropanesulfonyl IMDG, IATA chloride) Transport hazard class(es) DOT Class 8 Corrosive substances. I abel 8 8 (C3) Corrosive substances Class Labe IMDG, IATA Class 8 Corrosive substances. Label 8 Packing group DOT, IMDG, IATA 11 Environmental hazards: Not applicable. Special precautions for user Warning: Corrosive substances Segregation groups Acids Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable. Transport/Additional information: DOT Marine Pollutant (DOT): No UN "Model Regulation": UN3265, Corrosive liquid, acidic, organic, n.o.s. (3-Chloropropanesulfonyl chloride), 8, II 15 Regulatory information Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Hazard pictograms GHS05 Signal word Danger Hazard statements H314 Causes severe skin burns and eye damage. Precautionary statements Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapours/spray. P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations. P405 National regulations This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only. This product must be used by or directly under the supervision of a technically qualified individual as defined by TSCA. This product must not be used for commercial purposes or in formulations for commercial purposes. SARA Section 313 (specific toxic chemical listings) Substance is not listed. California Proposition 65 Prop 65 - Chemicals known to cause cancer Substance is not listed. Prop 65 - Developmental toxicity Substance is not listed. Prop 65 - Developmental toxicity, female Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Information about limitation of use: For use only by technically qualified individuals. Other regulations, limitations and prohibitive regulations Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed. The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed. market and use must be observed. Substance is not listed Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed. Chemical safety assessment: A Chemical Safety Assessment has not been carried out. 16 Other information Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user. Department issuing SDS: Global Marketing Department Date of preparation / last revision 11/23/2015 / -Abbreviations and acronyms: RID: Reglement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

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USA

- ICAO: International Civil Aviation Organization ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO) ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) HMIS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Canada) LC50: Lethal concentration, 50 percent UDS0: Lethal concentration, 50 percent UPVB: very Persistent and very Bioaccumulative ACGEH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) IARC: International Protection Agency (USA)