

Safety Data Sheet per OSHA HazCom 2012

1 Identification Product identifier Product name: 3-Cyclohexylpropionic acid Stock number: B23613 CAS Number: 701-97-3 EC number: 211-861-9 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) ! GHS07 Acute Tox. 4 H302 Harmful if swallowed. Skin Irrit. 2 H315 Causes skin irritation. Eye Irrit. 2A H319 Causes serious eye irritation. 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 GHS07 Signal word Warning Hazard statements H302 Harmful if swallowed. H315 Causes skin irritation. H319 Causes serious eye irritation. Precautionary statements P280 Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P362 Take off contaminated clothing and wash before reuse. P321 Specific treatment (see on this label). P332+P313 If skin irritation occurs: Get medical advice/attention. P501 Dispose of contaminated clothing are with local/racional/international regulations. P332+P313 P501 Dispose of contents/container in accordance with local/regional/national/international regulations. WHMIS classification D2B - Toxic material causing other toxic effects Ţ Classification system HMIS ratings (scale 0-4) (Hazardous Materials Identification System) 2 Health (acute effects) = 2Flammàbility = 1 TIVITY 1 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: 701-97-3 3-Cyclohexylpropionic acid Identification number(s): EC number: 211-861-9 4 First-aid measures Description of first aid measures 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.

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## Product name: 3-Cyclohexylpropionic acid

Boiling point/Boiling range:

(Contd. of page 1) Seek immediate medical advice. 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 No further relevant information available. Indication of any immediate medical attention and special freatment needed No further relevant information available. 5 Fire-fighting measures Extinguishing media Suitable extinguishing agents Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. 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 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 Environmental precautions: Do not allow product to reach sewage system or any water course. **Environmental precautions:** Do not allow product to reach sewage system or any water could **Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose of contaminated material as waste according to section 13. **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 12 displayed information on the section of the sectio See Section 13 for disposal information. 7 Handling and storage Handling Precautions for safe handling 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. Further information about storage conditions: Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. 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: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace. 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. Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment. **Breathing equipment:** Use suitable respirator when high concentrations are present. **Recommended filter device for short term use:** Use a respirator with cartidges suitable for use with ammonia as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU). **Protection of hands:** Impervious gloves Check protection of suitable gloves prior to each use for their proper condition. The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer. **Eye protection:** Safety glasses Body protection: Protective work clothing. 9 Physical and chemical properties Information on basic physical and chemical properties General Information Appearance: Form: Liquid Unpleasant Odor: Odor threshold: Not determined pH-value: Not determined. Change in condition 14-17 °C (57-63 °F) 276 °C (529 °F) Melting point/Melting range:

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roduct name: 3-Cyclohexylpropio	onic acid	
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Sublimation temperature / start: Flash point:	Not determined 130 °C (266 °F)	
Flammability (solid, gaseous)	Not determined.	
Ignition temperature: Decomposition temperature:	300 °C (572 °F) Not determined	
Auto igniting:	Not determined.	
Danger of explosion:	Not determined.	
Explosion limits: Lower:	Not determined	
Upper:	Not determined	
Vapor pressure: Density at 20 °C (68 °F):	Not determined 0.99 g/cm³ (8.262 lbs/gal)	
Relative density	Not determined.	
Vapor density Evaporation rate	Not determined. Not determined.	
Solubility in / Miscibility with Water at 20 °C (68 °F):	10 g/l	
Partition coefficient (n-octanol/water		
Viscosity: dynamic at 20 °C (68 °F):	29.2 mPas	
kinematic:	Not determined.	
Other information	No further relevant information available.	
0 Stability and reactivity		
Reactivity No information known.	the state of the second st	
Chemical stability Stable under recon Thermal decomposition / conditions	s to be avoided: Decomposition will not occur if used and stored according to specifications.	
Possibility of hazardous reactions R Conditions to avoid No further relevant	Reacts with strong oxidizing agents	
Incompatible materials: Oxidizing age	gents	
	s: Carbon monoxide and carbon dioxide	
1 Toxicological information		
Information on toxicological effects Acute toxicity: Harmful if swallowed.		
LD/LC50 values that are relevant for	r classification: No data	
Skin irritation or corrosion: Causes s	skin irritation.	
Eye irritation or corrosion: Causes so Sensitization: No sensitizing effects ki	known.	
Germ cell mutagenicity: No effects kr	nown. nown. ta on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.	
Reproductive toxicity: No effects kno	own.	
Specific target organ system toxicity	ty - repeated exposure: No effects known.	
Aspiration hazard: No effects known.	ty - single exposure: No effects known.	
Subacute to chronic toxicity: No effe	ects known. n: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.	
Carcinogenic categories		
OSHA-Ca (Occupătional Safety & He	lealth Administration) Substance is not listed.	
2 Ecological information		
Toxicity Aquatic toxicity: No further relevant ir	information available	
Persistence and degradability No fur	inther relevant information available.	
Aquatic toxicity: No further relevant in Persistence and degradability No fur Bioaccumulative potential No further Mobility in soil No further relevant info	r relevant information available. formation available	
Additional ecological information:		
General notes: Do not allow undiluted product or large	e quantities to reach around water, water course or sewage system.	
Avoid transfer into the environment. Results of PBT and vPvB assessme	e quantities to reach ground water, water course or sewage system.	
PBT: Not applicable.	Int	
vPvB: Not applicable. Other adverse effects No further relev	avant information available.	
3 Disposal considerations Waste treatment methods		
Recommendation Consult state, local	al or national regulations to ensure proper disposal.	
Uncleaned packagings: Recommendation: Disposal must be r		
14 Transport information		
UN-Number		
DOT, ADN, IMDG, IATA	Not applicable	
UN proper shipping name DOT, ADN, IMDG, IATA	Not applicable	
Transport hazard class(es)		
DOT, ADR, ADN, IMDG, IATA Class	Not applicable	
Packing group DOT, IMDG, IATA		
	Not applicable	
Environmental hazards:	Not applicable.	(Contd. on page

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roduct name: 3-Cyclohexylpropionic acid	
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Special precautions for user Not applicable.	
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.	
Transport/Additional information:	
DOT Marina Ballutant (DOT):	
Marine Pollutant (DOT): No No	
UN "Model Regulation":	
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         Image: Signal word Warning Hazard statements         H302 Harmful if swallowed.         H315 Causes skin irritation.         Precautionary statements         P305+P3351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.         P305       Take off contaminated clothing and wash before reuse.	
<ul> <li>P321 Specific treatment (see on this label).</li> <li>P332+P313 If skin irritation occurs: Get medical advice/attention.</li> <li>P501 Dispose of contents/container in accordance with local/regional/national/international regulations.</li> <li>National regulations</li> <li>All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.</li> <li>All components of this product are listed on the Canadian Non-Domestic Substances List (NDSL).</li> <li>SARA Section 313 (specific toxic chemical listings) Substance is not listed.</li> <li>California Proposition 65</li> <li>Prop 65 - Chemicals known to cause cancer Substance is not listed.</li> <li>Prop 65 - Developmental toxicity, Substance is not listed.</li> <li>Prop 65 - Developmental toxicity, male Substance is not listed.</li> <li>Prop 65 - Developmental toxicity, male Substance is not listed.</li> <li>Information about limitation of use: For use only by technically qualified individuals.</li> <li>Other regulations, limitations and prohibitive regulations</li> <li>Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.</li> <li>The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, market and use must be observed.</li> <li>Substance is not listed.</li> <li>Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.</li> <li>Chemical safety assessment: A Chemical Safety Assessment has not been carried out.</li> </ul>	placing on the
16 Other information Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suit information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.	ability of this product not in
Department issuing SDS: Global Marketing Department Date of preparation / last revision 12/11/2015 / - Abbreviations and acronyms: ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) DOT: US Department of Transportation EINECS: European Inventory of Existing Commercial Chemical Substances	
DOT: US Department of Transportation 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: Hazardous Materials Information System (Canada) LC50: Lethal concentration, 50 percent LD50: Lethal concentration, 50 percent ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Safety and Health Administration (USA) NTP: National Safety and Health Administration (USA) NTP: National Agency for Research on Cancer EPA: Environmental Protection Agency (USA) Acute Tox, 4: Acute toxicity, Hazard Category 2 Skin Irrit. 2: Skin corrosion/Irritation, Hazard Category 2A	
EPA: Environmental Protection Agency (USA) Acute Tox. 4: Acute toxicity, Hazard Category 4 Skin Inti: 2: Skin concosion/irritation, Hazard Category 2 Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A	USA -