

Safety Data Sheet per OSHA HazCom 2012

1 Identification Product identifier Product name: 2,4-Dichlorophenylacetic acid Stock number: L01892 CAS Number: 19719-28-9 EC number: 243-248-7 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 Skin Irrit. 2 H315 Causes skin irritation. Eye Irrit. 2A H319 Causes serious eye irritation. STOT SE 3 H335 May cause respiratory 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 H315 Causes skin irritation. H319 Causes skill initiation. H319 Causes serious eye irritation. H325 May cause respiratory irritation. **Precautionary statements** P280 Wear protective gloves. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. WHMIS classification D2B - Toxic material causing other toxic effects Classification system HMIS ratings (scale 0-4) (Hazardous Materials Identification System) 1 Health (acute effects) = 1Flammability = 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: 19719-28-9 2,4-Dichlorophenylacetic acid Identification number(s): EC number: 243-248-7 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. 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. (Contd. on page 2) Product name: 2,4-Dichlorophenylacetic acid

(Contd. of page 1) 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 treatment 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 Hydrogen chloride (HCI) Advice for fireficience 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 material to be released to the environment without proper governmental permits. Methods and material for containment and cleaning up: 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 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 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: 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. Breathing equipment: Use suitable respirator when high concentrations are present. Protection of hands: Impervious gloves Check protective 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. Eve protection: Safety glasses Body protection: Protective work clothing. 9 Physical and chemical properties Information on basic physical and chemical properties General Information Appearance: Form: Crystalline powder Color: White Odor: Odorless Odor threshold: Not determined. pH-value: Not applicable. Change in condition Melting point/Melting range: Boiling point/Boiling range: 128-130 °C (262-266 °F) Not determined Sublimation temperature / start: Not determined Flash point: Flammability (solid, gaseous) Ignition temperature: Decomposition temperature: Not applicable Not determined Not determined Not determined Auto igniting: Not determined (Contd. on page 3)

Product name: 2,4-Dichlorophenylacetic acid

Page 3/4 Printing date 11/24/2015 Reviewed on 03/01/2010

| Product name: 2,4-Dichlorophenylac | cetic acid | |
|---|--|-----------------------------|
| | | (Contd. of page 2) |
| Danger of explosion: Explosion limits: Lower: Upper: Vapor pressure: Density: Relative density Vapor density Evaporation rate Solubility in / Miscibility with Water: Partition coefficient (n-octanol/water): Viscosity: dynamic: kinematic: Other information | Product does not present an explosion hazard. Not determined Not determined Not determined Not determined. Not determined. Not applicable. Not applicable. Not determined. Not determined. Not determined. Not applicable. Not applicable. Not applicable. Not applicable. No further relevant information available. | |
| 10 Stability and reactivity Reactivity No information known. Chemical stability Stable under recomm Thermal decomposition / conditions to Possibility of hazardous reactions No Conditions to avoid No further relevant Incompatible materials: Oxidizing agen Hazardous decomposition products: Carbon monoxide and carbon dioxide Hydrogen chloride (HCI) | o be avoided: Decomposition will not occur if used and stored according to specifications. dangerous reactions known information available. | |
| Reproductive foxicity: No effects know Specific target organ system toxicity Specific target organ system toxicity Aspiration hazard: No effects known. Subacute to chronic toxicity: No effect | in irritation. ious eye irritation. wm. on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH. n. • repeated exposure: No effects known. • single exposure: May cause respiratory irritation. | |
| 12 Ecological information Toxicity Aquatic toxicity: No further relevant infor Persistence and degradability No further Bioaccumulative potential No further of Mobility in soil No further relevant infor Additional ecological information: General notes: Do not allow material to be released to th Avoid transfer into the environment. Results of PBT and vPvB assessment PBT: Not applicable. vPvB: Not applicable. Other adverse effects No further relevant | er relevant information available. elevant information available. nation available. ne environment without proper governmental permits. | |
| 13 Disposal considerations Waste treatment methods Recommendation Consult state, local o Uncleaned packagings: Recommendation: Disposal must be ma | r national regulations to ensure proper disposal. ade according to official regulations. | |
| 14 Transport information Not a hazardous material for transportati | on. | |
| UN-Number DOT, IMDG, IATA | None | |
| UN proper shipping name DOT, IMDG, IATA | None | |
| Transport hazard class(es) DOT, ADR, IMDG, IATA Class | None | |
| Packing group DOT, IMDG, IATA | None | |
| Environmental hazards: | Not applicable. | |
| Special precautions for user | Not applicable. | |
| · · · · · · · · · · · · · · · · · · · | II of MARPOL73/78 and the IBC Code Not applicable. | |
| Transport/Additional information: | Not dangerous according to the above specifications. | (Control and and the |
| | | (Contd. on page 4) USA – |

| | (Contd. of page |
|---|--|
| DOT Marine Pollutant (DOT): | No |
| 15 Regulatory information Safety, health and environmental regulations/leg GHS label elements The product is classified and Hazard pictograms GHS07 | egislation specific for the substance or mixture labeled in accordance with 29 CFR 1910 (OSHA HCS) |
| Signal word Warning Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. H319 Causes serious eye irritation. H325 May cause respiratory irritation. Precautionary statements P280 Wear protective gloves. P305+P351+P338 IF IN EYES: Rinse cautiously wi National regulations This product is not listed in the U.S. Environmental to research and development only. This product mu product must not be used for commercial purposes SARA Section 313 (specific toxic chemical listin California Proposition 65 Prop 65 - Chemicals known to cause cancer Sub Prop 65 - Developmental toxicity, substance is no Prop 65 - Developmental toxicity, male Substance Information about limitation of use: For use only Other regulations, limitations and prohibitive re | ings) Substance is not listed. Ibstance is not listed. Inot listed. Inot listed. Isted. Isted. Isted. Isted. Isted. Isted France Annex Average (ISC) No. 1907/2006. Substance is not listed. Isted France Annex Average (ISC) No. 1907/2006 (REACH) for the manufacturing, placing on the Isted Annex Average (ISC) No. 1907/2006 (REACH) for the manufacturing, placing on the Isted Annex Average (Isted Annex Average) Substance is not listed. Isted Annex Average (Isted Annex Average) Substance is not listed. Isted Annex Average (Isted Annex Average) Substance is not listed. Isted Annex Average (Isted Annex Average) Substance is not listed. |
| information to ensure proper use and protect the he conformance with this Material Safety Data Sheet, of Department issuing SDS: Global Marketing Depa Date of preparation / last revision 11/24/2015 / - | - |
| IATA-DĞR: Dangerous Goods Regulations by the "International Air ICAC: International Civil Aviation Organization ICAO-TI: Technical Instructions by the "International Civil Aviation C IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transport Association IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Sub CAS: Chemical Abstracts Service (division of the American Chemica HMIS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Cana LCS0: Lethal concentration, 50 percent UD50: Lethal dose, 50 percent VerVB: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienist: OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) IARC: International Agency (ISA) | |