



1 Identification
Product identifier Product name: (R)-(+)-2-Benzyloxypropionic acid
Stock number: L17205
CAS Number: 100836-85-9 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. 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 serious eye irritation. H335 May cause respiratory irritation. Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapours/sprav
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. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations. WHMIS classification
D2B - Toxic material causing other toxic effects
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Classification system HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)
FIRE Flammability = 1 REACTIVITY: 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: 100909 95 04 (DV) (J 2 Descriptionic eqid
100836-85-9 (R)-(+)-2-Benzyloxypropionic acid
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
Seek immediate medical advice. After skin contact Immediately wash with water and soap and rinse thoroughly.
Seek immédiate medical advice. After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.
After śwallowing Seek medical tréatment. (Contd. on page 2) USA

Product name: (R)-(+)-2-Benzyloxypropionic 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 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 Precautions for safe nanoung 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. Conditions of 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 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: Breatning 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. Penetration time of glove material (in minutes) Not determined 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: Solid Color: White Odor: Not determined Odor threshold: Not determined. pH-value: Not applicable. Change in condition Melting point/Melting range: Boiling point/Boiling range: 51-53 °C (124-127 °F) Not determined Sublimation temperature / start: Not determined Not applicable Flash point: Flammability (solid, gaseous) Ignition temperature: Decomposition temperature: Not determined. Not determined

Not determined

Not determined

Auto igniting:

(Contd. on page 3)

Product name: (R)-(+)-2-Benzyloxypropionic acid

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Product name: (R)-(+)-2-Benzyloxyp		(O
Danger of explosion:	Product does not present an explosion hazard.	(Contd. of page 2)
Explosion limits:		
Lower: Upper:	Not determined Not determined	
Vapor pressure: Density:	Not applicable. Not determined	
Relative density	Not determined.	
Vapor density Evaporation rate	Not applicable. Not applicable.	
Solubility in / Miscibility with		
Water: Partition coefficient (n-octanol/water):	Insoluble : Not determined.	
Viscosity: dynamic:	Not applicable.	
kinematic:	Not applicable.	
Other information	No further relevant information available.	
10 Stability and reactivity Reactivity No information known.		
Chemical stability Stable under recommender	mended storage conditions. To be avoided: Decomposition will not occur if used and stored according to specifications.	
Possibility of nazardous reactions NO	uangerous reactions known	
Conditions to avoid No further relevant Incompatible materials: Oxidizing ager		
Hazardous decomposition products:	Carbon monoxide and carbon dioxide	
11 Toxicological information		
Information on toxicological effects Acute toxicity: No effects known.		
LD/LC50 values that are relevant for c	slassification: No data	
Skin irritation or corrosion: Causes sk Eye irritation or corrosion: Causes se		
Sensitization: No sensitizing effects kno Germ cell mutagenicity: No effects kno	own.	
Carcinogenicity: No classification data	on carcinogenic properties of this material is available from the FPA_IARC_NTP_OSHA or ACGIH	
Reproductive toxicity: No effects know	in.	
Specific target organ system toxicity	 repeated exposure: No effects known. single exposure: May cause respiratory irritation. 	
Aspiration hazard: No effects known. Subacute to chronic toxicity: No effect	ts known	
Additional toxicological information:	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.	
12 Ecological information Toxicity		
Aquatic toxicity: No further relevant info	ormation available.	
Persistence and degradability No furth Bioaccumulative potential No further re-	her relevant information available. relevant information available.	
Mobility in soil No further relevant infor	mation available.	
Additional ecological information: General notes:		
Do not allow material to be released to the Avoid transfer into the environment.	he environment without proper governmental permits.	
Results of PBT and vPvB assessment	t	
PBT: Not applicable. vPvB: Not applicable.		
Other adverse effects No further releva	ant information available.	
13 Disposal considerations		
Waste treatment methods		
Uncleaned packagings:	or national regulations to ensure proper disposal.	
Recommendation: Disposal must be m	ade according to official regulations.	
14 Transport information Not a hazardous material for transportation	ion.	
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		
DOT, IMDG, IATA Environmental hazards:	None Not applicable.	
Special precautions for user	Not applicable.	
	I of MARPOL73/78 and the IBC Code Not applicable.	
Transport/Additional information:	Not dangerous according to the above specifications.	
DOT		
Marine Pollutant (DOT):	No	USA
		(Contd. on page

USA (Contd. on page 4) Product name: (R)-(+)-2-Benzyloxypropionic acid

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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. Substance is not listed. Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.	(Contd. of page 3)
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Watard pictorgams With the product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Watard Statements Signal word Warning Haard Statements Hith Statements Hith Statements Hith Statements Hith Statements Hith Statements Procentionary statements Procentionary statements P260 Watar protective glovesprotective clothing/eye protection/face protection. P261 P261 P262 Watar protective glovesprotective clothing/eye protection/face protection. P264 F1 MVHLALD. Browne protective glovesprotective clothing/eye protection/face protection. P264 F264	15 Regulatory information
Signal word Warning Hazard Statements Hazard Hazar	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)
Supplemental statements Hard Hard Statements Hard Hard	
Hizard statements ² Hita Causes serious eve inflation. Hita Causes serious event inflation. Hita Causes event i	GHS07
P280 Wear protective gloves/protective clothing/eyé protection/lace protection. P306+P251+P338 IF IN FVES: Finise calubousy with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P306+P251+P338 IF IN FVES: Finise calubousy with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P306+P251+P338 IF IN FVES: Finise calubousy with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P400 Store to contentis/container in accordance with local/regional/national/international regulations. National regulations Contentistic outs in the subset of contentistic outs in formulations for commercial purposes. SARA Section 31 (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. Information about (imitation of use: For use only by technically qualified individuals. Other regulations, limitations a dorbibitive regulations (EC) No. 1907/2006. Substance is not listed. Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed. Substance is not listed. The conditions of restrictions according to Article 67 and Annex XVI of the Regulation (EC) No. 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed. Substan	Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation. Precautionary statements Precautionary statements P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations. National regulations This product is not listed in the U.S. Environmental Protection Agency. Toxic Substances Control Act Chemical Substances 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 be used by or directly under the supervision of a technically qualified individual as defined by TSCA. This product must be used by or directly under the supervision of a technically qualified individual as defined by TSCA. This product must be used by the chemical listed for the minimal bios of uses cancer 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. Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. 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. 66 Other information only as a supplement to other information agathered by them, and should make independent judgement of suitability of this information only as a supplement to their information is furnished without warranty, and any use of the product for conformance with this Material Safety Dassesthemet.	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. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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Prop 65 - Chemicals known to cause cancer 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 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 Regulations (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed. Substance is not listed. Annex XIV of the REACH Regulations (requiring Authorisation for use) 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 /124/2015/ - Abbreviations and according the transport des marchandiges dangeruses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) (CAO: Thermational Concernance (USA) (CAO: Thermational Concernance (USA) (CAO: Thermational Concernance (USA) (CAO: Thermational Auri Transport Association' (ICAO) (MAC) timenational Auri Transport Association' (I	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.
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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) ICAO: TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO) IIGDC: International Antime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Astrinutors day the "International Civil Aviation Organization" (ICAO) IIIDG: International Mattime Code for Dangerous Goods DOT: US Department of Transport Association IATA: International Air Transport Association IATA: International Astricts Service (division of the American Chemical Society) HMIS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Canada) LCSO: Lethal concentration, 50 percent LDSO: Lethal concentration, 50 percent VPA: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) MTP: National Toxicology Program (USA) IATC: International Agency (VGA)	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
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DUT: US Department of Transportation TATA: International Air Transport CAS: Chemical Abstracts Service (division of the American Chemical Society) HMIS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Canada) LCSG: Lethal concentration, 50 percent UDSG: Lethal dose, 50 percent UDSG: Lethal dose, 50 percent VPB: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) INTP: National Toxicology Program (USA) INTP: International Agency (IDSA)	Abbreviations and acronyms:
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vPVB: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) IARC: International Agency for Research on Cancer EPA: Environmental Protection Agency (USA) USA –	CAS: Chefficial Abstrates Service Quotision of the Antennan Society (HMIS: Hazardous Materials Identification System (ICA) WHMIS: Workplace Hazardous Materials Information System (Canada) LC50: Lethal dose, 50 percent LD50: Lethal dose, 50 percent
EPA: Environmental Protection Agency (USA)	vPvB: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) IARC: International Agency for Research on Cancer
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