



## 1 Identification Product identifier Product name: L-Xylose

Stock number: B21622, L04787 CAS Number: 609-06-3. EC number: 210-174-1 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) The substance is not classified according to the Globally Harmonized System (GHS). Hazards not otherwise classified No information known.

I abel elements GHS label elements Not applicable Hazard pictograms Not applicable Signal word Not applicable Hazard statements Not applicable WHMIS classification Not controlled Classification system HMIS ratings (scale 0-4) (Hazardous Materials Identification System)



Health (acute effects) = 1 Flammability = 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: 609-06-3 L-Xylose Identification number(s): EC number: 210-174-1

### 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. 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 dióxide 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: Pick up mechanically. Prevention of secondary hazards: No special measures required.

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Product name:	L-Xyl	ose
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(Contd. of page 1) 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 Frecautions for safe handling Keep container tightly sealed. Store in cool, dry place in tightly closed containers. 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: 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. Maintain an ergonomically appropriate working environment. Breathing equipment: Use suitable respirator when high concentrations are present. Protection of hands: Impervious gloves 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. 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: Powder Odor: Odor threshold: Not determined Not determined. pH-value: Not applicable. Change in condition Melting point/Melting range: Boiling point/Boiling range: 150-152 °C (302-306 °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 Auto igniting: Not determined Danger of explosion: Product does not present an explosion hazard. Explosion limits: Lower: Not determined Upper: Not determined Vapor pressure: Not applicable. Density: Relative density Not determined Not determined. Not applicable. Vapor density Evaporation rate Solubility in / Miscibility with Not applicable. Water: Not determined Partition coefficient (n-octanol/water): Not determined. Viscosity: dynamic: Not applicable. kinematic Not applicable. No further relevant information available. Other information

### 10 Stability and reactivity

Reactivity No information known. Chemical stability Stable under recommended storage conditions. Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications. Possibility of hazardous reactions No dangerous reactions known Conditions to avoid No further relevant information available.

Incompatible materials: Oxidizing agents Hazardous decomposition products: Carbon monoxide and carbon dioxide

USA (Contd. on page 3)

11 Toxicological information Information on toxicological effects   11 Toxicological information Information on toxicological effects   12 Exclosing the star are relevant for classification: No data Sam Interior or consistent. May cause inflation:   Sensitization: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   Repredictive: No sensitizing effects frown. Sensitization: No sensitizing effects frown.   22 Exological information: No fifth effects frown.   23 Exological information: Sensitization: No sensitizing effects frown.   24 France of the sense	rioduci name. L-Ayiose		(Contra of page 2)	
Active conference on a constraint of the case initial constraints in the data SMI initial constraints in the case in the case initial constraints in the case in t	-		(Contd. of page 2)	
Toxicity Aquate toxicity: No further relevant information available. Persistence and degradability No further relevant information available. Persistence and degradability No further relevant information available. Mobility in post: Central protest Additional ecological information: Central protest Central protest Do not allow unditidel product or large quantities to reach ground water, water course or sewage system. Avoid transie mit the environment. Por not allow unditidel product or large quantities to reach ground water, water course or sewage system. Avoid transie mit the environment. Por not allow unditidel product or large quantities to reach ground water, water course or sewage system. Avoid transie mit the environment. Por the applicable. Other adverse effects No further relevant information available.     13 Disposed consideration for the relevant information available. Other adverse effects No further relevant information available.     14 Transport information Not allowed packagings: Recommediation Cinoxii state. local or national regulations to ensure proper disposal. Uncleaned packagings: Recommediation: Dord, IMDG, IATA     14 Transport information Dord, IMDG, IATA   None     15 Optic, IATA   None     16 Transport Information Dord, IMDG, IATA   None     17 Transport hazard class(es) DOT, IMDG, IATA   None     17 Transport hazard class(es) DOT, IMDG, IATA   None     17 Transport hazard class(es) DOT, IMDG, IATA   None     18 Transport Additional information: DOT, IMDG, IATA   None     19 Frequilatory information: Transport Additional information: DOT, IMDG,	Acute toxicity: No effects known. LD/LC50 values that are relevant for classification: No data Skin irritation or corrosion: May cause irritation Eye irritation or corrosion: May cause irritation 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.	ın.		
Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal. Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.   11 Transport information Not a hazardous material for transportation.   UN-Number DOT, IMDG, IATA None   UN proper shipping name DOT, IMDG, IATA None   DOT, AND, IATA None   DOT, IMDG, IATA None   DOT, MDG, IATA None   Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.   Transport Additional information: Not dangerous according to the above specifications.   DOT Not   Parking rout dutional information: Not dangerous according to the above specifications.   DOT Marine Pollutant (DOT): No   13 Regulatory information Safety, health and environmental regulations/legislation specific	Toxicity 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 governi Do not allow undiluted product or large quantities to reach ground water, water Avoid transfer into the environment. Results of PBT and vPvB assessment PBT: Not applicable. vPvB: Not applicable.			
Not a hizardous material for transportation.   UN-Number   DOT, IMDG, IATA   None   UN proper shipping name   DOT, IMDG, IATA   None   Transport hazard class(es)   DOT, IMDG, IATA   None   Packing group   Packing group   DOT, IMDG, IATA   Special precautions for user   None   Environmental hazards:   None   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   Marine Pollutant (DOT):   No   15 Regulatory information   Safety, health and environmental regulations/legislation specific for the substance or mixture   GNS bel elements Not applicable   Hazard plicaple   Hazard plicable	Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal. Uncleaned packagings:			
DOT, IMDG, IATA None   UN proper shipping name DOT, IMDG, IATA None   Transport hazard class(es) None   DOT, ADR, IMDG, IATA None   Packing group None   Packing group None   DOT, IMDG, IATA None   Packing group None   Packing group None   DOT, IMDG, IATA None   Packing group None   Packing group None   DOT, IMDG, IATA None   Packing group None   Packing group Not applicable.   Special precautions for user Not applicable.   Transport/Additional information: Not dangerous according to the above specifications.   DOT Marine Pollutant (DOT): No   15 Regulatory information Safety, health and environmental regulations/legislation specific for the substance or mixture   GHS label elements Not applicable Hazard pplicable   Hazard plictograms Not applicable Hazard statements Not applicable   Hazard plictable None   All components of this product are listed on the Canadian Non-Domestic Substances Control Act Chemical substance Inventory.	<b>14 Transport information</b> Not a hazardous material for transportation.			
DOT, MDC, IATA None   Transport hazard class(es) DOT, ADR, IMDC, IATA   Class None   Packing group None   Packing group None   DOT, IMDC, IATA None   Packing group None   DOT, IMDC, IATA None   Packing group None   DOT, IMDC, IATA None   Packing group Not applicable.   Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable. Transport/Additional information:   Not dangerous according to the above specifications. DOT   DOT Marine Pollutant (DOT): No   15 Regulatory information Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements Not applicable   Signal word Not applicable Sagaa word Not applicable Non-Domestic Substances Control Act Chemical substance Inventory.   Al components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory. Al components o	DOT, ÎMDĜ, IATA	None		
DOT, ADR, IMDG, IATA None   Packing group None   DOT, IMDG, IATA None   Environmental hazards: Not applicable.   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:   Not Not applicable. Not applicable.   Transport/Additional information: Not dangerous according to the above specifications.   DOT Marine Pollutant (DOT): No   15 Regulatory information Safety, health and environmental regulations/legislation specific for the substance or mixture GHS fabel elements Not applicable   Hazard pictograms Not applicable Hazard pictograms Not applicable Non-Pictograms Not applicable   National regulations Non-Dimensito Substance is not listed. Non-Pictograms Not applicable   National regulations Safety, bealth and environmental regulations/legislation specific for the substances Control Act Chemical substance Inventory.   All components of this product are listed on the Canadian Non-Domestic Substances List (NDSL). SaFAR Section 313 (specific toxic chemical listings) Substance is not listed.   Prop 65 - Chemicals known to cause cancer Substance is not listed. Prop 65 - Developmental toxicity, female Substance is not listed.	DOT, IMDG, IATA	None		
DOT, IMDG, IATA None   Environmental hazards: Not applicable.   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, Not dangerous according to the above specifications.   DOT Marine Pollutant (DOT):   Marine Pollutant (DOT): No   15 Regulatory information Safety, health and environmental regulations/legislation specific for the substance or mixture   GHS label elements Not applicable Hazard pictograms Not applicable   Hazard statements Not applicable Hazard statements Not applicable   National regulations All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.   All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.   All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.   SARA Section 313 (specific toxic chemical listings) Substance is not listed.   California Proposition 65 Frop 65 - Obevelopmental toxicity, strates is not listed.   Prop 65 - Developmental toxicity, male Substance is not listed.   Prop 65 - Develo	DOT, ADR, IMDG, IATA Class	None		
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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. US				
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# Product name: L-Xylose

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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. conformance with this Material Safety Data Sheet, or in con Department issuing SDS: Global Marketing Department Date of preparation / last revision 1/23/2015 / -Abbreviations and acronyms: IMD6: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Maritime Code for Dangerous Goods DOT: US Department of 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 LD50: Lethal dose, 60 percent VPWs very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) MTP: National Toxicology Program (USA) IARC: International Agency for Research on Cancer EPA: Environmental Protection Agency (USA)

USA