Safety Data Sheet

	Printing date 02/23/2017 evision date 02/22/2017
1 Identification	
Product identifier Product name: Pullulan	
Stock number: J66961 CAS Number: 9057-02-7 EC number: 232-945-1	
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. 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 as hazardous according to 29 CFR 1910 (OSHA GHS). Hazards not otherwise classified No information known.	
Label 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 II Health (acute effects) = 1 FIRE II 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: 9057-02-7 Pullulan	
Concentration: ≤100% Identification number(s): EC number: 232-945-1	
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 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 fo Special hazards arising from the substance or mixture	oam.
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. Methods and material for containment and cleaning up: Pick up mechanically.	
Methods and material for containment and cleaning up: Pick up mechanically.	(Contd. on page 2)

Product name: **Pullulan**

Product name: Pullulan		
Prevention of secondary hazards: No Reference to other sections See Section 7 for information on safe ha See Section 8 for information on person See Section 13 for disposal information	al protection equipment.	(Contd. of page 1)
Conditions for safe storage, including Storage Requirements to be met by storeroor Information about storage in one con Further information about storage co Keep container tightly sealed.	explosions and fires: No information known. g any incompatibilities ns and receptacles: No special requirements. mon storage facility: Store away from oxidizing agents. nditions:	
Store in cool, dry conditions in well seal Specific end use(s) No further relevant	information available.	
Control parameters Components with limit values that re	of technical systems: designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.	
Recommended filter device for short Use a respirator with type N95 (USA) or purifying respirators are appropriate. O Protection of hands: Impervious gloves Check protective gloves prior to each us	and freed. and freed. thing immediately. nd of work. vorking environment. pirator when high concentrations are present. term use: .PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to deter nly use equipment tested and approved under appropriate government standards. see for their proper condition. ' depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer. minutes) 480	ermine if air-
9 Physical and chemical properties		
Information on basic physical and ch General Information Appearance:	emical properties	
Form: Odor: Odor threshold:	Powder Not determined Not determined.	
pH-value:	Not applicable.	
Change in condition Melting point/Melting range: Boiling point/Boiling range: Sublimation temperature / start: Flammability (solid, gaseous) Ignition temperature: Decomposition temperature: Auto igniting:	Not determined Not determined Not determined Not determined. Not determined Not determined Not determined	
Danger of explosion: Explosion limits: Lower:	Not determined. Not determined	
Upper: Vapor pressure: Density: Relative density Vapor density Evaporation rate Solubility in / Miscibility with	Not determined Not applicable. Not determined Not determined. Not applicable. Not applicable. Not applicable.	
Water: Partition coefficient (n-octanol/water) Viscosity: dynamic: kinematic:	Not applicable.	
Other information	Not applicable. No further relevant information available.	
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.

(Contd. on page 3) USA

Product name: **Pullulan**

Possibility of hazardous reactions Reacts with strong oxidizing agents Conditions to avoid No further relevant information available. Incompatible materials: Oxidizing agents Hazardous decomposition products: Carbon monoxide and carbon dioxide 11 Toxicological information Information on toxicological effects Acute toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance. 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: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance. Carcinogenicity: No classification and carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH. Reproductive toxicity: 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. Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. Carcinogenic categories OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed.	Product name: Pullulan			
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regional considerations and a second program of the second	Eye irritation or corrosion: May cause irritation			
regional considerations and a second program of the second	Germ cell mutagenicity: The Registry of Toxic Effects of Che	emical Substances (RTECS) contains mutation data for this substance.		
Specific target organ system toxicity - repeated exposure. No effects known. Apprintion Tasser: No effects known. Watheaste to chronic toxicity: No effects known. Additional toxicity: No effects known. Social Additional toxicity: No effects known. Additional toxicity: No finite relevant information available. Presidence and expression of the system toxicity of this substance is not fully known. Social Additional toxicity: No further relevant information available. Presidence and expression of the presidence and the system of the syste	Carcinogenicity: No classification data on carcinogenic prope Reproductive toxicity: No effects known	erties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.		
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DOT, ADR, IMDG, IATA Not applicable 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 Marine Pollutant (DOT): No UN "Model Regulation": - 15 Regulatory information - Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements Not applicable - Hazard pictograms Not applicable - Vation of Not applicable - Hazard statements Not applicable - National regulation 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 on the Canadian Non-Domestic Substances List (NDSL). SARA 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. - Prop 65 - Developmental toxicity, female Substance is not listed. - Prop 65 - Developmental toxicity, male Substance is not listed. - Prop 65 - Developmental toxicity, f		Not applicable		
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	market and use must be observed.			

(Contd. of page 3)

USA

Product name: **Pullulan**

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 Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user. conformance with this 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 02/23/2017 / -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 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 VPVB: 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) MTP: National Toxicology Program (USA)