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		(Contd. on page 2) USA

(Contd. of page 1)

Product name: Yttrium oxide

Information for doctor

Most important symptoms and effects, both acute and delayed Causes serious eye irritation. Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media Suitable extinguishing agents Product is not flammable. Use fire-fighting measures that suit the surrounding fire. Special hazards arising from the substance or mixture if this product is involved in a fire, the following can be released: Advice for firefighters Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

6 Accidental release measures

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. Prevention of secondary hazards: No special measures required. Reference to other sections See Section 7 for information on safe handling See Section 7 for disposal information. Protective Action Criteria for Chemicals PAC-1: 3.8 mg/m3 PAC-3: 260 mg/m3

7 Handling and storage

Handling

	Handling Precautions for safe handling Handle under dry protective gas. 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: The product is not flammable
	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 air. Do not store together with acids. Further information about storage conditions: Store under dry inert gas. This product is air sensitive. Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Store in cool, dry conditions in well sealed containers. Specific end use(s) No further relevant information available.
8	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:		
1314-36-9 Yttrium(III) oxide (100.0%)		
PEL (USA) Long-term value: 1 mg/m ³ as Y		
REL (USA) Long-term value: 1 mg/m ³ as Y		
TLV (USA) Long-term value: 1 mg/m ³ as Y		
EL (Canada) Long-term value: 1 mg/m³ as Y		
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.		
Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment. Breathing equipment:		
Use suitable respirator when high concentrations are present. Use suitable respiratory protective device in case of insufficient ventilation. Recommended filter device for short term use:		
Use a respirator with type N95 (USA) or PF (FN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-		

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air purfying respirators are appropriate. Only use equipment tested and approved under appropriate government standards. 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. Material of gloves Nitrile rubber, NBR Penetration time of glove material (in minutes) Not determined (Contrd on

(Contd. on page 3)

Saf	etv	' Da	ta	Sł	neet
acc.	to C	SHA	H	CS	

Product name: Yttrium oxide

Eye protection: Safety glasses with side shields / NIOSH (US) or EN 166(EU)

(Contd. of page 2)

Eye protection: Safety glasses with side Body protection: Protective work clother	ide shields / NIOSH (US) or EN 166(EU)	nai ei page 1)	
9 Physical and chemical properties	25		
Information on basic physical and ch General Information Appearance:			
Form: Odor:	Powder Odorless		
Odor threshold:	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:	2410 °C (4370 °F) 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:	Not determined Not applicable.		
Density at 20 °C (68 °F):	5.01 g/cm³ (41.808 lbs/gal)		
Relative density Vapor density	Not determined. Not applicable.		
Evaporation rate	Not applicable.		
Solubility in / Miscibility with _ Water at 29 °C (84 °F):	0.0018 g/l		
Partition coefficient (n-octanol/water	r): Not determined.		
Viscosity: dynamic:	Not applicable.		
kinematic: Other information	Not applicable. No further relevant information available.		
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: Acids Air			
LD/LC50 values that are relevant for Skin irritation or corrosion: May caus Eye irritation or corrosion: Causes se Sensitization: No sensitizing effects kr	Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance. c classification: No data ise irritation serious eve irritation.		
Reproductive toxicity: No effects know	wn.		
Specific target organ system toxicity - repeated exposure: No effects known.			
Specific target organ system toxicity			
Aspiration hazard: No effects known. Subacute to chronic toxicity: The Re Additional toxicological information:	egistry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance. It 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 in Persistence and degradability No furt Bioaccumulative potential No further Mobility in soil No further relevant info Additional ecological information: General notes:	ormation available. e quantities to reach ground water, water course or sewage system. ent		
13 Disposal considerations			
Waste treatment methods			
Recommendation Consult state, local	l or national regulations to ensure proper disposal.		
Uncleaned packagings: Recommendation: Disposal must be n	made according to official regulations.		

Product name: Yttrium oxide

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4 Transport information		
UN-Number DOT, ADN, IMDG, IATA	Not applicable	
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	Not applicable	
Transport hazard class(es)		
DOT, ADR, ADN, IMDG, IATA Class	Not applicable	
Packing group DOT, ADR, IMDG, IATA	Not applicable	
Environmental hazards:	Not applicable.	
Special precautions for user	Not applicable.	
Transport in bulk according to Annex II of MARPOLT	73/78 and the IBC Code Not applicable.	
Transport/Additional information:		
DOT Marine Pollutant (DOT):	No	
UN "Model Regulation":	Not applicable	
5 Regulatory information		
Safety, health and environmental regulations/legisla GHS label elements The product is classified and label Hazard pictograms	tion specific for the substance or mixture ed in accordance with 29 CFR 1910 (OSHA HCS)	



Signal word Warning Hazard statements

H319 Causes serious eye irritation. Precautionary statements

Precautionary statements P280 Wear eye protection / face protection. P264 Wash thoroughly after handling. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention. National consultations National regulations

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 on the Canadian Domestic Substances List (DSL). 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. Prop 65 - Developmental toxicity, male Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Prop 65 - Developmental toxicity, and 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.

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 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/Revision: Print date, revision date and version number are in the header of each page.
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of 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 Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
PVVB: very Persistent and very Bioaccumulative
PBT: Persistent and every Bioaccumulative
ACGIH: American Cheating Hygienists (USA)
MTP: National Toxicology Program (USA)

USA