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	Version 1
1	Identification
	Product identifier
	Product name: Cadmium sulfate octahydrate, ACS
	Stock number: 12340 CAS Number: 7790-84-3
	EC number:
	233-331-6 Index number:
	048-009-00-9 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.
-	Hazard(s) identification
2	Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)
	GHS06 Skull and crossbones
	\checkmark
	Acute Tox. 3 H301 Toxic if swallowed. Acute Tox. 2 H330 Fatal if inhaled.
	GHS08 Health hazard
	Muta. 1B H340 May cause genetic defects. Carc. 1B H350 May cause cancer.
	Repr. 1B H360 May damage fertility or the unborn child.
	STOT RE 1 H372 Causes damage to the kidneys, the liver, the reproductive system, the blood and the brain through prolonged or repeated exposure. Route of exposure: Oral, Inhalation. 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
	GHS06 GHS08
	Signal word Danger Hazard statements
	H301 Toxic if swallowed. H330 Fatal if inhaled.
	H340 May cause genetic defects.
	H350 May cause cancer. H360 May damage fertility or the unborn child.
	H372 Causes damage to the kidneys, the liver, the reproductive system, the blood and the brain through prolonged or repeated exposure. Route of exposure: Oral, Inhalation.
	Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapors/spray. P294 Use ac of indexectory interview respiratory protection
	P284 [In case of inadequate ventilation] wear respiratory protection. P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
	P320 Specific treatment is urgent (see on this label).
	P405 Store locked up. P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
	WHMIS classification D1A - Very toxic material causing immediate and serious toxic effects
	D2A - Very toxic material causing other toxic effects
	Classification system
	HMIS ratings (scale 0-4) (Hazardous Materials Identification System)
	HEALTH B Health (acute effects) = 3 FIRE D Flammability = 0
	REACTIVITY 1 Physical Hazard = 1
	Other hazards Results of PBT and vPvB assessment PBT. Net conclusion

Results of PBT and vPvB assessment PBT: Not applicable.

(Contd. of page 1)

Product name: Cadmium sulfate octahydrate, ACS

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description: 7790-84-3 Cadmium sulfate octahydrate Concentration: ≤100% Identification number(s): EC number: 233-331-6 Index number: 048-009-00-9

4 First-aid measures

Description of first aid measures General information Immediately remove any clothing soiled by the product. Remove breathing apparatus only after contaminated clothing has been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration. 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 Do not induce vomiting; immediately call for medical help. Information for doctor Mact important symptoms and offacts, both acute and delayed

Most important symptoms and effects, both acute and delayed Fatal if inhaled. Toxic if swallowed. May cause cancer.

May cause genetic defects. May damage fertility or the unborn child. Causes damage to the kidneys, the liver, the reproductive system, the blood and the brain through prolonged or repeated exposure. Route of exposure: Oral,

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: Sulfur oxides (SOx) Cadmium oxide

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 Ensure adequate ventuation Environmental precautions: Do not allow product to reach sewage system or any water course. Methods and material for containment and cleaning up: Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation. 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. **Protective Action Criteria for Chemicals PAC-1:** 0.1 mg/m3 **PAC-2:** 0.76 mg/m3 **PAC-3:** 11 mg/m3

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. Open and handle container with care. Only handle and refill product in closed systems. Information about protoction capacity evolution 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 oxidizing agents. Further information about storage conditions: Keep container tightly sealed. Store in cool, dry conditions in well sealed containers.

8 Exposure controls/personal protection

Specific end use(s) No further relevant information available

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.

(Contd. on page 3)

Product name: Cadmium sulfate octahydrate, ACS

			(Contd. of page 2)			
Control paramet			(
	<u>h limit values that re</u> ium sulfate octahydr	quire monitoring at the workplace:				
PEL (USA) Lon	g-term value: 0.005 n	na/m³				
	Čd; see 29 CFR 1910 Pocket Guide App. A					
TLV (USA) Lon	g-term value: 0.01 0.0 Cd; *respirable fraction	002* mg/m ³				
EL (Canada) Lan	Cd; *respirable fraction	n; BEI 202* mg/m³				
EL (Canada) Lon as (EL (Canada) Long-term value: 0.01 0.002* mg/m³ as Cd; ACGIH A2, IARC 1; *respirable					
Additional information: No data						
Exposure controls Personal protective equipment General protective and hygienic measures The usual reservice and hygienic measures for bendling characteristic characteristics of the second						
					The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately.	
	Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work.					
Store protective c	lothing separately.					
Maintain an ergor Breathing equip	Store protective clothing separately. Maintain an ergonomically appropriate working environment. Breathing equipment: Use self-contained respiratory protective device in emergency situations. Recommended filter device for short term use:					
Recommended f	ilter device for short	term use: or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed t	o determine if air-			
Protection of ha	Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air- purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards. Protection of hands:					
Check protective	gloves prior to each u	se for their proper condition. y depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.				
I ne selection of s Material of glove	s Nitrile gloves not onl s Nitrile rubber, NBR of glove material (ir	y depends on the material, but also on quality. Quality Will Vary from manufacturer to manufacturer.				
		n minutes) 480				
Glove thickness Eve protection: 3		de shields / NIOSH (US) or EN 166(EU)				
Body protection	Protective work cloth	ing.				
9 Physical and c	hemical propertie	ş				
	asic physical and cl					
General Informa		· · ·]].				
Appearance: Form:		Crystalline				
Odor: Odor threshold:		Odorless Not determined.				
pH-value:		Not applicable.				
Flammability (so Ignition tempera Decomposition t	<i>lelting range: coiling range: mperature / start: lid, gaseous) ture:</i>	>40 °C (>104 °F) (anhyd) Not determined Not determined Not determined Not determined Not determined				
Auto igniting:		Not determined.				
Danger of explos Explosion limits	sion:	Not determined.				
Lower: Upper:		Not determined Not determined				
Vapor pressure:	(00 %5)	Not applicable.				
Density at 20 °C Relative density	(08 °F):	3.08 ˈg/cm³ (25.703 lbs/gal) Not determined.				
Vapor density Evaporation rate		Not applicable. Not applicable.				
Solubility in / Mi	scibility with					
Water at 1 °C (1130 g/l Soluble				
Partition coeffici Viscosity:	ent (n-octanol/water					
dynamic:		Not applicable.				
kinematic: Other informatio	n	Not applicable. No further relevant information available.				
Conditions to av Incompatible ma Hazardous deco Sulfur oxides (SO Cadmium oxide	ormation known. ty Stable under recom osition / conditions zardous reactions R oid No further relevan terials: Oxidizing age mposition products: x)	mended storage conditions. to be avoided: Decomposition will not occur if used and stored according to specifications. eacts with strong oxidizing agents nt information available. nts				
11 Toxicological information Information on toxicological effects Acute toxicity: Fatal if inhaled. Toxic if swallowed. The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance. USA						

Product name: Cadmium sulfate octahydrate, ACS (Contd. of page 3) 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: May cause genetic defects. The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance. Carcinogenicity: May cause cancer. IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity. EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies. Carcinogen as defined by OSHA. ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans. LD/LC50 values that are relevant for classification: No data exposed humans. NTP-K: Known to be carcinogenic: sufficient evidence from human studies. The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance. **Reproductive toxicity:** May damage fertility or the unborn child. The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance. Specific target organ system toxicity - repeated exposure: Causes damage to the kidneys, the liver, the reproductive system, the blood and the brain through prolonged or repeated exposure. Route of exposure: Oral, Inhalation. Specific target organ system toxicity - single exposure: No effects known. Aspiration hazard: No effects known. Subacute to chronic toxicity: No effects 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 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. Ecotoxical effects: Remark: Very toxic for aquatic organisms Additional ecological information: General notes: Additional ecological information: General notes: Do not allow product to reach ground water, water course or sewage system, even in small quantities. Danger to drinking water if even extremely small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Very toxic for aquatic organisms **Results of PBT and vPvB assessment PBT:** Not applicable. **vPvB:** Not applicable. **Other adverse effects** No further relevant information available. Other adverse effects No further relevant information available. 13 Disposal considerations 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. Recommended cleansing agent: Water, if necessary with cleansing agents. 14 Transport information UN-Number DOT, IMDG, IATA UN2570 UN proper shipping name DOT ADR Cadmium compounds (Cadmium sulfate octahydrate, ACS) 2570 Cadmium compounds (Cadmium sulfate octahydrate, ACS) CADMIUM COMPOUND (Cadmium sulfate octahydrate, ACS), MARINE POLLUTANT IMDG CADMIUM COMPOUND (Cadmium sulfate octahydrate, ACS) ΙΑΤΑ Transport hazard class(es) DOT 6.1 Toxic substances Class ADR Sec. 6.1 (T5) Toxic substances Class Label (Contd. on page 5)

Product name: Cadmium sulfate octahydrate, ACS

IMDG	
	(Contd. of page
Class	6.1 Toxic substances
Class	6.1 Toxic substances
Packing group DOT, ADR, IMDG, IATA	
Environmental hazards:	III
Marine pollutant (IMDG):	Yes (PP) Symbol (fish and tree)
Special precautions for user	Warning: Toxic substances
EMS Number: Stowage Category	F-A,S-A A
Transport in bulk according to Annex II of MARPOL73/78 and the IB	C Code Not applicable.
Transport/Additional information: DOT	
Quantity limitations	On passenger aircraft/rail: 100 kg
Marine Pollutant (DOT):	On passenger aircraft/rail: 100 kg On cargo aircraft only: 200 kg Yes (PP)
Remarks:	Special marking with the symbol (fish and tree).
Limited quantities (LQ) Excepted quantities (EQ)	5 kg Code: E1
Excepted quantities (Eq)	Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
UN "Model Regulation":	UN 2570 CADMIUM COMPOUNDS (CADMIUM SULFATE OCTAHYDRATE,
-	ACS), 6.1, III
Signal word Danger Hazard statements	
Hăzard statements H301 Toxic if swallowed. H330 Fatal if inhaled. H340 May cause genetic defects. H350 May cause cancer. H360 May damage fertility or the unborn child.	n. ictor.
Hazard statements H301 Toxic if swallowed. H330 Fatal if inhaled. H340 May cause genetic defects. H350 May cause cancer. H360 May damage fertility or the unborn child. H372 Causes damage to the kidneys, the liver, the reproductive system, Inhalation. Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapors/spray. P284 [In case of inadequate ventilation] wear respiratory protectio P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ do P302 Specific treatment is urgent (see on this label). P405 Store locked up. P501 Dispose of contents/container in accordance with local/regio National regulations National regulations	on. octor. onal/national/international regulations.
Hazard statements H301 Toxic if swallowed. H330 Fatal if inhaled. H340 May cause genetic defects. H350 May cause cancer. H360 May damage fertility or the unborn child. H372 Causes damage to the kidneys, the liver, the reproductive system, Inhalation. Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapors/spray. P284 [In case of inadequate ventilation] wear respiratory protectio P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ do P302 Specific treatment is urgent (see on this label). P405 Store locked up. P501 Dispose of contents/container in accordance with local/regio National regulations National regulations	ictor.
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 Hazard statements H301 Toxic if swallowed. H330 Tatal if inhaled. H340 May cause genetic defects. H350 May cause cancer. H360 May damage fertility or the unborn child. H372 Causes damage to the kidneys, the liver, the reproductive system, Inhalation. Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapors/spray. P284 [In case of inadequate ventilation] wear respiratory protectio P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ do P320 Specific treatment is urgent (see on this label). P405 Store locked up. P501 Dispose of contents/container in accordance with local/region National regulations All components of this product are listed in the U.S. Environmental Prote All components of this product are listed on the Canadian Domestic Substance SARA Section 313 (specific toxic chemical listings) 7790-84-3 Cadmium sulfate octahydrate California Proposition 65 Prop 65 - Developmental toxicity, female 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, female 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, female 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, female 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, female Substance is not listed.<!--</th--><th>ptions can be made by the authorities in certain cases.</th>	ptions can be made by the authorities in certain cases.
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Product name: Cadmium sulfate octahydrate, ACS

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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 Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user. Information to ensure proper use and protect the health and safety of employees. This information is furthing equilibrium and safety and ensure of proparation/Revision: Print date, revision date and version number are in the header of each page.

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:

ABR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods
DOT: US peartment of Transport Association
IATA: International Air Transport Association
IATA: International Agency for Existing Commercial Chemical Society)
HMINS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concerntration, 50 percent
IPST: Everymental Archare

USA