

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Revision Date 25-Jan-2024

Revision Number 3

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Cat No. : Synonyms Index No CAS No Molecular Formula REACH registration number	Cadmium sulfide 41511 Cadmium Sulphide.; Cadmopur Yellow; Cadmium Monosulfide 048-010-00-4 1306-23-6 Cd S -
1.2. Relevant identified uses of the s	substance or mixture and uses advised against
Recommended Use Uses advised against	Laboratory chemicals. No Information available
1.3. Details of the supplier of the sa	fety data sheet
Company	Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific) Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608
E-mail address	begel.sdsdesk@thermofisher.com
1.4. Emergency telephone number	For information US call: 001-800-227-6701 / Europe call: +32 14 57 52 11 Emergency Number US: 001-201-796-7100 / Europe: +32 14 57 52 99 CHEMTREC Tel. No. US: 001-800-424-9300 / Europe: 001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Cadmium sulfide

Acute oral toxicity Germ Cell Mutagenicity Carcinogenicity Reproductive Toxicity Specific target organ toxicity - (repeated exposure)

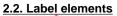
Environmental hazards

Based on available data, the classification criteria are not met Chronic aquatic toxicity

Category 4 (H302) Category 2 (H341) Category 1B (H350) Category 2 (H361fd) Category 1 (H372)

Category 4 (H413)

Full text of Hazard Statements: see section 16





Signal Word

Danger

Hazard Statements

H350 - May cause cancer

- H372 Causes damage to organs through prolonged or repeated exposure
- H341 Suspected of causing genetic defects
- H361fd Suspected of damaging fertility. Suspected of damaging the unborn child
- H413 May cause long lasting harmful effects to aquatic life
- H302 Harmful if swallowed

Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection

- P201 Obtain special instructions before use
- P308 + P313 IF exposed or concerned: Get medical advice/attention
- P260 Do not breathe dust/fume/gas/mist/vapors/spray
- P273 Avoid release to the environment

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Additional EU labelling

Restricted to professional users

2.3. Other hazards

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment

Toxic to terrestrial vertebrates This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Cadmium sulfide	1306-23-6	EEC No. 215-147-8	99	Acute Tox. 4 (H302) Muta. 2 (H341)

Cadmium sulfide

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Aquatic Chronic 4 (H413)			Carc. 1B (H350) Repr. 2 (H361fd) STOT RE 1 (H372) Aguatic Chronic 4 (H413)
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Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Cadmium sulfide	STOT RE 1 (H372) :: C>=10%	-	-
	STOT RE 2 (H373) ::		
	0.1%<=C<10%		

Note

Note 1: The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture

REACH registration number	-

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact	Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.				
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.				
Ingestion	Call a physician immediately. Clean mouth with water.				
Inhalation	Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Immediate medical attention is required.				
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.				
4.2. Most important symptoms and effects, both acute and delayed					

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Extinguishing media which must not be used for safety reasons No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products

Cadmium sulfide

Sulfur oxides, Sulfides.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.

6.2. Environmental precautions

See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not breathe dust. Do not get in eyes, on skin, or on clothing. Handle product only in closed system or provide appropriate exhaust ventilation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

Technical Rules for Hazardous Substances (TRGS) 510 Class 6.1D Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE -** 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland

Cadmium sulfide

Cadmium sulfide	STEL: 0.09 mg/m ³ 15 min TWA: 0.03 mg/m ³ 8 hr Carc. respirable dust	
	Carc. respirable dust	

Biological limit values

List source(s):

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Co	mponent	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
	nium sulfide 5-23-6 (99)			DNEL = 4µg/m³	DNEL = 4µg/m³

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Microorganisms in sewage treatment	Soil (Agriculture)
Cadmium sulfide 1306-23-6 (99)	PNEC = 0.19µg/L	PNEC = 1.8mg/kg sediment dw	PNEC = 20µg/L	PNEC = 0.9mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Cadmium sulfide	PNEC = 1.14µg/L	PNEC = 0.64mg/kg		PNEC = 0.16mg/kg	
1306-23-6 (99)	_	sediment dw		food	

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment Eye ProtectionGoggles (European standard - EN 166)						
Hand Protection	Hand Protection Protective gloves					
Glove material Natural rubber Nitrile rubber Neoprene PVC	Breakthrough time See manufacturers recommendations	Glove thickness -	EU standard EN 374	Glove comments (minimum requirement)		
Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.						

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use
	appropriate certified respirators.
	To protect the wearer, respiratory protective equipment must be the correct fit and be used

if exposure limits
virator if exposure

Environmental exposure controls No information available.

Cadmium sulfide

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Powder Solid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	Yellow-orange Odorless No data available > 999 °C / 1830.2 °F No data available No information available No information available No data available	Solid
Flash Point	No information available No data available	Method - No information available
Autoignition Temperature Decomposition Temperature	No data available	
рН	No information available	
Viscosity	Not applicable	Solid
Water Solubility	Insoluble	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/wat	er)	
Vapor Pressure	No data available	
Density / Specific Gravity	4.820	
Bulk Density	No data available	
Vapor Density	Not applicable	Solid
Particle characteristics	No data available	
9.2. Other information		

Molecular Formula Cd S 144.46 Molecular Weight **Evaporation Rate**

Not applicable - Solid

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization

Hazardous polymerization does not occur.

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Cadmium sulfide

Hazardous Reactions No information available.

10.4. Conditions to avoid

Incompatible products.

10.5. Incompatible materials

10.6. Hazardous decomposition products

Sulfur oxides. Sulfides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acids.

Product Information

(a) acute toxicity;

OralCategory 4DermalNo data availableInhalationNo data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cadmium sulfide	LD50 = 7080 mg/kg (Rat)	-	-

(b) skin corrosion/irritation;	No data available
(c) serious eye damage/irritation;	No data available
(d) respiratory or skin sensitization; Respiratory Skin	No data available No data available
(e) germ cell mutagenicity;	Category 2 Substances which cause concern for man owing to possible mutagenic effects but for which the available information is not adequate for making a satisfactory assessment
(f) carcinogenicity;	Category 1B

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Cadmium sulfide	Carc Cat. 1B			Group 1

(g) reproductive toxicity; Teratogenicity	Category 2 Teratogenic effects have occurred in experimental animals.
(h) STOT-single exposure;	No data available
(i) STOT-repeated exposure;	Category 1
Route of exposure Target Organs	Oral Inhalation Kidney, Lungs, Bone.
(j) aspiration hazard;	Not applicable

Cadmium sulfide

Solid

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Symptoms / effects, both acute and No information available. delayed

11.2. Information on other hazards

Endocrine Disrupting Properties

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects

12.2. Persistence and degradability Persistence Degradability	Insoluble in water. Not relevant for inorganic substances.
12.3. Bioaccumulative potential	May have some potential to bioaccumulate
<u>12.4. Mobility in soil</u>	Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water solubility.
<u>12.5. Results of PBT and vPvB</u> assessment	In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment.
<u>12.6. Endocrine disrupting</u> properties Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors
<u>12.7. Other adverse effects</u> Persistent Organic Pollutant Ozone Depletion Potential	This product does not contain any known or suspected substance This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

Cadmium sulfide

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN2570 CADMIUM COMPOUND 6.1 III
ADR	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN2570 CADMIUM COMPOUND 6.1 III
IATA	
14.1. UN number 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group	UN2570 CADMIUM COMPOUND 6.1 III
14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Cadmium sulfide	1306-23-6	215-147-8	-	-	Х	Х	KE-04432	Х	Х
Component	CAS No	TSCA	notific	iventory ation - Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Cadmium sulfide	1306-23-6	Х	ACT	IVE	Х	-	Х	Х	Х

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization		REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Cadmium sulfide	1306-23-6	-	(see link for restriction details)	SVHC Candidate list - 215-147-8 - Carcinogenic, Article 57a;Specific target organ toxicity after repeated exposure, Article 57(f) - human health

Cadmium sulfide

	(see link for restriction	
	details)	
	Use restricted. See item	
	75.	
	(see link for restriction	
	details) Use restricted. See	
	item 23.	
	(see link for restriction	
	details)	

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH links

https://echa.europa.eu/authorisation-list https://echa.europa.eu/substances-restricted-under-reach https://echa.europa.eu/candidate-list-table

Seveso III Directive (2012/18/EC)

С	component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Cor	dmium culfido	1206 22 6		Not applicable
Cac	dmium sulfide	1306-23-6	Not applicable	Not

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Component	ANNEX I - PART 1 List of chemicals subject to export notification procedure (referred to in Article 8)	ANNEX I - PART 2 List of chemicals qualifying for PIC notification (referred to in Article 11)	ANNEX I - PART 3 List of chemicals subject to the PIC procedure (referred to in Articles 13 and 14)
Cadmium sulfide 1306-23-6 (99)	i(1) — industrial chemical for professional use sr — severe restriction i(2) — industrial chemical for public sr — severe restriction	i — industrial chemical sr — severe restriction	-

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0649&gid=1604065742303.

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

Take note of Dir 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Cadmium sulfide	WGK3	

Component	France - INRS (Tables of occupational diseases)
Cadmium sulfide	Tableaux des maladies professionnelles (TMP) - RG 61

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Cadmium sulfide 1306-23-6 (99)	Prohibited and Restricted Substances		Annex I - industrial chemical

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed

H341 - Suspected of causing genetic defects

H350 - May cause cancer

H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure

Legend

CAS - Chemical Abstracts Service	TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances PICCS - Philippines Inventory of Chemicals and Chemical Substances IECSC - Chinese Inventory of Existing Chemical Substances KECL - Korean Existing and Evaluated Chemical Substances	,
WEL - Workplace Exposure Limit ACGIH - American Conference of Governmental Industrial Hygienists DNEL - Derived No Effect Level RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic	 TWA - Time Weighted Average IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC) LD50 - Lethal Dose 50% EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code OECD - Organisation for Economic Co-operation and Development BCF - Bioconcentration factor Key literature references and sources for data	ICAO/IATA - International Civil Aviation Organization/International Air Transport Association MARPOL - International Convention for the Prevention of Pollution from Ships ATE - Acute Toxicity Estimate VOC - (Volatile Organic Compound)

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Prepared By	Health, Safety and Environmental Department
Revision Date	25-Jan-2024
Revision Summary	New emergency telephone response service provider.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as

amended.

Disclaimer

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet