



SAFETY DATA SHEET

MATERION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture CdS-Cd 90-10at% targets
Registration number -
Document number 2NG
Synonyms None.
Materion Code 2NG
Issue date 13-May-2020

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Advanced Chemicals Inc.
Address 407 N. 13th Street
1316 W. St. Paul Avenue
Milwaukee, WI 53233
United States
Division Milwaukee
Telephone 414.212.0257
e-mail advancedmaterials@materion.com
Contact person Laura Hamilton

1.4. Emergency telephone number

Version number 01

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Not available.
Uses advised against None known.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Acute toxicity, oral	Category 4	H302 - Harmful if swallowed.
Acute toxicity, inhalation	Category 2	H330 - Fatal if inhaled.
Germ cell mutagenicity	Category 2	H341 - Suspected of causing genetic defects.
Carcinogenicity	Category 1B	H350 - May cause cancer.
Reproductive toxicity (fertility, the unborn child)	Category 2	H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child.
Specific target organ toxicity - repeated exposure	Category 1	H372 - Causes damage to organs through prolonged or repeated exposure.

Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard	Category 1	H400 - Very toxic to aquatic life.
Hazardous to the aquatic environment, long-term aquatic hazard	Category 2	H411 - Toxic to aquatic life with long lasting effects.

Hazard summary

Fatal if inhaled. Harmful if swallowed. Causes damage to organs through prolonged or repeated exposure. May cause cancer. Exposure to powder or dusts may be irritating to eyes, nose and throat. Possible reproductive hazard. Suspected of causing genetic defects. Prolonged exposure may cause chronic effects. Dangerous for the environment if discharged into watercourses. Occupational exposure to the substance or mixture may cause adverse health effects. The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains:

Cadmium, Cadmium sulfide

Hazard pictograms



Signal word

Danger

Hazard statements

H302	Harmful if swallowed.
H330	Fatal if inhaled.
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.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Wear respiratory protection.

Response

P301 + P312	IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.
P330	Rinse mouth.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310	Immediately call a POISON CENTRE/doctor.
P320	Specific treatment is urgent (see this label).
P391	Collect spillage.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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Supplemental label information

100 % of the mixture consists of component(s) of unknown acute dermal toxicity. 90 % of the mixture consists of component(s) of unknown acute inhalation toxicity. For further information, please contact the Product Stewardship Department at +1.800.862.4118.

2.3. Other hazards

Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Cadmium sulfide	≤ 90	1306-23-6 215-147-8	-	048-010-00-4	
Classification:	Acute Tox. 4;H302, Muta. 2;H341, Carc. 1B;H350, Repr. 2;H361fd, STOT RE 1;H372, Aquatic Acute 1;H400, Aquatic Chronic 4;H413				1
Cadmium	1 - 10	7440-43-9 231-152-8	-	048-011-00-X	
Classification:	Acute Tox. 3;H301, Carc. 1A;H350, Aquatic Acute 1;H400, Aquatic Chronic 1;H410				

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments

The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information

IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

4.1. Description of first aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control centre immediately.

Skin contact

Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact

Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

Ingestion

Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Dusts may irritate the respiratory tract, skin and eyes. Prolonged exposure may cause chronic effects.

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

Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards

No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media

Powder. Dry sand.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special firefighting procedures

Use water spray to cool unopened containers.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

For emergency responders

Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect dust using a vacuum cleaner equipped with HEPA filter. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Absorb in vermiculite, dry sand or earth and place into containers. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimise dust generation and accumulation. Do not breathe dust. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. TRK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	STEL	0,06 mg/m ³	Inhalable fraction.
	TWA	0,015 mg/m ³	Inhalable fraction.
Cadmium sulfide (CAS 1306-23-6)	STEL	0,06 mg/m ³	Inhalable fraction.
	TWA	0,015 mg/m ³	Inhalable fraction.

Belgium. Exposure Limit Values.

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,01 mg/m ³	Inhalable particles.
		0,002 mg/m ³	Respirable particles.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,01 mg/m ³	Inhalable particles.
		0,002 mg/m ³	Respirable particles.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value
Cadmium (CAS 7440-43-9)	TWA	0,05 mg/m ³

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value
Cadmium sulfide (CAS 1306-23-6)	TWA	0,05 mg/m3

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	MAC	0,025 mg/m3	
Cadmium sulfide (CAS 1306-23-6)	MAC	0,03 mg/m3	Respirable dust.

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,05 mg/m3	Dust.

Czech Republic. OELs. Government Decree 361

Components	Type	Value
Cadmium (CAS 7440-43-9)	Ceiling	0,1 mg/m3
	TWA	0,05 mg/m3
Cadmium sulfide (CAS 1306-23-6)	Ceiling	0,1 mg/m3
	TWA	0,05 mg/m3

Denmark. Exposure Limit Values

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TLV	0,005 mg/m3	Dust and fume.
Cadmium sulfide (CAS 1306-23-6)	TLV	0,005 mg/m3	

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,05 mg/m3	Total dust.
		0,01 mg/m3	Respirable dust.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,05 mg/m3	Total dust.
		0,01 mg/m3	Respirable dust.

Finland. Workplace Exposure Limits

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,004 mg/m3	Respirable.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,004 mg/m3	Respirable.

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value
Cadmium (CAS 7440-43-9)	VME	0,05 mg/m3
		Regulatory status: Indicative limit (VL)
Cadmium sulfide (CAS 1306-23-6)	VME	0,05 mg/m3
		Regulatory status: Indicative limit (VL)

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value
Cadmium (CAS 7440-43-9)	STEL	0,1 mg/m3
	TWA	0,025 mg/m3
Cadmium sulfide (CAS 1306-23-6)	STEL	0,1 mg/m3
	TWA	0,025 mg/m3

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value
Cadmium (CAS 7440-43-9)	Ceiling	0,015 mg/m ³
Cadmium sulfide (CAS 1306-23-6)	Ceiling	0,015 mg/m ³

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,01 mg/m ³	Dust and fume.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,01 mg/m ³	Dust and fume.

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,025 mg/m ³	
Cadmium sulfide (CAS 1306-23-6)	TWA	0,03 mg/m ³	Respirable dust.

Italy. Occupational Exposure Limits

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,01 mg/m ³	
		0,002 mg/m ³	Respirable fraction.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,01 mg/m ³	
		0,002 mg/m ³	Respirable fraction.

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value
Cadmium (CAS 7440-43-9)	STEL	0,05 mg/m ³
	TWA	0,01 mg/m ³

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,05 mg/m ³	Inhalable fraction.
		0,01 mg/m ³	Respirable fraction.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,05 mg/m ³	Inhalable fraction.
		0,01 mg/m ³	Respirable fraction.

Netherlands. OELs (binding)

Components	Type	Value
Cadmium (CAS 7440-43-9)	TWA	0,004 mg/m ³
Cadmium sulfide (CAS 1306-23-6)	TWA	0,004 mg/m ³

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
Cadmium (CAS 7440-43-9)	TLV	0,05 mg/m ³
Cadmium sulfide (CAS 1306-23-6)	TLV	0,05 mg/m ³

Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,01 mg/m ³	Inhalable fraction.
		0,002 mg/m ³	Respirable fraction.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,01 mg/m ³	Inhalable fraction.
		0,002 mg/m ³	Respirable fraction.

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,01 mg/m3	Respirable fraction.
		0,002 mg/m3	
Cadmium sulfide (CAS 1306-23-6)	TWA	0,01 mg/m3	Respirable fraction.
		0,002 mg/m3	

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,05 mg/m3	
Cadmium sulfide (CAS 1306-23-6)	TWA	0,05 mg/m3	

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,015 mg/m3	Dust/aerosol, inhalable.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,015 mg/m3	Dust/aerosol, inhalable.

Spain. Carcinogens and Mutagens with Limit Values (Table 2)

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,01 mg/m3	Inhalable fraction.
		0,002 mg/m3	Respirable fraction.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,01 mg/m3	Inhalable fraction.
		0,002 mg/m3	Respirable fraction.

Spain. Occupational Exposure Limits

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,01 mg/m3	Inhalable fraction.
		0,002 mg/m3	Respirable fraction.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,01 mg/m3	Inhalable fraction.
		0,002 mg/m3	Respirable fraction.

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,02 mg/m3	Total dust.
		0,002 mg/m3	Respirable dust.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,02 mg/m3	Total dust.
		0,002 mg/m3	Respirable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,015 mg/m3	Inhalable fraction.
		0,004 mg/m3	Respirable fraction.
Cadmium sulfide (CAS 1306-23-6)	TWA	0,015 mg/m3	Inhalable fraction.
		0,004 mg/m3	Respirable fraction.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Cadmium (CAS 7440-43-9)	TWA	0,025 mg/m3	
Cadmium sulfide (CAS 1306-23-6)	TWA	0,03 mg/m3	Respirable dust.

Biological limit values**Croatia. BLV. Dangerous Substance Exposure Limit Values at Workplace, Annexes 4 (as amended)**

Components	Value	Determinant	Specimen	Sampling Time
Cadmium (CAS 7440-43-9)	10 µg/g	Cadmium	Creatinine in urine	*
	10 µg/l	Cadmium	Blood	*
	0,09 µmol/l	Cadmium	Blood	*
	10,06 µmol/mol	Cadmium	Creatinine in urine	*

* - For sampling details, please see the source document.

Czech Republic. Limit Values for Indicators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.

Components	Value	Determinant	Specimen	Sampling Time
Cadmium (CAS 7440-43-9)	0,045 µmol/l	Cadmium	Blood	*
	0,005 µmol/mmol	Cadmium	Creatinine in urine	*
	0,005 mg/g	Cadmium	Creatinine in urine	*
	0,005 mg/l	Cadmium	Blood	*

* - For sampling details, please see the source document.

Finland. HTP-arvot, App 2., Biological Limit Values, (BRA/BGV), Social Affairs and Ministry of Health

Components	Value	Determinant	Specimen	Sampling Time
Cadmium (CAS 7440-43-9)	20 nmol/l	Cadmium	Urine	*
Cadmium sulfide (CAS 1306-23-6)	20 nmol/l	Cadmium	Urine	*

* - For sampling details, please see the source document.

France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065)

Components	Value	Determinant	Specimen	Sampling Time
Cadmium (CAS 7440-43-9)	5 µg/g	Cadmium	Creatinine in urine	*
	5 µg/l	Cadmium	Blood	*
Cadmium sulfide (CAS 1306-23-6)	5 µg/g	Cadmium	Creatinine in urine	*
	5 µg/l	Cadmium	Blood	*

* - For sampling details, please see the source document.

Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices

Components	Value	Determinant	Specimen	Sampling Time
Cadmium (CAS 7440-43-9)	10 µg/l	cadmium	Blood	*
	0,01 mg/g	cadmium	Creatinine in urine	*
	0,09 µmol/l	cadmium	Blood	*
	0,01 µmol/mmol	cadmium	Creatinine in urine	*
Cadmium sulfide (CAS 1306-23-6)	10 µg/l	cadmium	Blood	*
	0,01 mg/g	cadmium	Creatinine in urine	*
	0,09 µmol/l	cadmium	Blood	*
	0,01 µmol/mmol	cadmium	Creatinine in urine	*

* - For sampling details, please see the source document.

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling Time
Cadmium (CAS 7440-43-9)	4,7 µg/g	Cadmium	Creatinine in urine	*

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling Time
	7 µg/l	Cadmium	Urine	*
Cadmium sulfide (CAS 1306-23-6)	4,7 µg/g	Cadmium	Creatinine in urine	*
	7 µg/l	Cadmium	Urine	*

* - For sampling details, please see the source document.

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Components	Value	Determinant	Specimen	Sampling Time
Cadmium (CAS 7440-43-9)	2 µg/g	Cadmio	Creatinine in urine	*
	5 µg/l	Cadmio	Blood	*
Cadmium sulfide (CAS 1306-23-6)	2 µg/g	Cadmio	Creatinine in urine	*
	5 µg/l	Cadmio	Blood	*

* - For sampling details, please see the source document.

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Components	Value	Determinant	Specimen	Sampling Time
Cadmium (CAS 7440-43-9)	5 µg/g	Cadmium	Creatinine in urine	*
Cadmium sulfide (CAS 1306-23-6)	5 µg/g	Cadmium	Creatinine in urine	*

* - For sampling details, please see the source document.

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Chemical respirator with organic vapour cartridge, full facepiece, dust and mist filter.

Skin protection

- Hand protection Wear appropriate chemical resistant gloves.

- Other Wear suitable protective clothing. Use of an impervious apron is recommended.

Respiratory protection Chemical respirator with organic vapour cartridge, full facepiece, dust and mist filter.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls

Inform appropriate managerial or supervisory personnel of all environmental releases. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state	Solid.
Form	Powder.
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	321 °C (609,8 °F) estimated
Initial boiling point and boiling range	765 °C (1409 °F) estimated
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	0,00001 hPa estimated
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	250 °C (482 °F) estimated
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2. Other information

Density	5,06 g/cm ³ estimated
Specific gravity	5,06 estimated

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Fatal if inhaled.
Skin contact	Dust or powder may irritate the skin.
Eye contact	Dust may irritate the eyes.
Ingestion	Harmful if swallowed.

Symptoms Dusts may irritate the respiratory tract, skin and eyes.

11.1. Information on toxicological effects

Acute toxicity Fatal if inhaled. Harmful if swallowed.

Components	Species	Test Results
Cadmium (CAS 7440-43-9)		
Acute		
Oral		
LD50	Rat	225 mg/kg
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.	
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.	
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.	
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.	
Germ cell mutagenicity	Suspected of causing genetic defects.	
Carcinogenicity	May cause cancer.	

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Cadmium (CAS 7440-43-9)

Cadmium sulfide (CAS 1306-23-6)

IARC Monographs. Overall Evaluation of Carcinogenicity

Cadmium (CAS 7440-43-9)

1 Carcinogenic to humans.

Cadmium sulfide (CAS 1306-23-6)

1 Carcinogenic to humans.

Reproductive toxicity Suspected of damaging fertility. Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard Due to partial or complete lack of data the classification is not possible.

Mixture versus substance information No information available.

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Product	Species	Test Results	
CdS-Cd 90-10at% targets			
Aquatic			
Crustacea	EC50	Daphnia	2,3783 mg/l, 48 hours estimated
Fish	LC50	Fish	0,2599 mg/l, 96 hours estimated

Components	Species	Test Results	
Cadmium (CAS 7440-43-9)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0,0491 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,0024 - 0,0029 mg/l, 96 hours

Cadmium sulfide (CAS 1306-23-6)

Aquatic

Fish LC50 Fathead minnow (Pimephales promelas) 0,108 mg/l, 96 hours

12.2. Persistence and degradability No data is available on the degradability of any ingredients in the mixture.

12.3. Bioaccumulative potential No data available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

12.7. Additional information

Estonia Dangerous substances in groundwater Data

Cadmium (CAS 7440-43-9)	CADMIUM (CD) 1 ug/l CADMIUM (CD) 10 ug/l
Cadmium sulfide (CAS 1306-23-6)	Cadmium (Cd) 1 ug/l Cadmium (Cd) 10 ug/l

Estonia Dangerous substances in soil Data

Cadmium (CAS 7440-43-9)	CADMIUM (CD) 1 mg/kg CADMIUM (CD) 20 mg/kg CADMIUM (CD) 5 mg/kg
Cadmium sulfide (CAS 1306-23-6)	Cadmium (Cd) 1 mg/kg Cadmium (Cd) 20 mg/kg Cadmium (Cd) 5 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. UN number	UN3077
14.2. UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Cadmium sulfide)
14.3. Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
14.4. Packing group	III
14.5. Environmental hazards	Yes
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

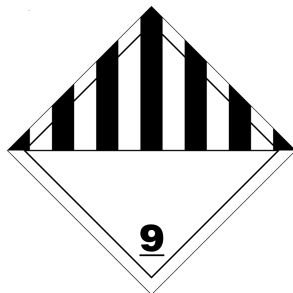
IATA

14.1. - 14.6.: Not regulated as dangerous goods.

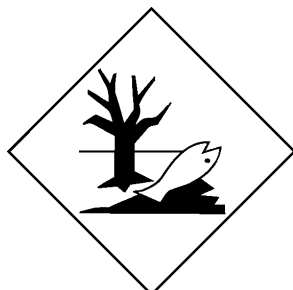
IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

RID



Marine pollutant



General information

IMDG Regulated Marine Pollutant.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Cadmium (CAS 7440-43-9)

Cadmium sulfide (CAS 1306-23-6)

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Cadmium (CAS 7440-43-9)

Cadmium sulfide (CAS 1306-23-6)

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Cadmium (CAS 7440-43-9)

Cadmium sulfide (CAS 1306-23-6)

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Cadmium (CAS 7440-43-9)

Cadmium sulfide (CAS 1306-23-6)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Cadmium (CAS 7440-43-9)

Cadmium sulfide (CAS 1306-23-6)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Cadmium (CAS 7440-43-9)

Cadmium sulfide (CAS 1306-23-6)

Other regulations

This product is not in compliance with Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronics equipment (RoHS). The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation on the protection of workers from the risks of exposure to carcinogens and mutagens at work, in accordance with Directive 2004/37/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

References

Not available.

Training information

Follow training instructions when handling this material.

Disclaimer

Materion Advanced Chemicals Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.