



SAFETY DATA SHEET

MATERION

Version #: 01

Issue date: 27-October-2023

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

1.1. Product identifier

Trade name or designation of the mixture Silver Lead Alloy

Registration number -

Synonyms None.

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

Identified uses Manufacture of computer, electronic and optical products, electrical equipment
Scientific research and development

Uses advised against Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Consumer uses: Private households (= general public = consumers)

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Electronic Materials
Address 6070 Parkland Boulevard
Mayfield Heights, OH 44124
United States

Division

Telephone 1.216.383.4019

e-mail ehs@materion.com

Contact person Theodore Knudson

1.4. Emergency telephone number See Section 16.

Document number W93

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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

Carcinogenicity	Category 2	H351 - Suspected of causing cancer.
Reproductive toxicity (fertility, the unborn child)	Category 1A	H360FD - May damage fertility. May damage the unborn child.
Reproductive toxicity	Effects on or via lactation	H362 - May cause harm to breast-fed children.

Specific target organ toxicity - repeated exposure

Category 2

H373 - May cause 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 1

H410 - Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Contains: lead massive: [particle diameter \geq 1 mm], Silver

Hazard pictograms



Signal word

Danger

Hazard statements

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.

H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H360FD May damage fertility. May damage the unborn child.
H362 May cause harm to breast-fed children.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P201 Obtain special instructions before use.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust or mists.
P261 Avoid breathing dust.
P263 Avoid contact during pregnancy and while nursing.
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/hearing protection.

Response

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P391 Collect spillage.

Storage

P405 Store locked up.

Disposal

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

Supplemental label information

Restricted to professional users.
For further information, please contact the Product Stewardship Department at +1.216.383.4019.

2.3. Other hazards

This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII. The mixture does not contain any substances included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties at a concentration equal to or greater than 0.1% by weight.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Silver	90 - 97	7440-22-4 231-131-3	-	-	#
Classification: Aquatic Acute 1;H400(M=100), Aquatic Chronic 1;H410(M=100)					
lead massive: [particle diameter ≥ 1 mm]	3 - 10	7439-92-1 231-100-4	-	082-014-00-7	#
Classification: Acute Tox. 4;H302, Acute Tox. 4;H332, Carc. 2;H351, Repr. 1A;H360FD, STOT RE 2;H373, Aquatic Acute 1;H400(M=1), Aquatic Chronic 1;H410(M=10)					
Specific Concentration Limits: STOT RE 2;H373: C ≥ 0.5 %					

List of abbreviations and symbols that may be used above

ATE: Acute toxicity estimate.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

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

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

Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact

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

Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

Ingestion

Rinse mouth. Get medical attention if symptoms occur.

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

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 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

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media

Not available.

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

Wear appropriate personal protective equipment.

For emergency responders	Keep unnecessary personnel away. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see 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	Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Following product recovery, flush area with water. Put material in suitable, covered, labeled containers.
6.4. Reference to other sections	For personal protection, see section 8 of the SDS. 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. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. 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 away from incompatible materials (see Section 10 of the SDS). Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended ANNEX 1, PART 1 Categories of dangerous substances Hazard categories in accordance with Regulation (EC) No 1272/2008 - E1 Hazardous to the Aquatic Environment Acute (Lower-tier requirements = 100 tonnes; Upper-tier requirements = 200 tonnes) - E1 Hazardous to the Aquatic Environment Chronic (Lower-tier requirements = 100 tonnes; Upper-tier requirements = 200 tonnes)
7.3. Specific end use(s)	Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001, as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	MAK	0,1 mg/m ³	Inhalable fraction.
	STEL	0,4 mg/m ³	Inhalable fraction.
Silver (CAS 7440-22-4)	MAK	0,1 mg/m ³	Inhalable fraction.
	STEL	0,1 mg/m ³	Inhalable fraction.

Belgium. OEL. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1 - Chemical agents, as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³	Dust and fume.
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³	

Bulgaria. OELs. Ordinance No 13 on protection of workers against risks of exposure to chemical agents at work, as amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,05 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Croatia. OELs (GVI). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and Biological Limit Values, Annex I (NN 91/2018), as amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	MAC	0,15 mg/m ³

Croatia. OELs (GVI). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and Biological Limit Values, Annex I (NN 91/2018), as amended

Components	Type	Value
Silver (CAS 7440-22-4)	MAC	0,1 mg/m ³

Cyprus. OELs. Occupational Exposure Limit Values of Chemicals at Work (Safety and Health at Work (Chem. Agents) Reg., Ann. 1, R.A.A. 268/2001, as amended)

Components	Type	Value
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Czech Republic. Occupational exposure limit values of chemicals at work (Decree on protection of health at work, 361/2007, Annex 2, Part A & Annex 3, Part A, as amended)

Components	Type	Value
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	Ceiling	0,2 mg/m ³
	TWA	0,05 mg/m ³
Silver (CAS 7440-22-4)	Ceiling	0,3 mg/m ³
	TWA	0,1 mg/m ³

Denmark. Work Environment Authority. Exposure Limits for Substances & Materials, Annex 2

Components	Type	Value	Form
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	TLV	0,05 mg/m ³	Dust and fume.
Silver (CAS 7440-22-4)	TLV	0,01 mg/m ³	Dust.

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Components	Type	Value	Form
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	TWA	0,1 mg/m ³	Total dust, respiratory fraction
		0,05 mg/m ³	Fine dust, respiratory fraction
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³	

Finland. HTP-arvot, App 3., Binding Limit Values, Social Affairs and Ministry of Health

Components	Type	Value
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	TWA	0,1 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

France. OELs. Indicative Occupational Exposure Limits as Prescribed by Order of 30 June 2004, as amended

Components	Type	Value
Silver (CAS 7440-22-4)	VME	0,1 mg/m ³

France. OELs. Occupational Exposure Limits as Prescribed by Art. R.4412-149 of Labor Code, as amended

Components	Type	Value
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	VME	0,1 mg/m ³

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

Components	Type	Value
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	VME	0,1 mg/m ³
Regulatory status: Regulatory binding (VRC)		
Silver (CAS 7440-22-4)	VME	0,1 mg/m ³
Regulatory status: Regulatory indicative (VRI)		

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG), as updated

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,004 mg/m ³	Inhalable fraction.
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³	Inhalable fraction.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value	Form
Silver (CAS 7440-22-4)	AGW	0,1 mg/m ³	Inhalable fraction.

Greece. OELs, Presidential Decree No. 307/1986, as amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Hungary. OELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 1&2, as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,1 mg/m ³	
		0,05 mg/m ³	Respirable.
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³	

Iceland. OELs. Regulation 390/2009 on Pollution Limits and Measures to Reduce Pollution at the Workplace, as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,05 mg/m ³	Dust and fume.
Silver (CAS 7440-22-4)	TWA	0,01 mg/m ³	Dust.

Ireland. OELVs, Schedules 1 & 2, Code of Practice for Chemical Agents and Carcinogens Regulations

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Italy. OELs (Legislative Decree n.81, 9 April 2008), as amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,05 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Latvia. OELs. Occupational Exposure Limits of Chemical Substances at Workplace (Reg. No. 325/ 2007, L.V. 80, Annex 1), as amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	STEL	0,1 mg/m ³
	TWA	0,05 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Lithuania. OELs. Occupational Exposure Limit Values for Chemical Substances (Hygiene Norm HN 23:2011; Order No. V-824/A1-389), as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³	Inhalable fraction.
		0,07 mg/m ³	Respirable fraction.
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³	

Luxembourg. OELs. Binding Occupational Exposure Limit Values (Annex I), G.D.R. of 14 November 2016, OJ Memorial A, n ° 235/2016, as amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Malta. OELs. Protection of Health and Safety of Workers from Risks related to Chemical Agents at Work (L.N 227/2003 Schedules I and V), as amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Netherlands. OELs per Annex XIII of Working Conditions Regulation (Staatscourant no. 252, 29 December 2006), as amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Norway. Regulation No. 1358 on Measures and Limit Values for Physical and Chemical Factors in Work Environment and Infection Groups for Biological Factors, as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TLV	0,05 mg/m ³	Dust and fume.
Silver (CAS 7440-22-4)	TLV	0,1 mg/m ³	Dust and fume.

Poland. Maximum permissible concentrations and intensities of harmful factors in the work environment (Dz.U.Poz. 1286/2018, Annex 1)

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,05 mg/m ³	Inhalable fraction.
Silver (CAS 7440-22-4)	TWA	0,05 mg/m ³	Inhalable fraction.

Portugal. Decree-Law No. 24/2012, Binding Occupational Exposure Limit Values, Annex I (Diário da República - I.a série - No. 26), an amended

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796-2014)

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,05 mg/m ³	
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³	Dust and fume.

Romania. OELs. Limit Values of Chemical Agents at Workplace (Regulation 1.218/2006, M.O 845, Annex 1, 3&4, as amended)

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Slovakia. OELs. Maximum permissible exposure limits for chemical factors in workplace air (Regulation No 355/2006, Annex 1, Table 1, as amended)

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,5 mg/m ³	Inhalable fraction.
		0,15 mg/m ³	Respirable fraction.
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³	

Slovenia. OELs. Occupational Exposure Limits of Chemicals at Workplace (Reg. on Protection of Workers from Risks due to Exp. to Chemicals at Work, Ann. I 100/2001), as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	KTV	0,4 mg/m ³	Inhalable fraction.
Silver (CAS 7440-22-4)	KTV	0,02 mg/m ³	

Slovenia. OELs. Occupational Exposure Limits of Chemicals at Workplace (Reg. on Protection of Workers from Risks due to Exp. to Chemicals at Work, Annex I), as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,1 mg/m ³	Inhalable fraction.
Silver (CAS 7440-22-4)	TWA	0,01 mg/m ³	

Spain. OELs. INSST, Límites de Exposición Profesional Para Agentes Químicos, Table 1-Valores Límites Ambientales (VLAs)

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Sweden. OELs (Annex 1). Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2018:1), as amended

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,1 mg/m ³	Inhalable dust.
		0,05 mg/m ³	Respirable dust.
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle MAK-Werte

Components	Type	Value	Form
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	STEL	0,8 mg/m ³	Inhalable fraction.
	TWA	0,1 mg/m ³	Inhalable fraction.
Silver (CAS 7440-22-4)	STEL	0,8 mg/m ³	Inhalable fraction.
	TWA	0,1 mg/m ³	Inhalable fraction.

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1

Components	Type	Value
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1 Components

Components	Type	Value
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

EU. Directive 98/24/EC: on the protection of workers from the risks related to chemical agents at work, Annex I List of Binding Occupational Exposure Limit Values

Components	Type	Value
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	TWA	0,15 mg/m ³

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU

Components	Type	Value
Silver (CAS 7440-22-4)	TWA	0,1 mg/m ³

Biological limit values

Croatia. BELs (BGV). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and BELs, Annex IV (NN 91/2018), as amended

Components	Value	Determinant	Specimen	Sampling Time
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	300 µg/l	Lead	Blood	*
	1,5 mg/l	Protoporphyrin	Blood	*
	15 u/l	Dehydratase δ-aminolevulini c acid	Blood	*
	400 ug/l	Lead	Blood	*
	2,67 umol/l	Protoporphyrin	Blood	*

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

Czech Republic. BELs. Government Decree 432/2003 Sb., as amended

Components	Value	Determinant	Specimen	Sampling Time
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	0,035 µmol/mmol	Coproporphyrin	Creatinine in urine	*
	0,2 mg/g	Coproporphyrin	Creatinine in urine	*
	0,4 mg/l	Lead	Blood	*

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

Finland. HTP-arvot, App 2., Biological Limit Values, Social Affairs and Ministry of Health

Components	Value	Determinant	Specimen	Sampling Time
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	1,4 umol/l	Lead	Blood	*

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

France. BELs. Biological Exposure Limits according to Art. R.4412-152 of Labor Code, created by Art. V of Decree No. 2008-244, as amended

Components	Value	Determinant	Specimen
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	300 µg/l	Lead	Blood

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling Time
lead massive: [particle diameter ≥ 1 mm] (CAS 7439-92-1)	150 µg/l	Blei	Blood	*

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

Hungary. BELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 3&4, as amended

Components	Value	Determinant	Specimen	Sampling Time
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	200 $\mu\text{g/l}$	lead	Blood	*
	1 $\mu\text{mol/l}$	lead	Blood	*
	80 $\mu\text{mol/mol hb}$	zinc protoporphyrin (for pre-screening)	Hemoglobin in blood	

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

Luxembourg. Biological limit values (Annex II), G.D.R. of 14 November 2016, OJ Memorial A, n ° 235/2016, as amended

Components	Value	Determinant	Specimen
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	70 $\mu\text{g/ml}$	Pb	Blood

Portugal. Decree-Law No. 24/2012, Binding Biological Limit Values, Annex II (Diário da República - I.a série - No. 26), as amended

Components	Value	Determinant	Specimen
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	70 $\mu\text{g}/100 \text{ ml}$	Chumbo	Blood

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
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	100 $\mu\text{g/l}$	Lead	Blood	*
	0,2 mg/g	Coproporphyrin	Creatinine in urine	*
	0,3 mg/l	Coproporphyrin	Urine	*

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

Spain. BELs. INSST, Límites de Exposición Profesional Para Agentes Químicos, Table 3-Valores Límite Biológicos (VLB)

Components	Value	Determinant	Specimen	Sampling Time
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	70 $\mu\text{g/dl}$	Plomo	Blood	*

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

Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle BAT-Werte

Components	Value	Determinant	Specimen	Sampling Time
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	100 $\mu\text{g/l}$	Blei (Frauen < 45 Jahre)	Blood	*

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

EU. Directive 98/24/EC: on the protection of workers from the risks related to chemical agents at work, Annex II Binding Biological Limit Values and Health Surveillance Measures

Components	Value	Determinant
lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)	70 $\mu\text{g pb}/100$	
	70 $\mu\text{g}/100 \text{ ml}$	Lead

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.

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

If contact is likely, safety glasses with side shields are recommended.

Skin protection

- Hand protection

Wear appropriate chemical resistant gloves.

- Other

Use of an impervious apron is recommended.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

Observe any medical surveillance requirements. When using, do not eat, drink or smoke. 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. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Solid.

Form

Solid.

Colour

Gray-silver

Odour

None.

Odour threshold

Not applicable.

Melting point/freezing point

327,4 °C (621,32 °F) estimated

Boiling point or initial boiling point and boiling range

1740 °C (3164 °F) estimated

Flammability

Not flammable

Upper/lower flammability or explosive limits

Explosive limit - lower (%)

Not applicable.

Explosive limit - lower (%) temperature

Not applicable.

Explosive limit - upper (%)

Not applicable.

Explosive limit - upper (%) temperature

Not applicable.

Flash point

Not applicable.

Auto-ignition temperature

Not applicable.

Decomposition temperature

Not applicable.

pH

Not applicable.

Kinematic viscosity

Not applicable.

Solubility

Solubility (water)

Insoluble

Partition coefficient (n-octanol/water) (log value)

Not applicable.

Vapour pressure

-0,01 hPa estimated

Density and/or relative density

Density 10,57 g/cm³ estimated

Relative density Not applicable.

Vapour density Not applicable.

Particle characteristics Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard classes No relevant additional information available.

9.2.2. Other safety characteristics

Evaporation rate Not applicable.

Specific gravity 10,57 estimated

Viscosity Not applicable.

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 Contact with incompatible materials.

10.5. Incompatible materials Acids. Strong oxidising agents. Ammonia. Chlorine.

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 Prolonged inhalation may be harmful.

Skin contact No adverse effects due to skin contact are expected.

Eye contact Direct contact with eyes may cause temporary irritation.

Ingestion May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms Exposure may cause temporary irritation, redness, or discomfort.

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

Acute toxicity Due to partial or complete lack of data the classification is not possible.

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

Carcinogenicity Suspected of causing cancer.

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

lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)

IARC Monographs. Overall Evaluation of Carcinogenicity

lead massive: [particle diameter \geq 1 mm] 2B Possibly carcinogenic to humans.
(CAS 7439-92-1)

Reproductive toxicity May cause harm to breastfed babies. May damage fertility. May damage the unborn child.

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

lead massive: [particle diameter \geq 1 mm] Toxic for reproduction, Category 1A.
(CAS 7439-92-1)

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 May cause 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.

11.2. Information on other hazards

Endocrine disrupting properties This mixture does not contain any substances having endocrine disrupting properties with respect to human health as assessed in accordance with the criteria set out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605, at a concentration equal to or greater than 0.1% by weight.

Other information Not available.

SECTION 12: Ecological information

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

Product	Species	Test Results	
Silver Lead Alloy			
Aquatic			
Crustacea	EC50	Daphnia	0,0052 mg/l, 48 hours
Fish	LC50	Fish	2,8785 mg/l, 96 hours
<i>Acute</i>			
Fish	LC50	Fish	0,0019 mg/l, 96 hours estimated
Components	Species	Test Results	

lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)

Aquatic

Acute

Fish LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss) 1,17 mg/l, 96 hours

Silver (CAS 7440-22-4)

Aquatic

Acute

Fish LC50 Fathead minnow (Pimephales promelas) 0,0019 - 0,003 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 This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

12.6. Endocrine disrupting properties This mixture does not contain any substances having endocrine disrupting properties with respect to the environment as assessed in accordance with the criteria set out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605, at a concentration equal to or greater than 0.1% by weight.

12.7. 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.

12.8. Additional information

Estonia Dangerous substances in soil Data

lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1) Lead (Pb) 300 mg/kg
Lead (Pb) 50 mg/kg
Lead (Pb) 600 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. UN number	UN3077
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver, lead massive: [particle diameter ≥ 1 mm])
14.3. Transport hazard class(es)	
Class	9
Subsidiary risk	-
Label(s)	9
Hazard No. (ADR)	90
Tunnel restriction code	-
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.

RID

14.1. UN number	UN3077
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver, lead massive: [particle diameter ≥ 1 mm])
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. UN number	UN3077
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver, lead massive: [particle diameter ≥ 1 mm])
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.

IATA

14.1. UN number	UN3077
14.2. UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Silver, lead massive: [particle diameter ≥ 1 mm])
14.3. Transport hazard class(es)	
Class	9
Subsidiary risk	-
14.4. Packing group	III
14.5. Environmental hazards	Yes
ERG Code	9L

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft Allowed with restrictions.

Cargo aircraft only Allowed with restrictions.

IMDG

14.1. UN number UN3077

14.2. UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver, lead massive: [particle diameter \geq 1 mm]), MARINE POLLUTANT

14.3. Transport hazard class(es)

Class 9

Subsidiary risk -

14.4. Packing group III

14.5. Environmental hazards

Marine pollutant Yes

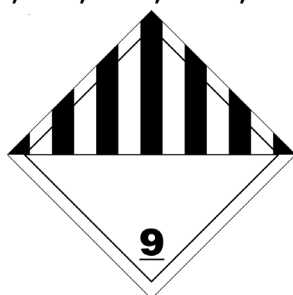
EmS F-A, S-F

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

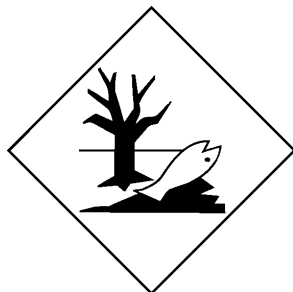
Silver

Lead

ADN; ADR; IATA; IMDG; 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 (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

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

lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)

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

lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)

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

lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)

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 - Conditions of restriction given for the associated entry number should be considered

lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)

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

lead massive: [particle diameter \geq 1 mm] (CAS 7439-92-1)

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended

Not listed.

Other EU regulations

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

ANNEX 1, PART 1 Categories of dangerous substances

Hazard categories in accordance with Regulation (EC) No 1272/2008

- E1 Hazardous to the Aquatic Environment Acute

- E1 Hazardous to the Aquatic Environment Chronic

Other regulations

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 Use of this product by young persons under the age of 18 is not allowed in accordance with the Management of Health and Safety at Work Regulations 1999 [SI 1999/3242], as amended. Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

Contains a substance which is included on the TRGS 905 list of carcinogenic, germ cell mutagenic and reproductive toxic substances

lead massive: [particle diameter \geq 1 mm]
(CAS 7439-92-1)

Blei-Metall

France regulations

France INRS Table of Occupational Diseases

lead massive: [particle diameter \geq 1 mm]
(CAS 7439-92-1)

Affections dues au plomb et à ses composés 1

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.

ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.

AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).

CAS: Chemical Abstract Service.

CEN: European Committee for Standardization.

IATA: International Air Transport Association.

IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.

IMDG: International Maritime Dangerous Goods.

MAC: Maximum Allowed Concentration.

MARPOL: International Convention for the Prevention of Pollution from Ships.

PBT: Persistent, bioaccumulative and toxic.

RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.

STEL: Short term exposure limit.

TLV: Threshold Limit Value.

TWA: Time Weighted Average.

VLE: Exposure Limit Value.

VME: Exposure Average Value.

vPvB: Very persistent and very bioaccumulative.

Not available.

References

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any statements, which are not written out in full under sections 2 to 15

H302 Harmful if swallowed.

H332 Harmful if inhaled.

H351 Suspected of causing cancer.

H360FD May damage fertility. May damage the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Revision information

Product and Company Identification: Product and Company Identification

Composition / Information on Ingredients: Ingredients

GHS: Classification

Training information

Follow training instructions when handling this material.