



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 PbMgNbTiO targets
Registration number -
Document number 2NX
Synonyms None.
Materion Code 2NX
Issue date 22-July-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

Physical hazards

Flammable solids Category 2 H228 - Flammable solid.

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.

Hazard summary

May be ignited by heat, sparks or flames. Suspected of causing cancer. May cause reproductive effects. Prolonged exposure may cause chronic effects. 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: Lead, Magnesium, Niobium, Oxygen, Titanium

Hazard pictograms



Signal word

Danger

Hazard statements

H228 Flammable solid.
H351 Suspected of causing cancer.
H360FD May damage fertility. May damage the unborn child.
H362 May cause harm to breast-fed children.

Precautionary statements

Prevention

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P263 Avoid contact during pregnancy and while nursing.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P308 + P313 IF exposed or concerned: Get medical advice/attention.
P370 + P378 In case of fire: Use appropriate media to extinguish.

Storage

P405 Store locked up.

Disposal

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

Supplemental label information

100 % of the mixture consists of component(s) of unknown acute oral toxicity. 100 % of the mixture consists of component(s) of unknown acute dermal toxicity. 100 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment. 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
Lead		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				
Magnesium		7439-95-4 231-104-6	-	-	
Classification:	Flam. Sol. 1;H228, Self-heat. 2;H252, Water-React. 2;H261				
Niobium		7440-03-1 231-113-5	-	-	
Classification:	-				
Oxygen		7782-44-7 231-956-9	-	008-001-00-8	
Classification:	Ox. Gas 1;H270				
Titanium		7440-32-6 231-142-3	-	-	
Classification:	-				

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). 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 Rinse with water.

Eye contact Do not rub eyes.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

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

4.3. Indication of any immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards Flammable solid.

5.1. Extinguishing media

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

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 In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

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. 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 Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools.

Large Spills: Wet down with water and dike for later disposal. 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.

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. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. 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. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Lead (CAS 7439-92-1)	MAK	0,1 mg/m ³	Inhalable fraction.
	STEL	0,4 mg/m ³	Inhalable fraction.
Niobium (CAS 7440-03-1)	MAK	5 mg/m ³	Inhalable fraction.
		0,5 mg/m ³	Fume and respirable dust.
	STEL	10 mg/m ³	Inhalable fraction.
		1 mg/m ³	Fume and respirable dust.

Belgium. Exposure Limit Values.

Components	Type	Value	Form
Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³	Dust and fume.

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

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0,05 mg/m ³
Titanium (CAS 7440-32-6)	TWA	1 mg/m ³

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

Components	Type	Value
Lead (CAS 7439-92-1)	MAC	0,15 mg/m ³

Czech Republic. OELs. Government Decree 361

Components	Type	Value
Lead (CAS 7439-92-1)	Ceiling	0,2 mg/m ³
	TWA	0,05 mg/m ³

Denmark. Exposure Limit Values

Components	Type	Value	Form
Lead (CAS 7439-92-1)	TLV	0,05 mg/m ³	Dust and fume.
Niobium (CAS 7440-03-1)	TLV	5 mg/m ³	Dust.
		0,5 mg/m ³	Fume.

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

Components	Type	Value	Form
Lead (CAS 7439-92-1)	TWA	0,1 mg/m ³	Total dust.
		0,05 mg/m ³	Respirable dust.

Finland. Workplace Exposure Limits

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0,1 mg/m ³

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

Components	Type	Value
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Lead (CAS 7439-92-1)	VME	0,1 mg/m ³
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Regulatory status: Regulatory binding (VRC)

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

Components	Type	Value
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Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³
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Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value
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Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³
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Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value	Form
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Lead (CAS 7439-92-1)	TWA	0,05 mg/m ³	Dust and fume.
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Niobium (CAS 7440-03-1)	TWA	5 mg/m ³	Dust.
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		0,5 mg/m ³	Fume.
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Ireland. Occupational Exposure Limits

Components	Type	Value
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Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³
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Italy. Occupational Exposure Limits

Components	Type	Value
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Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³
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Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value
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Lead (CAS 7439-92-1)	STEL	0,01 mg/m ³
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	TWA	0,005 mg/m ³
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Titanium (CAS 7440-32-6)	TWA	10 mg/m ³
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Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value	Form
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Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³	Inhalable fraction.
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		0,07 mg/m ³	Respirable fraction.
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Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

Components	Type	Value
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Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³
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Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

Components	Type	Value
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Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³
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Netherlands. OELs (binding)

Components	Type	Value
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Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³
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Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value	Form
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Lead (CAS 7439-92-1)	TLV	0,05 mg/m ³	Dust and fume.
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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
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Lead (CAS 7439-92-1)	TWA	0,05 mg/m ³
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Titanium (CAS 7440-32-6)	STEL	30 mg/m ³
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	TWA	10 mg/m ³
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Portugal. Decree-Law No. 24/2012, Binding Occupational Exposure Limit Values, Annex I (Diário da República - I.a série - No. 26)

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³

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

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0,05 mg/m ³

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

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³
Titanium (CAS 7440-32-6)	STEL	15 mg/m ³
	TWA	10 mg/m ³

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value	Form
Lead (CAS 7439-92-1)	TWA	0,5 mg/m ³	Inhalable fraction.
		0,15 mg/m ³	Respirable fraction.

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
Lead (CAS 7439-92-1)	TWA	0,1 mg/m ³	Inhalable fraction.
Niobium (CAS 7440-03-1)	TWA	5 mg/m ³	Inhalable fraction.

Spain. Occupational Exposure Limits

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0,15 mg/m ³

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

Components	Type	Value	Form
Lead (CAS 7439-92-1)	TWA	0,1 mg/m ³	Inhalable dust.
		0,05 mg/m ³	Respirable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Lead (CAS 7439-92-1)	STEL	0,8 mg/m ³	Inhalable fraction.
	TWA	0,1 mg/m ³	Inhalable fraction.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0,15 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 (CAS 7439-92-1)	TWA	0,15 mg/m ³

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

Components	Value	Determinant	Specimen	Sampling Time
Lead (CAS 7439-92-1)	80 µg/g	Lead	Creatinine in urine	*
	1,5 mg/l	Protoporphyrin	Red blood cells (erythrocytes)	*
	0,7 mg/l	Lead	Blood	*
	15 u/l	Dehydratase δ-aminolevulinic acid	Blood	*

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

Components	Value	Determinant	Specimen	Sampling Time
	2,67 µmol/l	Protoporphyrin	Red blood cells (erythrocytes)	*
	43,68 µmol/mol	Lead	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
Lead (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, (BRA/BGV), Social Affairs and Ministry of Health

Components	Value	Determinant	Specimen	Sampling Time
Lead (CAS 7439-92-1)	1,4 µmol/l	Lead	Blood	*

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

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

Components	Value	Determinant	Specimen	Sampling Time
Lead (CAS 7439-92-1)	300 µg/l	Blei	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
Lead (CAS 7439-92-1)	300 µg/l	lead	Blood	*
	1,5 µmol/l	lead	Blood	*
	100 µmol/mol hb	zinc protoporphyrin (for pre-screening)	Hemoglobin in blood	

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

Luxembourg. Biological limit values (Annex II), Memorial A, n. 96, p. 1948

Components	Value	Determinant	Specimen
Lead (CAS 7439-92-1)	70 µg/ml	Pb	Blood

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

Components	Value	Determinant	Specimen
Lead (CAS 7439-92-1)	70 µg/100 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 (CAS 7439-92-1)	100 µg/l	Lead	Blood	*
	4,03 mg/g	δ-Aminolevulinic acid	Creatinine in urine	
	0,2 mg/g	Coproporphyrin	Creatinine in urine	*
	6 mg/l	δ-Aminolevulinic acid		
	0,3 mg/l	Coproporphyrin	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
Lead (CAS 7439-92-1)	70 µg/dl	Plomo	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
Lead (CAS 7439-92-1)	100 µg/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	Specimen
Lead (CAS 7439-92-1)	70 µg/100 ml	Lead	Blood

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 Explosion-proof general and local exhaust ventilation. 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 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 Solid.

Colour Not available.

Odour Not available.

Odour threshold Not available.

pH Not available.

Melting point/freezing point -218,4 °C (-361,12 °F) estimated

Initial boiling point and boiling range -182,96 °C (-297,33 °F) estimated

Flash point 500,0 °C (932,0 °F) estimated

Evaporation rate	Not available.
Flammability (solid, gas)	Flammable solid.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	6256001,67 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	9,12 g/cm3 estimated
Specific gravity	9,12 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	Acids. 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	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	Abdominal pain.
11.1. Information on toxicological effects	
Acute toxicity	Not known.
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)

Not listed.

IARC Monographs. Overall Evaluation of Carcinogenicity

Lead (CAS 7439-92-1)

2B Possibly carcinogenic to humans.

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 (CAS 7439-92-1)

Toxic for reproduction - category 2.

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

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 Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

Product	Species	Test Results
PbMgNbTiO targets		
Aquatic		
Fish	LC50 Fish	264,2069 mg/l, 96 hours estimated

12.2. Persistence and degradability No data is available on the degradability of this product.

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

Lead (CAS 7439-92-1)

LEAD (PB) 10 ug/l
LEAD (PB) 200 ug/l

Estonia Dangerous substances in soil Data

Lead (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. 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 UN3178

14.2. UN proper shipping name Flammable solid, inorganic, n.o.s.

14.3. Transport hazard class(es)

Class	4.1
Subsidiary risk	-
Label(s)	4.1
Hazard No. (ADR)	40
Tunnel restriction code	E

14.4. Packing group II

14.5. Environmental hazards No.

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

RID

14.1. UN number UN3178

14.2. UN proper shipping name Flammable solid, inorganic, n.o.s.

14.3. Transport hazard class(es)

Class	4.1
Subsidiary risk	-
Label(s)	4.1

14.4. Packing group II

14.5. Environmental hazards No.

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

ADN

14.1. UN number UN3178

14.2. UN proper shipping name Flammable solid, inorganic, n.o.s.

14.3. Transport hazard class(es)

Class	4.1
Subsidiary risk	-
Label(s)	4.1

14.4. Packing group II

14.5. Environmental hazards No.

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

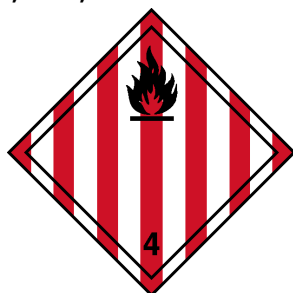
IATA

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

IMDG

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

ADN; ADR; RID



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

Not listed.

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 (CAS 7439-92-1)

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

Lead (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

Lead (CAS 7439-92-1)

Magnesium (CAS 7439-95-4)

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

Not listed.

Other EU regulations

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

Magnesium (CAS 7439-95-4)

Oxygen (CAS 7782-44-7)

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.

Follow national regulation for work with chemical agents in accordance with Directive 98/24/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.