



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	Al2O3-Cr-B-Si-C
Synonyms	None.
Document number	MKE-0285
Issue date	01-February-2017
Version number	02
Revision date	20-October-2017
Supersedes date	01-February-2017

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

Identified uses	Not available.
Uses advised against	None known.

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	Noreen Atkinson

1.4. Emergency telephone number

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

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary

Exposure to powder or dusts may be irritating to eyes, nose and throat. Not classified for health hazards. However, occupational exposure to the mixture or substance(s) 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:	Aluminium oxide, Boron, Carbon, Silicon
Hazard pictograms	None.
Signal word	None.
Hazard statements	The mixture does not meet the criteria for classification.

Precautionary statements

Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.

Supplemental label information

99,2 % of the mixture consists of component(s) of unknown acute oral toxicity. 99,2 % of the mixture consists of component(s) of unknown acute dermal toxicity. 99,2 % of the mixture consists of component(s) of unknown acute inhalation toxicity. 99,2 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 99,2 % 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
Aluminium oxide	48,9	1344-28-1 215-691-6	-	-	
Classification:	-				
Chromium	40,4	7440-47-3 231-157-5	-	-	#
Classification:	Aquatic Chronic 3;H412				
Silicon	6,5	7440-21-3 231-130-8	-	-	
Classification:	-				
Boron	3,4	7440-42-8 231-151-2	-	-	
Classification:	-				
Carbon	0,8	7440-44-0 231-153-3	-	-	
Classification:	Self-heat. 2;H252				

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.

SECTION 4: First aid measures**General information**

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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

Do not rub eyes. 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

Dusts may irritate the respiratory tract, skin and eyes.

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

Treat symptomatically.

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

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 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. Wear appropriate protective equipment and clothing during clean-up. 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 discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. Stop the flow of material, if this is without risk.

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.

6.4. Reference to other sections For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Minimise dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid prolonged exposure. Practice good housekeeping.

7.2. Conditions for safe storage, including any incompatibilities Store in original 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. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	MAK	5 mg/m ³	Respirable fraction.
		5 mg/m ³	Respirable fume.
	STEL	10 mg/m ³	Inhalable fraction.
		20 mg/m ³	Inhalable fraction.
		10 mg/m ³	Respirable fraction.
Carbon (CAS 7440-44-0)	MAK	10 mg/m ³	Respirable fume.
		5 mg/m ³	Respirable dust.
	STEL	10 mg/m ³	Respirable dust.
Chromium (CAS 7440-47-3)	MAK	2 mg/m ³	

Belgium. Exposure Limit Values.

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	1 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	10 mg/m ³	

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	3,5 mg/m ³	Respirable fraction.
Carbon (CAS 7440-44-0)	TWA	3,5 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	MAC	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total dust.
Carbon (CAS 7440-44-0)	MAC	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total dust.
Chromium (CAS 7440-47-3)	MAC	2 mg/m ³	
Silicon (CAS 7440-21-3)	STEL	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total dust.

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	10 mg/m ³	

Czech Republic. OELs. Government Decree 361

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	0,1 mg/m ³	Respirable dust.
Chromium (CAS 7440-47-3)	Ceiling	1,5 mg/m ³	
	TWA	0,5 mg/m ³	Dust.
		0,5 mg/m ³	

Denmark. Exposure Limit Values

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TLV	5 mg/m ³	Total
		2 mg/m ³	Respirable.
Carbon (CAS 7440-44-0)	TLV	2,5 mg/m ³	Respirable.
Chromium (CAS 7440-47-3)	TLV	0,5 mg/m ³	Dust.
Silicon (CAS 7440-21-3)	TLV	10 mg/m ³	

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total dust.
Carbon (CAS 7440-44-0)	TWA	3 mg/m ³	Dust.
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	5 mg/m ³	Respirable dust.
		10 mg/m ³	

Finland. Workplace Exposure Limits

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TWA	2 mg/m ³	
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	VME	10 mg/m ³	
Carbon (CAS 7440-44-0)	VME	5 mg/m ³	Respirable fraction.
		2 mg/m ³	Respirable fraction.
		10 mg/m ³	Inhalable fraction.
Chromium (CAS 7440-47-3)	VME	2 mg/m ³	
Silicon (CAS 7440-21-3)	VME	10 mg/m ³	

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m ³	Inhalable fraction.
		1,5 mg/m ³	Respirable fraction.
Boron (CAS 7440-42-8)	TWA	0,75 mg/m ³	Inhalable fraction.

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	AGW	10 mg/m3	Inhalable fraction.
Carbon (CAS 7440-44-0)	AGW	1,25 mg/m3	Respirable fraction.
		10 mg/m3	Inhalable fraction.
Chromium (CAS 7440-47-3)	AGW	1,25 mg/m3	Respirable fraction.
		2 mg/m3	Inhalable fraction.

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	5 mg/m3	Inhalable
Carbon (CAS 7440-44-0)	TWA	10 mg/m3	Respirable.
		5 mg/m3	Respirable.
Chromium (CAS 7440-47-3)	TWA	10 mg/m3	Inhalable
		1 mg/m3	
Silicon (CAS 7440-21-3)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Inhalable

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces Components

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	6 mg/m3	Respirable.
Carbon (CAS 7440-44-0)	TWA	6 mg/m3	Respirable dust.
		10 mg/m3	Total inhalable dust.
Chromium (CAS 7440-47-3)	TWA	2 mg/m3	

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	10 mg/m3	
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	Dust.
		0,7 mg/m3	
Silicon (CAS 7440-21-3)	TWA	0,5 ppm	

Ireland. Occupational Exposure Limits Components

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m3	Respirable dust.
Carbon (CAS 7440-44-0)	TWA	10 mg/m3	Total inhalable dust.
		4 mg/m3	Respirable dust.
Chromium (CAS 7440-47-3)	TWA	10 mg/m3	Total inhalable dust.
		2 mg/m3	
Silicon (CAS 7440-21-3)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total inhalable dust.

Italy. Occupational Exposure Limits Components

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	1 mg/m3	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m3	

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	6 mg/m3	Decomposition aerosol.
Chromium (CAS 7440-47-3)	TWA	4 mg/m3	
		2 mg/m3	

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

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	2 mg/m3

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A Components

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	2 mg/m3

Netherlands. OELs (binding)

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
Aluminium oxide (CAS 1344-28-1)	TLV	10 mg/m ³
Chromium (CAS 7440-47-3)	TLV	0,5 mg/m ³
Silicon (CAS 7440-21-3)	TLV	10 mg/m ³

Poland. MACs. Regulation regarding maximum permissible concentrations and intensities of harmful factors in the work environment, Annex 1

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	2,5 mg/m ³	Inhalable fraction.
		1,2 mg/m ³	Respirable fraction.
Carbon (CAS 7440-44-0)	TWA	4 mg/m ³	Inhalable fraction.
		1 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³

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

Components	Type	Value
Aluminium oxide (CAS 1344-28-1)	TWA	10 mg/m ³
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	STEL	5 mg/m ³	Aerosol
		2 mg/m ³	Aerosol
Carbon (CAS 7440-44-0)	TWA	2 mg/m ³	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³	

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m ³	Inhalable fraction.
		1,5 mg/m ³	Respirable fraction.
		0,1 mg/m ³	
Silicon (CAS 7440-21-3)	TWA	4 mg/m ³	Respirable fraction.
		10 mg/m ³	Inhalable 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
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³

Spain. Occupational Exposure Limits

Components	Type	Value
Aluminium oxide (CAS 1344-28-1)	TWA	10 mg/m ³
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³

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

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	5 mg/m ³	Total dust.
		2 mg/m ³	Respirable dust.
Carbon (CAS 7440-44-0)	TWA	0,2 fibers/mL	
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	STEL	24 mg/m ³	Fume and respirable dust.
	TWA	3 mg/m ³	Respirable dust.
Chromium (CAS 7440-47-3)	TWA	3 mg/m ³	Fume and respirable dust.
Silicon (CAS 7440-21-3)	TWA	0,5 mg/m ³	Inhalable dust.
	TWA	3 mg/m ³	Respirable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Aluminium oxide (CAS 1344-28-1)	TWA	4 mg/m ³	Respirable dust.
Carbon (CAS 7440-44-0)	TWA	10 mg/m ³	Inhalable dust.
		4 mg/m ³	Respirable dust.
		10 mg/m ³	Inhalable dust.
Chromium (CAS 7440-47-3)	TWA	0,5 mg/m ³	Inhalable dust.
Silicon (CAS 7440-21-3)	TWA	4 mg/m ³	Respirable dust.
		10 mg/m ³	Inhalable dust.

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

Components	Type	Value
Chromium (CAS 7440-47-3)	TWA	2 mg/m ³

Biological limit values**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
Chromium (CAS 7440-47-3)	0,065 µmol/mmol	Total chromium	Creatinine in urine	*
	0,03 mg/g	Total chromium	Creatinine in urine	*

* - 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
Chromium (CAS 7440-47-3)	0,02 mg/g	chromium	Creatinine in urine	*
	0,043 µmol/mmol	chromium	Creatinine in 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
Chromium (CAS 7440-47-3)	25 µg/l	Cromo total	Urine	*
	10 µg/l	Cromo total	Urine	*

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

UK. EH40 Biological Monitoring Guidance Values (BMGVs)

Components	Value	Determinant	Specimen	Sampling time
Chromium (CAS 7440-47-3)	10 umol/mol	Chromium	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 (typically 10 air changes per hour) 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 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 Wear safety glasses with side shields (or goggles).

Skin protection

- **Hand protection** Wear appropriate chemical resistant gloves.
- **Other** Wear suitable protective clothing.

Respiratory protection Wear respirator with dust filter.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures 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 Environmental manager must be informed of all major releases.

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 1410 °C (2570 °F) estimated

Initial boiling point and boiling range 2355 °C (4271 °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 580 °C (1076 °F) estimated

Decomposition temperature Not available.

Viscosity Not available.

Explosive properties Not explosive.

Oxidising properties Not oxidising.

9.2. Other information

Density 5,11 g/cm3 estimated

Specific gravity 5,11 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** Contact with incompatible materials.
- 10.5. Incompatible materials** Acids. Strong oxidising agents. Fluorine. 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** Dust may irritate respiratory system. Prolonged inhalation may be harmful.
- Skin contact** Dust or powder may irritate the skin.
- Eye contact** Dust may irritate the eyes.
- Ingestion** May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

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

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

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

Chromium (CAS 7440-47-3) 3 Not classifiable as to carcinogenicity to humans.

- Reproductive toxicity** Due to partial or complete lack of data the classification is not possible.
- 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** This product has no known adverse effect on human health.

SECTION 12: Ecological information

- 12.1. Toxicity** Due to partial or complete lack of data the classification for hazardous to the aquatic environment, is not possible.
- 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

Boron (CAS 7440-42-8)

Boron (B) 2000 UG/L

Boron (B) 500 UG/L

Chromium (CAS 7440-47-3)

Chromium (Cr) 10 UG/L

Chromium (Cr) 200 UG/L

Estonia Dangerous substances in soil Data

Boron (CAS 7440-42-8)

Boron (B) 100 mg/kg

Boron (B) 30 mg/kg

Boron (B) 500 mg/kg

Chromium (CAS 7440-47-3)

Chromium (Cr) 100 mg/kg

Chromium (Cr) 300 mg/kg

Chromium (Cr) 800 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.

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. (Silicon)

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 III

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. (Silicon)

14.3. Transport hazard class(es)

Class 4.1

Subsidiary risk -

Label(s) 4.1

14.4. Packing group III

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. (Silicon)
14.3. Transport hazard class(es)	
Class	4.1
Subsidiary risk	-
Label(s)	4.1
14.4. Packing group	III
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

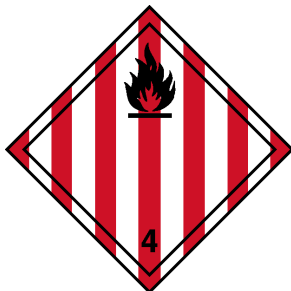
IATA

14.1. UN number	UN3178
14.2. UN proper shipping name	Flammable solid, inorganic, n.o.s. (Silicon)
14.3. Transport hazard class(es)	
Class	4.1
Subsidiary risk	-
14.4. Packing group	III
14.5. Environmental hazards	No.
ERG Code	3L
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	UN3178
14.2. UN proper shipping name	FLAMMABLE SOLID, INORGANIC, N.O.S. (Silicon)
14.3. Transport hazard class(es)	
Class	4.1
Subsidiary risk	-
14.4. Packing group	III
14.5. Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-G
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN; ADR; IATA; IMDG; 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

Not listed.

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

Not listed.

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

Not listed.

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

Not listed.

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. Additional information is given in the Safety Data Sheet.

National regulations

Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

Information on evaluation method leading to the classification of mixture

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

Disclaimer

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