



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 GIGSGEIBBI targets
Registration number -
Document number 2MD
Synonyms None.
Materion Code 2MD
Issue date 24-February-2020
Revision date 24-February-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

Supersedes date 24-February-2020
Version number 03

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

Identified uses Not available.
Uses advised against None known.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

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

Health hazards

Acute toxicity, oral	Category 3	H301 - Toxic if swallowed.
Acute toxicity, inhalation	Category 3	H331 - Toxic if inhaled.
Carcinogenicity	Category 1A	H350 - May cause cancer.
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, long-term aquatic hazard	Category 2	H411 - Toxic to aquatic life with long lasting effects.
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Hazard summary

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

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended**Contains:** Arsenic, Carbon, Germanium, Indium, Selenium, Tellurium**Hazard pictograms****Signal word** Danger**Hazard statements**

H301 Toxic if swallowed.
 H331 Toxic if inhaled.
 H350 May cause cancer.
 H373 May cause damage to organs through prolonged or repeated exposure.
 H411 Toxic to aquatic life with long lasting effects.

Precautionary statements**Prevention**

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

Response

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTRE/doctor.
 P330 Rinse mouth.
 P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P311 Call a POISON CENTRE/doctor.
 P391 Collect spillage.

Storage

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

Disposal

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

Supplemental label information

None.

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
Tellurium	35 - < 40	13494-80-9 236-813-4	-	-	
Classification:	Acute Tox. 3;H301				
Arsenic		7440-38-2 231-148-6	-	033-001-00-X	
Classification:	Acute Tox. 3;H301, Acute Tox. 3;H331, Carc. 1A;H350, Aquatic Acute 1;H400, Aquatic Chronic 1;H410				
Carbon		7440-44-0 231-153-3	-	-	
Classification:	Self-heat. 2;H252				
Germanium		7440-56-4 231-164-3	-	-	
Classification:	-				

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Indium		7440-74-6 231-180-0	-	-	
Classification:	-				
Selenium		7782-49-2 231-957-4	-	034-001-00-2	
Classification:	Acute Tox. 3;H301, Acute Tox. 3;H331, STOT RE 2;H373				

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

SECTION 4: First aid measures

General information

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

4.1. Description of first aid measures

Inhalation

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

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

Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

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

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

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

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

SECTION 5: Firefighting measures

General fire hazards

No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media

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

For emergency responders

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

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

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

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

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

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

6.4. Reference to other sections

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	MAK	5 mg/m ³	Respirable dust.
	STEL	10 mg/m ³	Respirable dust.
Indium (CAS 7440-74-6)	MAK	0,1 mg/m ³	Inhalable fraction.
	STEL	0,2 mg/m ³	Inhalable fraction.
Selenium (CAS 7782-49-2)	MAK	0,1 mg/m ³	Inhalable fraction.
	STEL	0,3 mg/m ³	Inhalable fraction.
Tellurium (CAS 13494-80-9)	MAK	0,1 mg/m ³	Inhalable fraction.
	STEL	0,5 mg/m ³	Inhalable fraction.

Belgium. Exposure Limit Values.

Components	Type	Value
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m ³
Indium (CAS 7440-74-6)	TWA	0,1 mg/m ³
Selenium (CAS 7782-49-2)	TWA	0,2 mg/m ³
Tellurium (CAS 13494-80-9)	TWA	0,1 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
Arsenic (CAS 7440-38-2)	TWA	0,05 mg/m ³	
Carbon (CAS 7440-44-0)	TWA	3,5 mg/m ³	Respirable fraction.
Selenium (CAS 7782-49-2)	TWA	0,2 mg/m ³	
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	

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

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	MAC	0,1 mg/m ³	
Carbon (CAS 7440-44-0)	MAC	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total dust.
Indium (CAS 7440-74-6)	MAC	0,1 mg/m ³	
	STEL	0,3 mg/m ³	
Selenium (CAS 7782-49-2)	MAC	0,1 mg/m ³	
Tellurium (CAS 13494-80-9)	MAC	0,1 mg/m ³	

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

Components	Type	Value
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m ³
Carbon (CAS 7440-44-0)	TWA	10 mg/m ³
Selenium (CAS 7782-49-2)	TWA	0,2 mg/m ³

Czech Republic. OELs. Government Decree 361

Components	Type	Value
Arsenic (CAS 7440-38-2)	Ceiling	0,4 mg/m ³
	TWA	0,1 mg/m ³
Selenium (CAS 7782-49-2)	Ceiling	0,2 mg/m ³
	TWA	0,1 mg/m ³
Tellurium (CAS 13494-80-9)	Ceiling	0,5 mg/m ³
	TWA	0,1 mg/m ³

Denmark. Exposure Limit Values

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	TLV	2,5 mg/m ³	Respirable.
Indium (CAS 7440-74-6)	TLV	0,1 mg/m ³	Dust.
Tellurium (CAS 13494-80-9)	TLV	0,1 mg/m ³	Dust.

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

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,03 mg/m ³	
Carbon (CAS 7440-44-0)	TWA	3 mg/m ³	Dust.
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m ³	
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	

Finland. Workplace Exposure Limits

Components	Type	Value
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m ³
Carbon (CAS 7440-44-0)	TWA	2 mg/m ³
Indium (CAS 7440-74-6)	TWA	0,1 mg/m ³
Selenium (CAS 7782-49-2)	STEL	0,3 mg/m ³
	TWA	0,1 mg/m ³
Tellurium (CAS 13494-80-9)	STEL	0,3 mg/m ³
	TWA	0,1 mg/m ³

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	VME	5 mg/m ³	Respirable fraction.
Regulatory status: Regulatory binding (VRC)		2 mg/m ³	Respirable fraction.
Regulatory status: Indicative limit (VL)			

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

Components	Type	Value	Form
		10 mg/m ³	Inhalable fraction.
Regulatory status: Regulatory binding (VRC)			
Tellurium (CAS 13494-80-9)	VME	0,1 mg/m ³	
Regulatory status: Indicative limit (VL)			

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
Selenium (CAS 7782-49-2)	TWA	0,02 mg/m ³	Inhalable fraction.

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

Components	Type	Value	Form
Carbon (CAS 7440-44-0)	AGW	10 mg/m ³	Inhalable fraction.
		1,25 mg/m ³	Respirable fraction.
Indium (CAS 7440-74-6)	AGW	0,0001 mg/m ³	Respirable fraction.
Selenium (CAS 7782-49-2)	AGW	0,05 mg/m ³	Inhalable fraction.

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

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,1 mg/m ³	
Carbon (CAS 7440-44-0)	TWA	5 mg/m ³	Respirable.
		10 mg/m ³	Inhalable
Indium (CAS 7440-74-6)	STEL	1 mg/m ³	
	TWA	1 mg/m ³	
Selenium (CAS 7782-49-2)	TWA	0,2 mg/m ³	
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	Ceiling	0,01 mg/m ³	
Carbon (CAS 7440-44-0)	TWA	6 mg/m ³	Respirable dust.
		10 mg/m ³	Total inhalable dust.
Selenium (CAS 7782-49-2)	STEL	0,4 mg/m ³	
	TWA	0,1 mg/m ³	

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

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m ³	
Indium (CAS 7440-74-6)	TWA	0,1 mg/m ³	Dust.
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m ³	
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	Dust.

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m ³	
Carbon (CAS 7440-44-0)	TWA	4 mg/m ³	Respirable dust.
		10 mg/m ³	Total inhalable dust.
Indium (CAS 7440-74-6)	STEL	0,3 mg/m ³	
	TWA	0,1 mg/m ³	
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m ³	
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	

Italy. Occupational Exposure Limits

Components	Type	Value
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m ³

Italy. Occupational Exposure Limits Components

Components	Type	Value
Indium (CAS 7440-74-6)	TWA	0,1 mg/m3
Selenium (CAS 7782-49-2)	TWA	0,2 mg/m3
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m3

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

Components	Type	Value
Tellurium (CAS 13494-80-9)	TWA	0,01 mg/m3

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

Components	Type	Value
Arsenic (CAS 7440-38-2)	TWA	0,03 mg/m3
Germanium (CAS 7440-56-4)	TWA	2 mg/m3
Indium (CAS 7440-74-6)	TWA	0,1 mg/m3
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m3
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m3

Netherlands. OELs (binding) Components

Components	Type	Value
Arsenic (CAS 7440-38-2)	TWA	0,0028 mg/m3

Norway. Administrative Norms for Contaminants in the Workplace Components

Components	Type	Value
Arsenic (CAS 7440-38-2)	TLV	0,01 mg/m3
Indium (CAS 7440-74-6)	TLV	0,1 mg/m3
Selenium (CAS 7782-49-2)	TLV	0,05 mg/m3
Tellurium (CAS 13494-80-9)	TLV	0,1 mg/m3

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

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m3	
Carbon (CAS 7440-44-0)	TWA	4 mg/m3	Inhalable fraction.
		1 mg/m3	Respirable fraction.
Selenium (CAS 7782-49-2)	STEL	0,3 mg/m3	
	TWA	0,1 mg/m3	
Tellurium (CAS 13494-80-9)	STEL	0,03 mg/m3	
	TWA	0,01 mg/m3	

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

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m3	
Carbon (CAS 7440-44-0)	TWA	2 mg/m3	Respirable fraction.
		0,1 mg/m3	
Selenium (CAS 7782-49-2)	TWA	0,2 mg/m3	
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m3	

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

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	STEL	0,1 mg/m3	
	TWA	0,01 mg/m3	
Carbon (CAS 7440-44-0)	TWA	2 mg/m3	Respirable fraction.
	STEL	5 mg/m3	
Selenium (CAS 7782-49-2)	TWA	2 mg/m3	
	STEL	0,2 mg/m3	

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

Components	Type	Value	Form
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	
	STEL	0,15 mg/m ³	
	TWA	0,05 mg/m ³	

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

Components	Type	Value	Form
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m ³	
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	

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
Indium (CAS 7440-74-6)	TWA	0,1 mg/m ³	Inhalable fraction.
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m ³	Inhalable fraction.
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	Inhalable fraction.

Spain. Occupational Exposure Limits

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m ³	
Indium (CAS 7440-74-6)	TWA	0,1 mg/m ³	
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m ³	
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	

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

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,01 mg/m ³	Total dust.
Carbon (CAS 7440-44-0)	TWA	0,2 fibers/ml	
		5 mg/m ³	Inhalable dust.
		2,5 mg/m ³	Respirable dust.
Indium (CAS 7440-74-6)	TWA	0,1 mg/m ³	Total dust.
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m ³	Total dust.
Tellurium (CAS 13494-80-9)	TWA	0,1 mg/m ³	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Indium (CAS 7440-74-6)	TWA	0,1 mg/m ³	Inhalable fraction.
Selenium (CAS 7782-49-2)	STEL	0,16 mg/m ³	Inhalable fraction.
	TWA	0,02 mg/m ³	Inhalable fraction.
Tellurium (CAS 13494-80-9)	STEL	0,2 mg/m ³	Inhalable fraction.
	TWA	0,1 mg/m ³	Inhalable fraction.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Arsenic (CAS 7440-38-2)	TWA	0,1 mg/m ³	
Carbon (CAS 7440-44-0)	TWA	4 mg/m ³	Respirable dust.
		10 mg/m ³	Inhalable dust.
Indium (CAS 7440-74-6)	STEL	0,3 mg/m ³	
	TWA	0 ppm	
Selenium (CAS 7782-49-2)	TWA	0,1 mg/m ³	
	TWA	0,1 mg/m ³	
Tellurium (CAS 13494-80-9)	TWA	0,1 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
Arsenic (CAS 7440-38-2)	70 µg/l	Arsenic	Urine	*
	0,93 µmol/l	Arsenic	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
Arsenic (CAS 7440-38-2)	0,075 µmol/mmol	Arsenic	Creatinine in urine	*
	0,05 mg/g	Arsenic	Creatinine in urine	*

* - 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
Arsenic (CAS 7440-38-2)	70 nmol/l	Inorganic arsenic	Urine	*

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

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

Components	Value	Determinant	Specimen	Sampling Time
Arsenic (CAS 7440-38-2)	0,05 mg/g	Métabolites de l'arsenic inorganique	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
Arsenic (CAS 7440-38-2)	0,13 mg/g	Arsenic	Creatinine in urine	*
	0,2 µmol/mmol	Arsenic	Creatinine in urine	*
Selenium (CAS 7782-49-2)	0,075 mg/g	Selenium	Creatinine in urine	*
	0,11 µmol/mmol	Selenium	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
Arsenic (CAS 7440-38-2)	35 µg/l	Arsénico inorgánico más metabolitos metilados como As	Urine	*

* - 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
Arsenic (CAS 7440-38-2)	50 µg/l	Anorganisches Arsen und methylierte Metaboliten	Urine	*

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

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls

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

Individual protection measures, such as personal protective equipment

General information

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

Eye/face protection

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

Skin protection

- Hand protection

Wear appropriate chemical resistant gloves.

- Other

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

Respiratory protection

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

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

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

Environmental exposure controls

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Solid.
Physical state	Solid.
Form	Not available.
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	156,6 °C (313,88 °F) estimated
Initial boiling point and boiling range	685 °C (1265 °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	10971,9 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	452 °C (845,6 °F) estimated
Decomposition temperature	Not available.

Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2. Other information

Density	5,10 g/cm ³ estimated
Specific gravity	5,1 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. 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	Toxic if inhaled.
Skin contact	Dust or powder may irritate the skin.
Eye contact	Dust may irritate the eyes.
Ingestion	Toxic if swallowed.

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

11.1. Information on toxicological effects

Acute toxicity Toxic if inhaled. Toxic if swallowed.

Components	Species	Test Results
Carbon (CAS 7440-44-0)		
Acute		
Oral		
LD50	Rat	> 10000 mg/kg
Tellurium (CAS 13494-80-9)		
Acute		
Oral		
LD50	Rat	83 mg/kg
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.	
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.	
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.	
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.	
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.	
Carcinogenicity	May cause 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		
Arsenic (CAS 7440-38-2)	1 Carcinogenic to humans.	
Selenium (CAS 7782-49-2)	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	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.

Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity Toxic to aquatic life with long lasting effects. Based on available data, the classification criteria are not met for hazardous to the aquatic environment, acute hazard.

Product	Species	Test Results
GIGSGEIBBI targets		
Aquatic		
Fish	LC50 Fish	90,3697 mg/l, 96 hours estimated
Components	Species	Test Results

Arsenic (CAS 7440-38-2)

Aquatic

Fish LC50 Fathead minnow (*Pimephales promelas*) 9,9 mg/l, 96 hours

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

12.3. Bioaccumulative potential No data available.

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

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

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

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

12.7. Additional information

Estonia Dangerous substances in groundwater Data

Arsenic (CAS 7440-38-2)	ARSENIC (AS) 100 ug/l
	ARSENIC (AS) 5 ug/l
Selenium (CAS 7782-49-2)	Selenium (Se) 5 ug/l
	Selenium (Se) 50 ug/l

Estonia Dangerous substances in soil Data

Arsenic (CAS 7440-38-2)	ARSENIC (AS) 20 mg/kg
	ARSENIC (AS) 30 mg/kg
	ARSENIC (AS) 50 mg/kg
Selenium (CAS 7782-49-2)	Selenium (Se) 1 mg/kg
	Selenium (Se) 20 mg/kg
	Selenium (Se) 5 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

EU waste code Not available.

Disposal methods/information Dispose of contents/container in accordance with local/regional/national/international regulations.

Special precautions Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

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

RID

14.1. UN number UN3077

14.2. UN proper shipping name Environmentally hazardous substance, solid, n.o.s.

14.3. Transport hazard class(es)

Class 9

Subsidiary risk -

Label(s) 9

14.4. Packing group III

14.5. Environmental hazards Yes

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

ADN

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

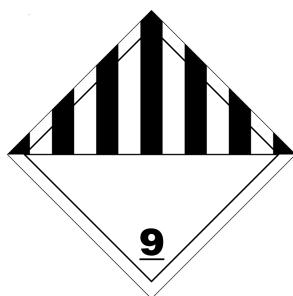
IATA

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

IMDG

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

RID



Marine pollutant



General information

IMDG Regulated Marine Pollutant.

SECTION 15: Regulatory information

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

EU regulations

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

Not listed.

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

Not listed.

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

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

Arsenic (CAS 7440-38-2)

Carbon (CAS 7440-44-0)

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

Arsenic (CAS 7440-38-2)

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

Arsenic (CAS 7440-38-2)

Selenium (CAS 7782-49-2)

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. Follow national regulation on the protection of workers from the risks of exposure to carcinogens and mutagens at work, in accordance with Directive 2004/37/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

References

Not available.

Training information

Follow training instructions when handling this material.

Disclaimer

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