

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Name of the substance            Strontium  
Identification number            231-133-4 (EC number)  
Registration number            -  
Document number                1VG  
Synonyms                         None.  
Materion Code                    1VG  
Issue date                        22-February-2017  
Version number                 05  
Revision date                    02-November-2021

**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                26-January-2021

**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 substance 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**

Substances and mixtures which, in contact with water, emit flammable gases            Category 1

H260 - In contact with water releases flammable gases which may ignite spontaneously.

**Hazard summary**

In contact with water releases flammable gases which may ignite spontaneously. 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:                        Barium, Calcium, Strontium

**Hazard pictograms**

Signal word                     Danger

**Hazard statements**

H260

In contact with water releases flammable gases which may ignite spontaneously.

**Precautionary statements****Prevention**

P223

Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231 + P232

Handle under inert gas. Protect from moisture.

P280

Wear protective gloves/eye protection/face protection.

**Response**

P335 + P334

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

P370 + P378

In case of fire: Use appropriate media for extinction.

**Storage**

P402 + P404

Store in a dry place. Store in a closed container.

**Disposal**

P501

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

**Supplemental label information**

For further information, please contact the Product Stewardship Department at +1.800.862.4118.

**2.3. Other hazards**

This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

**SECTION 3: Composition/information on ingredients****3.1. Substances****General information**

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Strontium	99,5	7440-24-6 231-133-4	-	-	
<b>Classification:</b> -					
Barium	0,25	7440-39-3 231-149-1	-	-	
<b>Classification:</b> Water-React. 2;H261					
Calcium	0,1	7440-70-2 231-179-5	-	020-001-00-X	
<b>Classification:</b> Water-React. 2;H261					
Trace metals	0,15				

**Additional components**

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
			-	-	

**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**

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**

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Get medical attention if irritation develops and persists.

**Eye contact**

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

**Ingestion**

Rinse mouth. Get medical attention if symptoms occur.

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

Exposure may cause temporary irritation, redness, or discomfort.

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

## SECTION 5: Firefighting measures

General fire hazards  
In contact with water releases flammable gases which may ignite spontaneously.

5.1. Extinguishing media  
Suitable extinguishing media  
Powder. Dry sand.  
Unsuitable extinguishing media  
Water. 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  
Do not get water inside container.

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  
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  
Do not get water on spilled substance or inside containers. Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

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  
Keep away from any possible contact with water, because of violent reaction and possible flash fire. Handle under inert gas. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities  
Never allow product to get in contact with water during storage. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a dry 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

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

Material	Type	Value
Strontium	TWA	1 mg/m <sup>3</sup>
Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>
Strontium (CAS 7440-24-6)	TWA	1 mg/m <sup>3</sup>

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

Components	Type	Value
Barium (CAS 7440-39-3)	MAC	0,5 mg/m <sup>3</sup>

**Czech Republic. OELs. Government Decree 361**

Components	Type	Value
Barium (CAS 7440-39-3)	Ceiling	2,5 mg/m <sup>3</sup>
	TWA	0,5 mg/m <sup>3</sup>

**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
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.

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

Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

**Italy. Occupational Exposure Limits**

Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

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

Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

**Netherlands. OELs (binding)**

Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

**Norway. Administrative Norms for Contaminants in the Workplace**

Components	Type	Value
Barium (CAS 7440-39-3)	TLV	0,5 mg/m <sup>3</sup>

**Poland. 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
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

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

Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

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

Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

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

Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

**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
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.

**Spain. Occupational Exposure Limits**

Components	Type	Value
Barium (CAS 7440-39-3)	TWA	0,5 mg/m <sup>3</sup>

**Switzerland. SUVA Grenzwerte am Arbeitsplatz**

Components	Type	Value	Form
Barium (CAS 7440-39-3)	STEL	4 mg/m <sup>3</sup>	Inhalable fraction.
	TWA	0,5 mg/m <sup>3</sup>	Inhalable fraction.

**Biological limit values** No biological exposure limits noted for the ingredient(s).**Recommended monitoring procedures** Follow standard monitoring procedures.

Derived no effect levels (DNELs)	Not available.
Predicted no effect concentrations (PNECs)	Not available.
<b>8.2. Exposure controls</b>	
<b>Appropriate engineering controls</b>	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.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>General information</b>	Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Skin protection</b>	
- Hand protection	Wear appropriate chemical resistant gloves.
- Other	Wear suitable protective clothing.
<b>Respiratory protection</b>	In case of insufficient ventilation, wear suitable respiratory equipment.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>Hygiene measures</b>	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.
<b>Environmental exposure controls</b>	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	
Physical state	Solid.
Form	Solid.
Colour	Not available.
<b>Odour</b>	Not available.
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	752 °C (1385,6 °F)
<b>Initial boiling point and boiling range</b>	1390 °C (2534 °F)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
<b>Vapour pressure</b>	< 0,0000001 kPa (25 °C (77 °F))
<b>Vapour density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	
Solubility (water)	Not available.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Explosive properties</b>	Not explosive.

Oxidising properties Not oxidising.

## 9.2. Other information

Molecular formula Sr  
Molecular weight 87,62 g/mol

## SECTION 10: Stability and reactivity

10.1. Reactivity In contact with water releases flammable gases.  
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 Exposure to moisture. Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials.  
10.5. Incompatible materials Water.  
10.6. Hazardous decomposition products No hazardous decomposition products are known.

## SECTION 11: Toxicological information

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

### Information on likely routes of exposure

Inhalation Prolonged inhalation may be harmful.  
Skin contact No adverse effects due to skin contact are expected.  
Eye contact Direct contact with eyes may cause temporary irritation.  
Ingestion May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

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

### 11.1. Information on 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.

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 Not available.

## 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.

Components	Species	Test Results
Barium (CAS 7440-39-3)		
<b>Aquatic</b>		
<i>Acute</i>		
Fish	LC50	Sheepshead minnow (Cyprinodon variegatus) > 500 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

<b>12.2. Persistence and degradability</b>	No data is available on the degradability of this product.
<b>12.3. Bioaccumulative potential</b>	No data available.
<b>Partition coefficient n-octanol/water (log Kow)</b>	Not available.
<b>Bioconcentration factor (BCF)</b>	Not available.
<b>12.4. Mobility in soil</b>	No data available.
<b>12.5. Results of PBT and vPvB assessment</b>	This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.
<b>12.6. Other adverse effects</b>	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 soil Data

Barium (CAS 7440-39-3)	Barium (Ba) 2000 mg/kg
	Barium (Ba) 500 mg/kg
	Barium (Ba) 750 mg/kg

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Residual waste</b>	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).
<b>Contaminated packaging</b>	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.
<b>EU waste code</b>	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Disposal methods/information</b>	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.
<b>Special precautions</b>	Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

<b>14.1. UN number</b>	UN3208
<b>14.2. UN proper shipping name</b>	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.
<b>14.3. Transport hazard class(es)</b>	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
Hazard No. (ADR)	Not available.
Tunnel restriction code	E
<b>14.4. Packing group</b>	I
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### RID

<b>14.1. UN number</b>	UN3208
<b>14.2. UN proper shipping name</b>	Metallic substance, water-reactive, n.o.s.

**14.3. Transport hazard class(es)**

Class 4.3  
Subsidiary risk -  
Label(s) 4.3

**14.4. Packing group**

I

**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** UN3208

**14.2. UN proper shipping name** METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.

**14.3. Transport hazard class(es)**

Class 4.3  
Subsidiary risk -  
Label(s) 4.3

**14.4. Packing group**

I

**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** UN3208

**14.2. UN proper shipping name** Metallic substance, water-reactive, n.o.s.

**14.3. Transport hazard class(es)**

Class 4.3  
Subsidiary risk -

**14.4. Packing group**

I

**14.5. Environmental hazards**

No.

**ERG Code** 4W

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

**Other information**

**Passenger and cargo aircraft** Forbidden

**Cargo aircraft only** Allowed with restrictions.

**IMDG**

**14.1. UN number** UN3208

**14.2. UN proper shipping name** METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.

**14.3. Transport hazard class(es)**

Class 4.3  
Subsidiary risk -

**14.4. Packing group**

I

**14.5. Environmental hazards**

**Marine pollutant** No.

**EmS** F-G, S-N

**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 (EU) 2019/1021 On persistent organic pollutants (recast), as amended  
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended  
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  
Calcium (CAS 7440-70-2)

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  
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.

#### National regulations

Follow national regulation for work with chemical agents.

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

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.  
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.  
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).  
CAS: Chemical Abstract Service.  
CEN: European Committee for Standardization.  
IATA: International Air Transport Association.  
IBC: Intermediate Bulk Container.  
IMDG: International Maritime Dangerous Goods.  
MAC: Maximum Allowed Concentration.  
MARPOL: International Convention for the Prevention of Pollution from Ships.  
PBT: Persistent, bioaccumulative, toxic.  
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.  
STEL: Short term exposure limit.

TLV: Threshold Limit Value.  
TWA: Time Weighted Average.  
VLE: Exposure Limit Value.  
VME: Exposure Average Value.  
vPvB: Very persistent and very bioaccumulative.

**References**

Not available.

**Information on evaluation method leading to the classification of mixture**

Not applicable.

**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.