



SAFETY DATA SHEET

MATERION

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

1.1. Product identifier

Name of the substance Barium silicide
Identification number 056-002-00-7 (Index number)
Synonyms Barium silicide (BaSi₂) * Barium silicide * Barium disilicide
Issue date 18-April-2015
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.

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

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification Xn;R20/22

The full text for all R-phrases is displayed in section 16.

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

Physical hazards

Substances and mixtures which, in contact with water, emit flammable gases Category 3 H261 - In contact with water releases flammable gases.

Health hazards

Acute toxicity, oral Category 4
Acute toxicity, inhalation Category 4

Hazard summary

Physical hazards Not classified for physical hazards.
Health hazards Harmful by inhalation and if swallowed. Occupational exposure to the substance or mixture may cause adverse health effects.
Environmental hazards Not classified for hazards to the environment.
Specific hazards Harmful by inhalation and if swallowed.
Main symptoms Not available.

2.2. Label elements

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

Contains: Barium silicide

Hazard pictograms



Signal word

Warning

Hazard statements

H261
H302 + H332

In contact with water releases flammable gases.
Harmful if swallowed or if inhaled

Precautionary statements

Prevention

P271
P231 + P232
P261
P264
P270
P280

Use only outdoors or in a well-ventilated area.
Handle under inert gas. Protect from moisture.
Avoid breathing dust/fume.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/eye protection/face protection.

Response

P370 + P378
P301 + P312
P304 + P340
P312
P330

In case of fire: Use appropriate media for extinction.
IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTRE or doctor/physician if you feel unwell.
Rinse mouth.

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

Not applicable.

2.3. Other hazards

The Safety Information Sheet Chemicals of hazardous chemical can be obtained through phone, email or on the company website.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Barium silicide	100	1304-40-1 215-131-0	-	056-002-00-7	#
Classification:	DSD: Xn;R20/22				A,1
	CLP: Water-React. 3;H261				1,A

CLP: Regulation No. 1272/2008.

DSD: Directive 67/548/EEC.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret. #: This substance has been assigned Community workplace exposure limit(s).

Composition comments

The full text for all R- and H-phrases 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. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation.

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. Get medical attention immediately.

Skin contact	Wash the skin immediately 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. Do not induce vomiting without medical advice. 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. IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.

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

Direct contact with eyes may cause temporary irritation.

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

Provide general supportive measures and treat symptomatically. Treat symptomatically. In case of shortness of breath, give oxygen. Oxygen, if needed. 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 chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media

Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

In contact with water releases flammable gases.

5.3. Advice for firefighters

Special protective equipment for firefighters

Wear suitable protective equipment.

Special firefighting procedures

If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Do not get water inside container.

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. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8.

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 dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Do not get water on spilled substance or inside containers. Prevent entry into waterways, sewer, basements or confined areas. 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.

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

Handle under inert gas. Protect from moisture. Minimise dust generation and accumulation. All equipment used when handling the product must be grounded. Do not taste or swallow. Avoid breathing dust. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store in a dry place. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers.

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

UK. EH40 Workplace Exposure Limits (WELs)

Material	Type	Value
Barium silicide (CAS 1304-40-1)	TWA	0.5 mg/m ³

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

Material	Type	Value
Barium silicide (CAS 1304-40-1)	TWA	0.5 mg/m ³

Biological limit values

No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no-effect level (DNEL)

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.

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

Wear eye/face protection. If contact is likely, safety glasses with side shields are recommended.

Skin protection

- Hand protection

Wear protective gloves.

- Other

Wear suitable protective clothing. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

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

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	Solid.
Colour	Not available.

Material name: Barium silicide

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SDS UK

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Odour	Not applicable.
Odour threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
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	Not available.
Vapour density	Not applicable.
Relative density	Not applicable.
Solubility(ies)	
Solubility (water)	Not applicable.
Solubility (other)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidizing properties	Not applicable.

9.2. Other information

Molecular formula BaSi2

SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
10.2. Chemical stability	Risk of ignition.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Moisture. Contact with water liberates flammable gas. Contact with incompatible materials.
10.5. Incompatible materials	None known.
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

Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Skin contact	Due to lack of data the classification is not possible.
Eye contact	Due to lack of data the classification is not possible.

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

11.1. Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful if swallowed.
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	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
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	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
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 available.
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.

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). Avoid discharge into water courses or onto the ground.
Packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company. Waste codes should be assigned by the user based on the application for which the product was used.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN2813
14.2. UN proper shipping name	Water-reactive solid, n.o.s.
14.3. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
Label(s)	4.3
Hazard No. (ADR)	Not available.
Tunnel restriction code	Not available.
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 UN2813
14.2. UN proper shipping name Water-reactive solid, n.o.s.
14.3. Transport hazard class(es)
 Class 4.3
 Subsidiary risk -
 Label(s) 4.3
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 UN2813
14.2. UN proper shipping name Water-reactive solid, n.o.s.
14.3. Transport hazard class(es)
 Class 4.3
 Subsidiary risk -
 Label(s) 4.3
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 UN2813
14.2. UN proper shipping name Water-reactive solid, n.o.s.
14.3. Transport hazard class(es)
 Class 4.3
 Subsidiary risk -
14.4. Packing group III
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 Allowed.
 Cargo aircraft only Allowed.

IMDG

14.1. UN number UN2813
14.2. UN proper shipping name WATER-REACTIVE SOLID, N.O.S.
14.3. Transport hazard class(es)
 Class 4.3
 Subsidiary risk -
14.4. Packing group III
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.



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

Not listed.

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

Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1) 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 Annex XVII Substances subject to restriction on marketing and use

Not regulated.

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

Not listed.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not listed.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Barium silicide (CAS 1304-40-1)

Directive 94/33/EC on the protection of young people at work

Not listed.

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

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.

References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents

Information on evaluation method leading to the classification of mixture

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

Full text of any statements or R-phrases and H-statements under Sections 2 to 15

R20/22 Harmful by inhalation and if swallowed.
H261 In contact with water releases flammable gases.
H302 + H332 Harmful if swallowed or if inhaled

Revision information

Product and Company Identification: Synonyms
Transport Information: Product Shipping Name/Packing Group

Training information

Follow training instructions when handling this material.

Disclaimer

Additional information is given in the Material Safety Data Sheet.

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.

The information in the sheet was written based on the best knowledge and experience currently available.