



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 Bromate Powder
Identification number 056-002-00-7 (Index number)
Synonyms Bromic acid, barium salt * Barium bromate
Document number 1NJ
Materion Code 1NJ
Issue date 11-January-2018
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 Regulation (EC) No 1272/2008 as amended

Physical hazards

Oxidising solids Category 2 H272 - May intensify fire; oxidiser.

Health hazards

Acute toxicity, oral Category 4 H302 - Harmful if swallowed.

Acute toxicity, inhalation Category 4 H332 - Harmful if inhaled.

Hazard summary May intensify fire; oxidiser. Harmful if inhaled. Harmful if swallowed.

2.2. Label elements

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

Contains: Barium Bromate

Hazard pictograms



Signal word Danger

Hazard statements

H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H332 Harmful if inhaled.

Precautionary statements

Prevention

P210 Keep away from heat.
 P221 Take any precaution to avoid mixing with combustibles.
 P261 Avoid breathing dust/fume.
 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.
 P280 Wear protective gloves/eye protection/face protection.

Response

P370 + P378 In case of fire: Use appropriate media for extinction.
 P301 + P312 IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P312 Call a POISON CENTRE or doctor/physician if you feel unwell.
 P330 Rinse mouth.

Storage

Not available.

Disposal

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

Supplemental label information

None.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Barium Bromate	90 - 100	13967-90-3 237-750-5	-	056-002-00-7	#
Classification:	Ox. Sol. 2;H272, Acute Tox. 4;H302, Acute Tox. 4;H332				1,A

List of abbreviations and symbols that may be used above

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.
 #: 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).

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 CENTRE or doctor/physician if you feel unwell.

Skin contact

Get medical attention if irritation develops and persists.

Eye contact

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

Ingestion

IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell. Get medical advice/attention if you feel unwell. Rinse mouth.

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

Not available.

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. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards

May intensify fire; oxidiser.

5.1. Extinguishing media	
Suitable extinguishing media	Water.
Unsuitable extinguishing media	None known.
5.2. Special hazards arising from the substance or mixture	May intensify fire; oxidiser.
5.3. Advice for firefighters	
Special protective equipment for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Special firefighting procedures	In the event of fire, cool tanks with water spray. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	Cool containers exposed to flames with water until well after the fire is out.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Local authorities should be advised if significant spillages cannot be contained. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protective equipment. Ventilate closed spaces before entering them.
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 ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. 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 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Keep away from heat. Minimise dust generation and accumulation. Take any precaution to avoid mixing with combustibles. Do not taste or swallow. Avoid breathing dust. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities Keep away from heat. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Do not store near combustible materials. Keep out of the reach of children.

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

Material	Type	Value	Form
Barium Bromate (CAS 13967-90-3)	MAK	0,5 mg/m ³	Inhalable fraction.
	STEL	2 mg/m ³	Inhalable fraction.

Belgium. Exposure Limit Values.

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	MAC	0,5 mg/m ³

Czech Republic. OELs. Government Decree 361

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	Ceiling	2,5 mg/m ³
	TWA	0,5 mg/m ³

Denmark. Exposure Limit Values

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TLV	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

Finland. Workplace Exposure Limits

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	VME	0,5 mg/m ³

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

Material	Type	Value	Form
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³	Inhalable fraction.

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

Material	Type	Value	Form
Barium Bromate (CAS 13967-90-3)	AGW	0,5 mg/m ³	Inhalable fraction.

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

Ireland. Occupational Exposure Limits

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

Italy. Occupational Exposure Limits

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

Netherlands. OELs (binding)

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

Norway. Administrative Norms for Contaminants in the Workplace

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TLV	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 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)

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

Spain. Occupational Exposure Limits

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³

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

Material	Type	Value	Form
Barium Bromate (CAS 13967-90-3)	TWA	0,5 mg/m ³	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value	Form
Barium Bromate (CAS 13967-90-3)	STEL	4 mg/m ³	Inhalable dust.
	TWA	0,5 mg/m ³	Inhalable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Material	Type	Value
Barium Bromate (CAS 13967-90-3)	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 Bromate (CAS 13967-90-3)	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 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.

Individual protection measures, such as personal protective equipment

General information Not available.

Eye/face protection Wear eye/face protection.

Skin protection

- Hand protection Not normally needed.

- Other Wear suitable protective clothing. Wear protective gloves. 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 Not available.

Hygiene measures When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practices.

Environmental exposure controls Not available.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties****Appearance**

Physical state Solid.

Form Solid. Powder.

Colour Not available.

Odour Not available.

Odour threshold Not available.

pH Not available.

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)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	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.
Oxidising properties	Not available.

9.2. Other information

Molecular formula Ba₂BrHO₃

SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
10.2. Chemical stability	Risk of ignition. 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	Excessive heat.
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

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.
Ingestion	Harmful if swallowed.

Symptoms Not available.

11.1. Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful if swallowed.
Skin corrosion/irritation	Due to lack of data the classification is not possible.
Serious eye damage/eye irritation	Due to lack of data the classification is not possible.
Respiratory sensitisation	Due to lack of data the classification is not possible.
Skin sensitisation	Due to lack of data the classification is not possible.
Germ cell mutagenicity	Due to lack of data the classification is not possible.
Carcinogenicity	Due to 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 lack of data the classification is not possible.

Specific target organ toxicity - single exposure Due to lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure	Due to lack of data the classification is not possible.
Aspiration hazard	Due to lack of data the classification is not possible.
Mixture versus substance information	Not available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity	No toxicity data noted for the ingredient(s).
12.2. Persistence and degradability	No data is available on the degradability of this product.
12.3. Bioaccumulative potential	Not available.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	Not available.
12.5. Results of PBT and vPvB assessment	Not a PBT or vPvB substance or mixture.
12.6. Other adverse effects	Not available.
12.7. Additional information	

Estonia Dangerous substances in groundwater Data

Barium Bromate (CAS 13967-90-3)	Barium (Ba) 50 UG/L
	Barium (Ba) 7000 UG/L

Estonia Dangerous substances in soil Data

Barium Bromate (CAS 13967-90-3)	Barium (Ba) 2000 mg/kg
	Barium (Ba) 500 mg/kg
	Barium (Ba) 750 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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	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.
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. 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.

SECTION 14: Transport information

ADR

14.1. UN number	UN2719
14.2. UN proper shipping name	BARIUM BROMATE
14.3. Transport hazard class(es)	
Class	5.1
Subsidiary risk	6.1(PGI, II)
Label(s)	5.1 +6.1
Hazard No. (ADR)	56
Tunnel restriction code	E
14.4. Packing group	II
14.5. Environmental hazards	No.

14.6. Special precautions for user Not available.

RID

14.1. UN number UN2719
14.2. UN proper shipping name BARIUM BROMATE
14.3. Transport hazard class(es)
 Class 5.1
 Subsidiary risk 6.1(PGI, II)
 Label(s) 5.1+6.1
14.4. Packing group II
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

ADN

14.1. UN number UN2719
14.2. UN proper shipping name Barium Bromate
14.3. Transport hazard class(es)
 Class 5.1
 Subsidiary risk 6.1(PGI, II)
 Label(s) 5.1+6.1
14.4. Packing group II
14.5. Environmental hazards No.
14.6. Special precautions for user Not available.

IATA

14.1. UN number UN2719
14.2. UN proper shipping name Barium bromate
14.3. Transport hazard class(es)
 Class 5.1
 Subsidiary risk 6.1(PGI, II)
14.4. Packing group II
14.5. Environmental hazards No.
ERG Code 5P
14.6. Special precautions for user Not available.
Other information
 Passenger and cargo aircraft Allowed with restrictions.
 Cargo aircraft only Allowed with restrictions.

IMDG

14.1. UN number UN2719
14.2. UN proper shipping name BARIUM BROMATE
14.3. Transport hazard class(es)
 Class 5.1
 Subsidiary risk 6.1(PGI, II)
14.4. Packing group II
14.5. Environmental hazards
 Marine pollutant No.
EmS F-H, S-Q
14.6. Special precautions for user Not available.



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 EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

National regulations

Not available.

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

Not available.

Disclaimer

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