



SAFETY DATA SHEET

MATERION

1. Identification

Product identifier Barium Chloride (BaCl₂) powder

Other means of identification

SDS number 2GT
Materion Code 2GT
CAS number 10361-37-2
Synonyms Barium dichloride

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Materion Advanced Chemicals Inc.
Address 407 N 13th Street
1316 W. St. Paul Avenue
Milwaukee, WI 53233
United States
Telephone 414.212.0257
E-mail advancedmaterials@materion.com
Contact person Noreen Atkinson
Emergency phone number Chemtrec 800.424.9300

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Acute toxicity, oral Category 3
Acute toxicity, inhalation Category 4
Environmental hazards Hazardous to the aquatic environment, acute hazard Category 3
Hazardous to the aquatic environment, long-term hazard Category 3
OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Toxic if swallowed. Toxic if swallowed. Causes skin irritation. Causes mild skin irritation. Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. Causes damage to organs (respiratory system) through prolonged or repeated exposure. Causes damage to organs (.). Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention Avoid breathing dust/fume. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves.

Response If swallowed: Immediately call a poison center/doctor. Rinse mouth. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. Specific treatment (see this label). If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	The Safety Information Sheet Chemicals of hazardous chemical can be obtained through phone, email or on the company website.
Supplemental information	100% of the mixture consists of component(s) of unknown acute dermal toxicity. For further information, please contact the Product Stewardship Department at +1.800.862.4118.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
BARIUM CHLORIDE	Barium dichloride	10361-37-2	100

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

#: This substance has been assigned Community workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments The full text for all R- and H-phrases is displayed in section 16.

4. 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. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention if irritation develops and persists. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
Eye contact	Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison control center immediately. Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. 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.
Most important symptoms/effects, acute and delayed	Irritant effects. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Oxygen, if needed. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	In case of shortness of breath, give oxygen. In the case of accident or if you feel unwell, seek medical advice immediately (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. Keep victim under observation. Keep victim warm. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Wear suitable protective equipment.

Fire fighting equipment/instructions	Use water spray to cool unopened containers. Water runoff can cause environmental damage.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. 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. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). 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. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Minimize dust generation and accumulation. Do not taste or swallow. Avoid breathing dust. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash thoroughly after handling. Avoid release to the environment. Do not empty into drains. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store locked up. Store in a place accessible by authorized persons only. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep away from food, drink and animal feedingstuffs. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
BARIUM CHLORIDE (CAS 10361-37-2)	PEL	0.5 mg/m ³

US. ACGIH Threshold Limit Values

Material	Type	Value
BARIUM CHLORIDE (CAS 10361-37-2)	TWA	0.5 mg/m ³

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
BARIUM CHLORIDE (CAS 10361-37-2)	TWA	0.5 mg/m ³

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

Material	Type	Value
BARIUM CHLORIDE (CAS 10361-37-2)	PEL	0.5 mg/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
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. Ensure adequate ventilation, especially in confined areas.
Control parameters	Follow standard monitoring procedures.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear chemical protective equipment that is specifically recommended by the manufacturer. Use of an impervious apron is recommended. It may provide little or no thermal protection.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Chemical respirator with organic vapor cartridge.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	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.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Solid.
Color	Not available.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	1763.6 °F (962 °C)
Initial boiling point and boiling range	2840 °F (1560 °C)
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.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 0.0000001 kPa at 25 °C
Vapor density	Not available.
Relative density	Not available.

Solubility(ies)	
Solubility (water)	380 g/l
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	3.90 g/cm ³ estimated
Explosive properties	Not explosive.
Molecular formula	Ba-Cl ₂
Molecular weight	208.23 g/mol
Oxidizing properties	Not oxidizing.
Specific gravity	3.9

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use. Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Acids.
Hazardous decomposition products	Hydrogen chloride.

11. Toxicological information

Information on likely routes of exposure

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

Symptoms related to the physical, chemical and toxicological characteristics Irritant effects.

Information on toxicological effects

Acute toxicity	In high concentrations, vapors are anesthetic and may cause headache, fatigue, dizziness and central nervous system effects. Toxic if swallowed. Toxic if swallowed. Harmful if inhaled. Harmful by inhalation. May cause respiratory irritation.
Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Due to lack of data the classification is not possible.
Respiratory or skin sensitization	
Respiratory sensitization	Due to lack of data the classification is not possible.
Skin sensitization	Due to lack of data the classification is not possible.
Germ cell mutagenicity	Due to lack of data the classification is not possible.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	Due to lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Narcotic effects. Causes damage to organs (). Respiratory tract irritation.
Specific target organ toxicity - repeated exposure	Causes damage to organs () through prolonged or repeated exposure.
Aspiration hazard	Due to lack of data the classification is not possible.
Chronic effects	Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
BARIUM CHLORIDE (CAS 10361-37-2)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 14.5 mg/l, 48 hours
Fish	LC50	Mummichog (Fundulus heteroclitus) > 1000 mg/l, 96 hours

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

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
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.

13. Disposal considerations

Disposal instructions	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.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	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.
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.

14. Transport information

DOT	
UN number	UN1564
UN proper shipping name	Barium compounds, n.o.s.
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-

Label(s)	6.1
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB8, IP3, T1, TP33
Packaging exceptions	153
Packaging non bulk	213
Packaging bulk	240

IATA

UN number	UN1564
UN proper shipping name	Barium compounds, n.o.s.
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
Packing group	III
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1564
UN proper shipping name	Barium compounds, n.o.s.
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT



IATA; IMDG



15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

BARIUM CHLORIDE (CAS 10361-37-2) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
BARIUM CHLORIDE	10361-37-2	100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) 2 mg/l
2 mg/l

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

16. Other information, including date of preparation or last revision

Issue date 05-26-2015

Revision date 01-19-2018

Version # 03

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

Disclaimer

Additional information is given in the Material Safety Data Sheet. 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.

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