



SAFETY DATA SHEET

SDS-340-rev1 Issue Date: 07/20/2017

BARIUM-IMPREGNATED POLYETHYLENE MICROSPHERES

1. IDENTIFICATION OF SUBSTANCE

1.1 PRODUCT NAME(S)	Barium-Impregnated Polyethylene Microspheres
1.2 PRODUCT IDENTIFIER(S)	BSPMS
1.3 INTENDED USE	Industrial and research applications
1.4 SUPPLIER'S DETAILS	Cospheric LLC, PO Box 6762, Santa Barbara, CA 93160 info@cospheric.com www.cospheric.com
1.5 EMERGENCY TELEPHONE	+1-805-687-3747 Monday-Friday, 08:00-17:00 PST [UTC-8]

2. HAZARDS IDENTIFICATION

2.1 OSHA/HCS STATUS

This product is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Classification of substance or mixture COMBUSTIBLE DUST

2.2 GHS LABEL ELEMENTS

Signal word	Warning
Hazard statements	May form combustible concentrations in air.
Precautionary statements	Keep away from all ignition sources including heat, sparks and flame. Keep container closed and grounded. Prevent dust accumulations to minimize explosion hazard.

2.3 HAZARDS NOT OTHERWISE CLASSIFIED Spilled material is extremely slippery. Dust may cause irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NUMBER	% (W/W)
Polyethylene	9002-88-4	>65%
Barium Sulfate	7727-43-7	<35%

4. FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

Eye contact	Rinse with plenty of water. Seek medical advice if symptoms persist.
Skin contact	If symptoms occur, wash with soap and water.
Inhalation	If symptoms occur, move to fresh air. Seek medical advice if necessary.
Ingestion	If symptoms occur, seek medical advice.

4.2 IMPORTANT SYMPTOMS/EFFECTS, ACUTE OR DELAYED

Inhalation of high concentrations of dust may cause respiratory irritation.

5. FIRE-FIGHTING MEASURES

5.1 EXPLOSION

Avoid generating dust. Fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.



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5.2 EXTINGUISHING MEDIA

Use dry chemical powder. Do not use water jet.

5.3 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fine dust clouds may form explosive mixtures with air.

5.4 SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved) and full protective gear.

5.5 REMARKS

As with most solid particulate organic materials, high concentrations of dusts from this product suspended in air are an explosion hazard in the presence of sparks, flames, and heat. Do not allow to accumulate on equipment and surfaces where this product is used. In the National Fire Protection Association (NFPA) Code 499, a "combustible dust" is any finely divided solid material 420 microns or less in diameter that presents a fire or explosion hazard when dispersed in air. Polyethylene is a Group G combustible dust and has a Layer or Cloud Ignition Temperature of 380C (716F) [NFPA Code 499]. When there is the potential of a dust explosion in a use location, the proper electrical equipment and installations should be use.

6. ACCIDENTIAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Follow precautions for safe handling described in this safety data sheet (Section 8).

6.2 ENVIRONMENTAL PRECAUTIONS

Avoid dispersal of spilled material and run-off or contact with soil, waterways, drains and sewers. Dispose of any waste according to prescribed federal, state, local and competent authority guidelines.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEAN UP

Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Use spark-proof tools and explosion-proof equipment. Collect spillage with shovel, broom or the like, avoiding dust cloud formation. Only use vacuum cleaners approved for dust collection. Transfer to a container for disposal.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Avoid handling practices that cause dust formation. Minimize dust generation and accumulation. Avoid inhalation of high concentrations of dust. Observe occupational exposure limits and minimize the risk of inhalation of dust. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in tightly closed original container in a dry, cool and well-ventilated place away from all sources of ignition.



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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

Nuisance Dust (Particles Not Otherwise Regulated)			
OSHA	Permissible Exposure Limit (PEL)	Respirable fraction	5mg/m ³
		Total dust	15mg/m ³
Polyethylene			
DOE	Protective Action Criteria (PAC)	PAC-1	28mg/m ³
		PAC-2	310mg/m ³
		PAC-3	1000mg/m ³

8.2 ENGINEERING CONTROLS

Avoid handling practices that cause dust formation. Use local exhaust ventilation. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen- deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment.

8.3 INDIVIDUAL PROTECTION MEASURES (PERSONAL PROTECTIVE EQUIPMENT)

- Respiratory protection: When handling practices cause dust formation, select respiratory protection appropriate for the particle size of the material.
- Eye/face protection: Chemical goggles.
- Skin protection: Wear suitable protective clothing and gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Solid spherical particles of various colors
Relative density	Per product specification (~1g/cc)
Softening Temperature	Per product specification
Flammability	Combustible solid when dispersed in air and in the presence of open flames, sparks, static discharge and heat.
Flammable limits	No information available
Auto-ignition temperature	No information available
Decomposition temperature	No information available
Odor	Odorless
Vapor pressure	No information available
Vapor density	No information available
pH	No information available



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Melting point	No information available
Solubility in water	Insoluble
Initial boiling point	No information available
Flash point	No information available
Evaporation rate	No information available
Partition coefficient	No information available
Viscosity	No information available

10. STABILITY AND REACTIVITY

Reactivity	Non-reactive under normal conditions of use.
Chemical stability	Stable under normal conditions of use.
Conditions to avoid	Avoid the creation of dust clouds and all possible sources of ignition. Take precautionary measures against static discharges. Dissipate static electricity by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
Incompatible materials	Oxidizing materials.

11. TOXICOLOGICAL INFORMATION

Likely route(s) of exposure	Dermal, inhalation
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SIGNS AND SYMPTOMS OF EXPOSURE

Eye contact	Direct contact with eyes may cause temporary mechanical irritation. Signs and symptoms may include pain, redness.
Skin contact	Direct contact with skin may cause sensitization in hypersensitive individuals. Signs and symptoms may include redness, pain and itching.
Inhalation	Inhalation above recommended exposure levels may cause respiratory irritation including cough.
Ingestion	No harmful effects expected in amounts likely to be ingested by accident. May cause discomfort if swallowed.

TOXICOLOGICAL DATA

Acute toxicity	Barium sulfate:	Oral LD50>5000mg/kg (rat)
	Polyethylene:	Oral LD50>2000mg/kg (rat)
Skin corrosion/irritation	Barium sulfate:	Not irritating
	Polyethylene:	Mild irritant
Serious eye damage/eye irritation	Barium sulfate:	Not irritating
	Polyethylene:	Mild irritant
Respiratory or skin sensitization	No ingredients in Section 3 are known sensitizers	
Germ cell mutagenicity	No ingredients in Section 3 are known mutagens	



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Carcinogenicity	Not listed as a carcinogen (OSHA, NTP, IARC)
Reproductive toxicity	No information available/not sufficient for classification
STOT-single exposure	No information available/not sufficient for classification
STOT-repeated exposure	No information available/not sufficient for classification
Aspiration hazard	No information available/not sufficient for classification

12. ECOLOGICAL INFORMATION

Toxicity	No information available
Persistence and degradability	No information available
Bioaccumulation potential	No information available
Mobility in soil	No information available

13. DISPOSAL CONSIDERATIONS

Dispose of any waste according to prescribed federal, state, local and competent authority guidelines.

14. TRANSPORTATION INFORMATION

This product is not subject to regulations for the transport of hazardous materials (DOT, IATA, IMO).

15. REGULATORY INFORMATION

This SDS has been prepared to meet the US OSHA Hazard Communication Standard, 29 CFR 1910.1200.

16. OTHER INFORMATION

The information contained in this document is correct to the best of our knowledge at the date of publication. It should not be viewed as all inclusive, but as a guide only. It does not represent any guarantee of the properties of the product. Cospheric LLC shall not be held liable for any damage resulting from handling of or from contact with the above product. For these reasons, it is important that product users carry out their own tests to satisfy themselves as to the suitability of the safety precautions for their own intended applications.

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