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## Material Safety Data Sheet

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### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

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**PRODUCT NAME:** PENS  
**SYNONYMS:** polyethylene nanospheres, polymer nanospheres, PE nanopowder  
**MANUFACTURER:** Cospheric LLC, PO Box 6762, Santa Barbara, CA 93160  
info@cospheric.com  
**EMERGENCY PHONE:** (805) 687-3747 Hours of operation M-F 9am to 5pm PST

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### SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

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INGREDIENT:	CAS NO.	% WT
Polyethylene	9002-88-4	100%

This product is not hazardous under the U. S. OSHA Hazard Communication Standard (29 CFR § 1910.1200). This product is not a controlled product under the Canadian Hazardous Products Act or Regulations. This product is not classified under the European Dangerous Substance Directive 67/548 and the European Dangerous Preparations Directive 88/379.

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### SECTION 3: HAZARDS IDENTIFICATION

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**OSHA REGULATORY STATUS:** Not regulated to be a health or physical hazard.

**POTENTIAL HEALTH EFFECTS:**

Nuisance dust may cause temporary respiratory and eye irritation.  
Slipping hazard can be present when spilled on floor.

**PRIMARY ROUTES OF EXPOSURE:** Respiratory, skin and eye contact.

**POTENTIAL ENVIRONMENTAL EFFECTS:** None

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### SECTION 4: FIRST AID MEASURES

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**EYES:** Flush irritated eye with water. If unable to remove dust, seek medical care.

**SKIN:** Clean thoroughly with water.

**INHALATION:** Remove victim to well-ventilated area. If condition does not improve, seek medical care.

**INGESTION:** Not considered a likely route of exposure, however, not expected to be harmful if swallowed.

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## SECTION 5: FIRE-FIGHTING MEASURES

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**FLAMMABILITY:** Not regulated as flammable or combustible.

**PRODUCTS OF COMBUSTION:** Carbon oxides (CO, CO<sub>2</sub>).

**CONDITIONS TO AVOID:** Prevent the accumulation of air borne dust/dust cloud, open flames, sparks, static, heat.

**EXTINGUISHING MEDIA:** In case of fire, use foam or CO<sub>2</sub> fire extinguishers.

**SPECIAL FIRE FIGHTING PROCEDURES:** Evacuate area and fight fire from a safe distance. Water spray may be used to keep fire-exposed containers cool. Keep water run off out of sewers and public waterways.

**FIRE HAZARD 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 dust 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 380°C (716°F) [NFPA Code 499]. When there is the potential of a dust explosion in a use location, the proper electrical equipment and installation should be used.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**PERSONAL PRECAUTIONS:** Put on appropriate NIOHS/MSHA approved respirator. Wear chemical gloves, goggles, and lab coat.

**SPILL RESPONSE:** Evacuate surrounding areas, if necessary. Vacuum or carefully scoop up spilled materials and place in an appropriate container for disposal. Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**ACCIDENTAL RELEASE REMARKS:** Spilled material can produce a slipping hazard.

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## SECTION 7: HANDLING AND STORAGE

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**HANDLING:** Use with adequate ventilation. Avoid contact with skin and eyes. Wash thoroughly after handling and before mealtimes. Follow all MSDS and label precautions even after container is emptied since it may contain residual material.

**STORAGE:** Store containers closed in ambient and dry location.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### EXPOSURE LEVELS:

Component:	OSHA PEL	ACGIH TLV	Unit
Nuisance dust (>5 micron)	15	10	mg/m <sup>3</sup>

### ENGINEERING CONTROLS:

Ventilation: Provide adequate general mechanical exhaust.

### PERSONAL PROTECTION:

Eye Protection: Safety glasses with side shields or goggles.

Skin Protection: Rubber gloves, wash at meals and end of shifts.

Respiratory Protection: Use NIOSH/MSHA approved respirator as needed to control exposure.

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**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

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**APPEARANCE:** Nanospheres appear to be white in color, tasteless and odorless.

**PHYSICAL STATE:** Dry powder

**MELTING POINT:** 105 to 120°C

**SPECIFIC GRAVITY:** 0.93 – 1.0 @20°C

**SOLUBILITY IN WATER:** Insoluble

**FLASH POINTS:** Open cup: >175°C (347°F) (Cleveland.).

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**SECTION 10: STABILITY AND REACTIVITY**

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**STABILITY:** Stable

**CONDITIONS TO AVOID:** Open flames and sparks, extreme heat.

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**SECTION 11: TOXICOLOGICAL INFORMATION**

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**CHRONIC TOXICITY DATA:**

Polyethylene in its solid form is not expected to have any significant toxicological effect, except intestinal blockage if swallowed. Rats after inhaling polyethylene dust developed mild inflammatory changes in the lungs (Kochetkova et al, 1971). Prolonged inhalation of thermal degradation products from polyethylene caused neurological effects in rats (Zitting & Savolainen, 1979).

**POSSIBLE ROUTES OF EXPOSURE:**

Inhalation is not likely for materials >5micron in diameter.

Ingestion is not likely, but possible if good hygiene practices are not followed.

Eye irritation

Skin contact may result in contact dermatitis

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**SECTION 12: ECOLOGICAL INFORMATION**

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**REMARKS:** Ecotoxicological data on analogous polymeric materials demonstrates that this product has a low aquatic toxicity to fish, algae, and daphnia. Under OECD guidelines this product is classed as inherently biodegradable. The product is unlikely to bioaccumulate due to the large polymeric nature of the homopolymer. Classification according to German Umweltbundesamt.de is “nwg”.

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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**REMARKS:** Responsibility for proper waste disposal rests with the generator of the waste. Dispose of any waste material in accordance with all applicable federal, state and local regulations. Note that these regulations may also apply to empty containers, liners and rinsate. Processing, use, dilution or contamination of this product may cause its physical and chemical properties to change.

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**SECTION 14: TRANSPORT INFORMATION**

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Not regulated

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**SECTION 15: REGULATORY INFORMATION**

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Not applicable to any components of this product

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**SECTION 16: OTHER INFORMATION**

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**DISCLAIMER:**

The statements made here are intended to describe the product with regard to necessary safety precautions. They do not guarantee special characteristics. This information is furnished without warranty, expressed or implied, except that it is accurate to the best of our current knowledge.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

**PREPARATION INFORMATION:** Updated on 5/12/2014