



# Applied Physics, Inc.

400 N County Road 2E  
Monte Vista, CO 81144 USA

## Nano Particle Technology

Cel 1-720-635-3931  
Email Sales@AppliedPhysicsUSA.com  
Web www.AppliedPhysicsUSA.com

### Material Safety Data Sheet, Polystyrene Latex Spheres

#### SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: Polymer Microsphere Suspension  
Contents: Polymer microspheres suspended in water. Polymers include polystyrene, polystyrene divinylbenzene (PSDVB), or other styrene copolymers

CHEMTREC Phone Number, US (800) 424-9300 CHEMTREC Phone Number, Europe (202) 483-7616

#### SECTION 2 - HAZARD IDENTIFICATION

CAUTION! May cause lung irritation if inhaled. By normal use the product is not regarded as hazardous to health. The product is not classified as flammable or harmful to the environment; may cause eye, skin, digestive track, and respiratory track irritation. The toxicological properties of this material have not been fully investigated. This product is not classified as dangerous in accordance with Directive 1999/45/EC or 67/548/EEC

#### SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	Percentage	EINECS/ELINCS
polystyrene or	9003-53-6	<0.1-10	N/A
polystyrene divinylbenzene	9003-70-7		N/A
water	7732-18-5	90-99.9+	231-791-2
dispersant/surfactant	Proprietary	<0.5 (if any)	N/A
preservative	Proprietary	<0.1 (if any)	N/A

Component comments have no OSHA, Canadian, or EU hazardous ingredients above applicable threshold



#### SECTION 4 - FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water for at least 15 minutes. If an irritation develops, seek medical advice  
SKIN CONTACT: In case of contact promptly remove clothes, wash area with soap and flush with plenty of water. If an irritation develops, seek medical advice.  
INHALATION: Remove to fresh air and seek medical advice  
INGESTION: Give one to two glasses of water and seek medical advice

#### SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Not considered flammable or explosive. NFPA/HMIS Rating (estimated): Health: 1; Flammability: 0; Instability: 0  
PROTECTION FOR FIREFIGHTERS: Use extinguishing media appropriate for surrounding fire (water, foam, vaporizing liquid or multipurpose dry chemical).

#### SECTION 6 - ACCIDENTAL RELEASE MEASURES

Areas covered with spilled microspheres may be slippery. If material is spilled or released, cordon off the area. Collect material by wiping the spill area with a paper towel or disposable wipe, and place materials into an appropriate container. Avoid inhaling fine particle dust. Discard collected material in containers suitable for proper disposal

#### SECTION 7 - HANDLING AND STORAGE

Keep tightly sealed to prevent contamination; store between 4 °C to 30 °C unless otherwise specified on product label or literature. Avoid damaging or puncturing containers. When creating aerosols of fine particles use minimal and directional (away from the user) airflow

#### SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

##### Occupational Exposure Limits

Chemical Name - polystyrene or polystyrene divinylbenzene, water

OSHA PEL					ACGIH TLV			AIHA		NIOSH REL			
Ceiling	TWA	STEL	Final	Vacated	Ceiling	TWA	STEL	WEEL	OEL	Ceiling	TWA	STEL	IDLH
Not listed	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

EXPOSURE GUIDELINES: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies. Safety glasses with side shields are suggested

ENGINEERING CONTROLS: Use minimal and directional (away from the user) airflow to minimize worker exposure

SKIN PROTECTION: Wear appropriate protective gloves to prevent skin exposure. No skin irritation expected

RESPIRATORY PROTECTION: Respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149

GENERAL HYGIENE CONSIDERATIONS: Wear appropriate protective clothing to prevent skin exposure

#### SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:	100 °C (as water)	SOLUBILITY IN WATER:	microspheres are insoluble in water	FLASH POINT:	N/A	
MELTING POINT:	0 °C (as water)	EVAPORATION RATE:	N/A	FLAMMABLE PROPERTIES:	N/A	
PHYSICAL STATE:	suspension	VAPOR PRESSURE:	N/A	AUTO IGNITION TEMP:	N/A	
VAPOR DENSITY:	N/A	pH: 5-8	Kow: N/A	DECOMPOSITION:	N/A	
APPEARANCE, COLOR, ODOR:	White or colorless liquid, odorless				POLYMER/ SUSPENSION DENSITY:	1.0 to 1.05 g/cm <sup>3</sup>



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MATERIAL SAFETY DATA SHEET

Polymer Microsphere Suspension

### SECTION 10 - STABILITY AND REACTIVITY

STABILITY: Stable at room temperature in closed containers under normal storage and handling conditions  
INCOMPATIBILITY: None known  
HAZARDOUS DECOMPOSITION PRODUCTS: Not known  
HAZARDOUS POLYMERIZATION: Will not occur

### SECTION 11 - TOXICOLOGICAL INFORMATION

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY: Material is not considered to be a reproductive or developmental toxicant  
CARCINOGENICITY: Material is not listed by NTP, ACGIH, IARC or OSHA as a carcinogen. For more information refer to Section 2. Hazards identification.

### SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY: Not regarded as dangerous for the environment LC/EC/IC50 > 100 mg/L  
PERSISTENCE/DEGRADATION: No information found  
BIOACCUMULATION/ACCUMULATION: No information found  
MOBILITY IN ENVIRONMENTAL MEDIA: Microspheres are insoluble in water  
ENVIRONMENTAL: Not classified as harmful to the environment  
OTHER ADVERSE EFFECTS: No information found



### SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose of any waste residues according to prescribed federal, state, and local guidelines (e.g., to an appropriately permitted chemical waste incinerator)  
None of the components are on RCRA P& RCRA U Series Wastes list. EWC waste code 18 01 05 discard as chemicals and medicines  
Other Information: According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used

### SECTION 14 - TRANSPORTATION INFORMATION

HAZARD CLASS: Not classified per US DOT, TDG, UNECE, ADR, ADN, IATA, ICAO, RID, IMDG/IMO, OTIF, Mexico

### SECTION 15 - REGULATORY INFORMATION

CAS# 9003-53-6, CAS#9003-70-7

TSCA 8(b)	SARA 302	SARA 313	CERCLA	RCRA 261.33	TSCA 8(d)	TSCA 12(b)	FIFRA	CWC	SARA 311/312	EPICRA	CAA-SNAP	FDA
no	no	no	no	no	no	no	yes	no	no	no	no	yes

CAS#7732-18-5

TSCA 8(b)	SARA 302	SARA 313	CERCLA	RCRA 261.33	TSCA 8(d)	TSCA 12(b)	FIFRA	CWC	SARA 311/312	EPICRA	CAA-SNAP	FDA
yes	no	no	no	no	no	no	yes	no	no	no	yes	no

Not subject to ITAR and EAR regulations

US State - CAS# 9003-53-6 - Texas

California - Prop 65, Title 8 CCR, Title 22 CCR, ATHS, Occupational Exposure Limits, Ozone Depleting Compounds, Precursor Chemicals, SCAQMD, California No Significant Risk Level - **No information found**

None of the chemicals are on Prop 65 lists

CAS#9003-70-7 - DSL

#### WHMIS:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

### SECTION 16 - OTHER INFORMATION

Revision: 07

Date prepared: October 1, 2008

### ABBREVIATIONS

EU: European Union	IATA: International Air Transport Association
DOT: Department of Transportation	NTP: National Toxicology Program
NIOSH: National Institute for Occupational Safety and Health	OSHA: Occupational Safety and Health Administration
ACGIH: American Conference of Governmental Industrial Hygienists	IARC: International Agency for Research on Cancer