

MATERIAL SAFETY
DATA SHEET

STYROCHEM - EXPANDABLE POLYSTYRENE - SHAPE GRADE

Revision Date 02/17/03

StyroChem U.S., Ltd.
3607 North Sylvania
Fort Worth, Texas 76111

StyroChem Canada, Ltd.
19250 Clark Graham
Baie d'Urfe, Quebec H9X 3R8

EMERGENCY TELEPHONE NUMBERS:
(800) 424-9300 Chemtrec
(817) 759-4400 StyroChem, Ltd.
Technical Group

EMERGENCY TELEPHONE NUMBERS:
0 (613) 996-6666 Canutec
1 (514) 457-3226 StyroChem
Canada, Ltd.

SECTION I: PRODUCT IDENTIFICATION

PRODUCT: Expandable Polystyrene TRADE NAME: StyroChem EPS
SYNONYMS: Styrene polymer, EPS CHEMICAL FAMILY: Polystyrene
FORMULA: [CH(C₆H₅)CH₂] MOLECULAR WEIGHT: 150,000 - 350,000
CAS NO: 9003-53-6 CAS NAME: Benzene, ethenyl-homopolymer
DOT IDENTIFICATION NUMBER: UN2211 RTECS NO: WL6475000
NFPA RATING: 1 - Health 2 - Flammability 0 - Reactivity 0 - Other
PRODUCT GRADES: **B210, B290, C240, C334**

SECTION II: PHYSICAL DATA

BOILING POINT (°F @ 760 mmHg): N/A SPECIFIC GRAVITY: 1.0
MELTING POINT (°F @ 760 mmHg): N/A PERCENT VOLATILE BY VOLUME(%): slight
VAPOR PRESSURE (mmHg @ 68 °F): 500 EVAPORATION RATE (Butyl Acetate=1) N/A
SOLUBILITY IN WATER: negligible ODOR: hydrocarbon
FORM: beads COLOR: colorless to white
pH: N/A

*NOTE: N/A = Not Applicable N/E = Not Established

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STYROCHEM - EXPANDABLE POLYSTYRENE - SHAPE GRADE**SECTION III: HAZARDOUS INGREDIENTS**

NAME	CAS #	%	TLV FOR ACGHI	OSHA PEL/STEL
Polystyrene	Polymer 9003-53-6	>93	10 mg/m ³	OSHA PEL for particulates not otherwise regulated = 10 mg/m ³
Pentane	109-66-0	< 7	600 ppm	1989 ppm mg/m ³ OSHA PEL = 600 1800 STEL = 750 2250

SECTION IV: SPECIAL PRECAUTIONS**WARNING:**

Do not smoke in areas where this product is being used (see Section X).

Not to be used as an article for implantation. Animal studies indicate possible carcinogen if used for implantation. See Section VII.

Overexposure to vapors may cause narcosis and/or respiratory irritation. Use with adequate ventilation. Avoid breathing dust. Keep away from heat, sparks and flames. Keep container closed. Avoid spills. Avoid contact with eyes. Do not swallow. Wash thoroughly after handling.

May generate styrene during use, which has been identified by IARC as a possible cancer hazard.

SECTION V: REACTIVITY DATA**STABILITY:**

Stable under normal conditions of storage and use.

HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

Organic solvents, oil products, strong oxidizing agents, heat, sparks, and open flames. Do not smoke in areas where this product is being used.

STYROCHEM - EXPANDABLE POLYSTYRENE - SHAPE GRADE**SECTION VI: FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT (METHOD:	AUTO-IGNITION	TEMPERATURE (@ 760 mm Hg)
Polystyrene	600 - 650 °F (TAG Open Cup)	N/A
n-Pentane	-56 °F (-49 °C) (Closed Cup)	500 °F
EPS	140 °F (Closed Cup)	N/A

FLAMMABILITY LIMITS IN AIR (% BY VOL.):	LEL	UEL
Polystyrene	N/A	N/A
n-Pentane	1.5	7.8

EXTINGUISHING MEDIA:	Water Fog	Foam	CO2	Dry Chemical	Other*
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* Water or water spray

SPECIAL FIRE FIGHTING PROCEDURES: Firefighters must be equipped with self-contained breathing apparatus and turn-out gear. Dense smoke produced during burning may obscure vision. Fight fire from a safe or protected area, or apply intermittent fog to cool and protect firefighters. Beads on hard smooth surfaces create a serious slipping hazard which may interfere with fire fighting. Quench large fires by targeting the molten mass center with copious amounts of water; uncooled interior may regenerate fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When container is opened a flammable vapor is released which is heavier than air and may travel long distances, ignite and flashback to source. If exposed to fire, high heat will be developed and a dense black smoke will result. Emits toxic fumes during combustion (carbon dioxide and carbon monoxide). A static charge is generated during handling which can discharge in the form of a spark. Dissipation of the static is difficult due to insulating property of the material. Good grounding techniques must be employed. Do not store flammable materials near handling area.

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SECTION VII: HEALTH HAZARDS DATA:

PRIMARY ROUTE OF ENTRY: Inhalation

INHALATION: Emits toxic fumes when heated to decomposition (carbon dioxide and carbon monoxide). Nuisance EPS may cause mechanical irritation with possible difficulty breathing, sneezing and coughing. Pentane vapors may cause irritation to mucus membranes, central nervous system, depression, dizziness and loss of coordination.

Inhalation of styrene in high concentrations causes irritation to eyes and upper respiratory tract, drowsiness and headache.

INGESTION: May cause gastrointestinal irritation.

SKIN CONTACT: Pentane vapors may cause defatting of skin.

EYE CONTACT: Small particles may cause mechanical irritation or injury to the surface of the eye. Noticeable discomfort, redness and tearing can occur. Pentane vapors may cause irritation.

CHRONIC EXPOSURE: No adverse effects reported.

AGGRAVATION OF PRE-EXISTING CONDITIONS: No adverse effects reported.

SECTION VIII: FIRST AID

INHALATION: Remove to fresh air. Aid in breathing if necessary. Call a physician.

INGESTION: Not expected to require first aid. If gastrointestinal irritation exists, seek medical attention.

SKIN EXPOSURE: Wash with soap and water. Not expected to require first aid.

EYE EXPOSURE: Flush eyes with copious amounts of water for 20 minutes, retracting eyelids frequently. If irritation persists, seek medical attention.

STYROCHEM - EXPANDABLE POLYSTYRENE - SHAPE GRADE**SECTION IX: TOXICITY DATA**

INH-MUS LC50: 120 mg/m³/10m APFRAD: 35,461,77

CARCINOGENIC REVIEW: Animal positive (subcutaneous implantation)
IARC 19, 231, 79.

Styrene is identified as a possible carcinogen by IARC; not regulated as carcinogenic by NTP or OSHA.

OTHER: Reported in EPA TSCA Inventory, 9003-53-6, 1985. Meets criteria for OSHA Medical Records Rule 29 CFR §1910.20. No reproductive or mutation effects cited.

SECTION X: OCCUPATIONAL CONTROL MEASURES

Substance	Source	AIRBORNE EXPOSURE LIMITS			Time
		Date	Type	Value/Units	
Nuisance dust	OSHA	1989	PEL	10 mg/m ³	8 Hr.
	ACGIH	1985	TLV	10 mg/m ³	8 Hr.
n-Pentane	OSHA	1989	PEL	600 ppm	8 Hr.
	ACGIH	1985	TLV	600 ppm	8 Hr.
		1985	STEL	750 ppm	15 Min.
Styrene	OSHA	1989	PEL	50 ppm	8 Hr.
	OSHA	1989	STEL	100 ppm	15 Min.
	ACGIH	1988	TLV	50 ppm	8 Hr.
	ACGIH	1988	STEL	100 ppm	15 Min.

ENGINEERING CONTROLS: Handling and storage areas must be well ventilated with local exhaust to control PEL and to prevent localization of flammable vapors.

STYROCHEM - EXPANDABLE POLYSTYRENE - SHAPE GRADE

SECTION X: OCCUPATIONAL CONTROL MEASURES Continued

RESPIRATORY PROTECTION: Use NIOSH/OSHA approved respirator if exposure exceeds TLV/PEL.

SKIN PROTECTION: Not generally considered a skin hazard. If excessive skin contact is expected, plastic gloves are recommended. Wash contact areas with soap and water before eating, drinking, smoking, and when leaving work.

EYE PROTECTION: Safety glasses with side guards or goggles are recommended to prevent eye contact.

OTHER HYGIENIC AND WORK PRACTICES: Non-static creating shoes and clothing should be worn. Keep work area floors clean. Beads on hard smooth surfaces create a serious slipping hazard. Walkways should be covered with open gratings or a coarse granular material. Exclude all sources of ignition from storage and handling areas. Storage areas should be well ventilated and temperature maintained below 70 °F. Open containers in a well ventilated area and air for 10 minutes to allow dissipation of flammable vapors. Electrically ground all equipment used in processing and handling.

PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED: Flammable vapors may be present. Remove all sources of ignition. Ventilate area before entering, or use an NIOSH/OSHA approved respirator. Sweep, shovel, or vacuum into suitable containers for reuse or disposal. To prevent slipping, have walkways covered with a coarse granular material.

Not an RCRA regulated material.

WASTE DISPOSAL METHODS: Manage as a RCRA non-hazardous waste, unless mixed with other wastes. Manage according to state and local laws and regulations.

SECTION XI: SHIPPING DATA

DOT INFORMATION UN/NA ID number: UN2211
Hazard Class: Class 9
Packing Group: III
Proper shipping name: Polymeric beads, expandable, 9, UN2211, PG III

BILL OF LADING DESCRIPTION: Polymeric Beads, Expandable, 9, UN2211, PG III

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SECTION XI: SHIPPING DATA - (CONT.)

MANUFACTURER: StyroChem U.S., Ltd. StyroChem Canada, Ltd.
3607 North Sylvania 19250 Clark Graham
Fort Worth, TX 76111 Baie d'Urfe, Quebec Canada H9X 3R8
(817) 759-4400 (514)457-3226

SECTION XII: LABEL INFORMATION

WARNING: SC, Ltd. (StyroChem, Ltd.) expandable polystyrene contains a blowing agent which can create a potentially **FLAMMABLE** atmosphere with this container. Movement of the material in either bead or pre-expanded form can rapidly develop static charge which is a source of ignition.

STORAGE: Keep container closed!

SC, Ltd. beads should be stored in boxes at temperatures below 70 °F. When storing a partially full box, close down the neck of the inner bag as far as possible to prevent open space within the bag that might collect vapors.

TRANSFER AND STORAGE: Exclude all sources of ignition such as electrical equipment, open flames, cigarettes, etc., in areas where boxes are stored and opened, and/or where SC, Ltd. beads and pre-expanded beads are processed. Open container in a well ventilated area. Fully open the inner bag. Wait 10 minutes to permit the vapors to leave the bag and disperse before proceeding to empty the box. This minimizes the possibility of vapor ignition by a static electrical spark which sometimes occurs when the material is touched by an article. Use non-metallic containers for transferring SC, Ltd. beads or pre-expanded beads. Electrically ground all equipment used in processing and handling SC, Ltd. beads. Sweep up spills immediately.

PRECAUTION: Although this product is not presently classified as a hazardous material under DOT regulation, it is recommended that you do not store the material or open the container near an open flame or other source of ignition.

IN CASE OF FIRE: Use CO₂ (carbon dioxide) or water spray.

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SECTION XIII: REGULATORY INFORMATION

OSHA REGULATIONS: OSHA Hazard Communication Rule, 29 CFR 1910.1200: Based on a hazard evaluation, the following ingredient in this product is hazardous and the reasons are listed below.

Pentane - Air contaminate/flammable - 600 ppm (1800 mg/m³) OSHA PEL; STEL 750 ppm (2250 mg/m³)

DISCLAIMER OF LIABILITY

The information contained in this MSDS is provided in good faith solely to comply with applicable federal, state safety health laws, and regulations. It is believed to be correct as of the date hereof. Except for compliance with such laws and regulations, StyroChem, Ltd. provides this information without any warranty, expressed or implied, regarding its accuracy or comprehensiveness.

StyroChem, Ltd. does not assume responsibility and expressly disclaims liability for loss, damage (whether direct, indirect or consequential) resulting from, or in any way connected with, the handling, storage, use, merchant ability, disposal or fitness of the product.

This is an updated MSDS as required by OSHA's Hazardous Communications Rule, 29 CFR 1910.1200.

Prepared By: Fred Sonnenberg, Ted Gutierrez, and Dick Schwarz

Date Revised: 02/17/03

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