1. Identification

Product identifier

Styropek® Ultrapek FG30A

Recommended use and restriction on use:

Recommended use: Plastics. Used primarily for the manufacture of foamed cushioning/insulation, geofoam, building and construction applications. Finished goods production is based on a variety of steam molding processes.
Restrictions on use: All uses other than the identified. Not suitable for food contact, medical or other applications.

Company:
BVPV Styrenics LLC
786 Hardy Road, Painesville, Ohio 44077
SDS Information Email: product.stewardship@styropek.com

Manufacturer / Importer: BVPV Styrenics LLC

Emergency telephone number
24 Hour Emergency Response Information

CHEMTREC:	832-446-6154
	Int.: +1-703-527-3887
Site:	724-770-5555

Other means of identification
Common name(s), synonym(s): Foamable polystyrene with flame-retardant, Expandable Polystyrene Resin with flame-retardant.

2. Hazard(s) identification

According to Regulation OSHA Hazard Communication Standard; 29 CFR Part 1910.1200.

Hazard Classification Not classified.

Label Elements

Hazard symbol:	No symbol.
Signal word:	No signal word.
Hazard statement:	Not applicable.

Precautionary Statements

P210:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233:	Keep container tightly closed.
P243:	Take action to prevent static discharges.
P403 + P235	Store in a well-ventilated place. Keep cool.

Other hazards which do not result in GHS classification

In use may form flammable/explosive vapor-air mixture. Product releases pentane, a flammable vapor. Maintain adequate ventilation during processing and use. High concentration of airborne powders or dust may form explosive mixture with air.

Warning: Flammable. Releases flammable vapor. May cause eye, skin and respiratory tract irritation. Prolonged or repeated contact may dry skin and cause irritation. Eye wash fountains and safety showers must be easily accessible. Use local exhaust ventilation. Avoid contact with the skin, eyes and clothing.

3. Composition / Information on ingredients

According to Regulation OSHA Hazard Communication Standard; 29 CFR Part 1910.1200.

Chemical name	CAS number	Content (w/w)
Polystyrene*	9003-53-6	>= 87%
Pentane	109-66-0	4.0 – 5.0%
Flame retardant	Propietary	3.48 – 4.26%
Graphite Powder	7782-42-5	3.40 – 4.16%
Isopentane	78-78-4	1.0 – 1.25%

* This product contains 30% post-consumer resin.

4. First-aid measures

Ingestion: Material is not expected to be absorbed from the gastrointestinal tract so that induction of vomiting should not be necessary. Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If difficulties occur: Obtain medical attention.

Inhalation: Remove person from further exposure, move to fresh air and keep comfortable for breathing. Loosen tight clothing such as a collar, tie, belt or waistband to facilitate breathing. Get medical attention if symptoms persist. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

Skin contact: Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention. If burned by contact with hot material, cool molten material adhering to skin as quickly as possible with water, and see a physician for removal of adhering material and treatment of burn. Do not attempt to remove molten product, or molten product that has cooled, from skin without medical assistance.

Eyes contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if symptoms persist.

Most important symptoms/effects, acute and delayed

Symptoms: Irritating to eyes, respiratory system and skin. Gas or vapor is harmful to prolonged exposure or in high concentration. May cause nausea, headache, and dizziness.

Indication of immediate medical attention and special treatment needed

Treatment: For more detailed medical emergency support information call the emergency response contact. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. After adequate first aid, no further treatment is required unless symptoms reappear.

5. Fire-fighting measures

General fire hazards: Releases vapors which are flammable when exposed to lit smoking materials (cigarettes), sparks, static electricity discharges or open flame. Supports combustion. Explosion risk. When heated to decomp emits acrid smoke and irritating fumes. Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger. Move containers from fire area if you can do so without risk. When large quantities of solid substance/product are involved, melting may occur, in which condition, application of water may cause extensive scattering of molten material. Dense smoke produced during combustion may obscure vision. To prevent re-ignition of the interior, target center of fire with large amounts of water.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, foam, dry powder or carbon dioxide. Use water spray to keep fire-exposed containers cool.

Unsuitable extinguishing media: Water jet. Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical: Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger. Powdered material may form explosive dust-air mixtures. Risk of dust-air explosion is increased if flammable vapors are present. Take action to prevent static discharges.

Special protective equipment and precautions for firefighters

Special protective equipment for firefighters: Emergency personnel should wear self-contained breathing apparatus and chemical-protective clothing. Avoid inhaling any smoke and combustion materials.

Special firefighting procedures: Keep upwind. Keep unauthorized personnel away. Move container from fire area if it can be done without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Use water spray to cool fire exposed surfaces and to protect personnel. ALWAYS stay away from container engulfed in fire. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unauthorized personnel away. Evacuate to a safe location and contact the emergency services. Avoid standing or walking on spilled product - loose beads may cause a slipping hazard. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure that statutory and regulatory reporting requirements in the applicable jurisdiction are met.

Environmental precautions: Do not allow drains, waterways, sewers, basements or confined areas to enter. Discharge into the environment must be avoided.

Methods and material for containment and cleaning up: Small spillages: In case of spills, beware of slippery floors and surfaces. Eliminate sources of ignition (no smoking, flares, sparks or flames in immediate area). Consider isolating spill or leak area immediately until ambient air sampling results indicate that the pentane vapor concentration

	is below the flammable range. Use appropriate non-sparking tools to put spilled solid in an appropriate waste disposal container. Large Spillages: Flammable vapors are released from spills. Use water spray to reduce vapors or divert vapor cloud drift. Eliminate sources of ignition. Consider isolating spill or leak area immediately until ambient air sampling results indicate that the pentane vapor concentration is below the flammable range. Prevent entry into waterways, sewer, basements or confined areas. If containers are damaged or suspected to have been damaged during transit, open the truck trailer door slowly and ventilate for 15 minutes. No smoking. Test the atmosphere to ensure the air is free of pentane before entering.

7. Handling and storage

Precautions for safe handling:	Handle in contained and properly designed equipment systems in a cool, well-ventilated area. Use only with adequate ventilation and maintain air circulation at a minimum rate of six air changes per hour to prevent the formation of flammable concentrations. Avoid ingestion and inhalation of the product. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Ground containers and transfer equipment to eliminate static electric sparks. The product in bead or expanded form generates static charges, which are difficult to dissipate due to its insulating properties, so take precautionary measures against static discharges. Containers should be opened carefully in well-ventilated areas to avoid static discharge. Minimize dust generation and accumulation, as small amounts of fines or dust in granular resins may pose an explosion hazard. Handling and processing should follow best practices (e.g., NFPA-654). Prevent dust buildup and keep handling areas free of loose beads and dust accumulation. Before unloading, shipping containers, trucks, and trailers should be ventilated for at least one hour. After opening a container in a well-ventilated area, allow 15 minutes for accumulated pentane to dissipate. Partially opened containers pose a hazard due to pentane accumulation. Surplus and unused beads may still contain residual pentane, so handle them with all necessary safety measures. Empty containers may contain flammable residue. In case of spills, beware of slippery floors and surfaces. Keep away from incompatible materials, such as oxidizing agents and organic substances. Risk of vapor concentration on the floor and low-lying areas.
Conditions for safe storage, including any incompatibilities:	Store in tightly closed original container in a dry, cool and well-ventilated place. Protect against direct sunlight. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not store near spark-producing equipment. Use explosion-proof [electrical/ventilating/lighting/] equipment. Store according to applicable regulations and standards for flammable materials. Have appropriate extinguishing capability in storage area (e.g. sprinkler system, portable fire extinguishers) and flammable gas detectors. Define the storage area and vehicle traffic routes clearly. Put up clear signs. Keep storage area clean. Only allow access to authorized persons. Remove containers from storage area prior to opening. Vapors may be present in the headspace of closed containers. Containers should be opened only in well ventilated areas. All equipment used when handling the product must be grounded. Use non-sparking tools. Use a fall arrest system when working near open bulk containers. Re-seal previously opened container liners prior to placing

partial containers into storage. Do not enter filled containers or attempt to walk over containers or spilled product due to risk of slipping and possible suffocation.

Storage stability: Maintain relative humidity at 40% to minimize static accumulation. Avoid prolonged storage at high temperatures. Keep container tightly closed and dry. Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame.

8. Exposure controls and personal protection

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
n-Pentane	TWA	600 ppm 1800 mg/m^3	NIOSH Pocket Guide to Chemical Hazards (US)
	STEL	760 ppm 2250 mg/m^3	
	REL	120 ppm 350 mg/m^3	
	Ceiling	610 ppm 1800 mg/m^3	
	LTEL	1000 ppm 3000 mg/m^3	ECHA (Occupational Exposure Limits 2nd List)

Appropriate engineering controls: Engineering methods to reduce hazardous exposure are preferred controls. Methods include mechanical ventilation (dilution and local exhaust) process or personal enclosure, remote and automated operation, control of process conditions, leak detection and repair systems, and other process modifications. Ensure all exhaust ventilation systems are discharged to outdoors, away from air intakes and ignition sources. Supply sufficient replacement air to make up for air removed by exhaust systems. Administrative (procedure) controls and use of personal protective equipment may also be required. 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. Use only appropriately classified electrical equipment and powered industrial trucks.

Personal protective measures, such as recommended personal protective equipment

General information: Personal protective equipment (PPE) should not be considered a long-term solution to exposure control. Employer programs to properly select, fit, maintain and train employees to use equipment must accompany PPE. Consult a competent industrial hygiene resource, the PPE manufacturer's recommendation, and/or applicable regulations to determine hazard potential and ensure adequate protection.

Hygiene measures: Avoid inhalation of dust and vapors. Use effective control measures and PPE to maintain worker exposure to concentrations that are below these limits. Provide eyewash station and safety shower. Provide for sufficient ventilation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Respiratory protection:	Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information. Self-contained breathing apparatus. Air supplied breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.
Eye/Face protection:	Tightly fitting safety goggles (chemical goggles).
Skin and body protection:	Wear chemical-resistant safety footwear with good traction to prevent slipping. Wear appropriate clothing to prevent any possibility of skin contact. Wear work clothes with long sleeves. Wear fire resistant or flame-retardant clothing. Synthetic clothing can generate static electricity and is not recommended where a flammable vapor release may occur. Anti-static boots. Non-static gloves (e.g. of leather).

9. Physical and chemical properties

Physical state:	Solid.
Form:	Beads.
Color:	Gray.
Odor:	Faint specific odor.
Melting point/Freezing point:	Not applicable.
Boiling point:	The substance / product decomposes therefore not determined.
Flammability:	Not highly flammable (UN Test N.1, readily combustible solids).
Lower and upper explosion limit:	Product not examined: Value is calculated from the data of the components.
Flash point:	Not applicable. Pentane: -49 °C (-56 °F).
Auto-ignition temperature:	285 °C (DIN 51794).
Decomposition temperature:	No applicable information available.
pH:	Not soluble/Not applicable.
Kinematic viscosity:	No applicable information available.
Solubility (in water):	Not soluble.
Solubility (in other):	Soluble. Solvent(s): aromatic hydrocarbons, ketones, organic solvents.
Partition coefficient n-octanol/water:	Not applicable.
Vapor pressure:	Not applicable.
Density:	Approx. 1.02 - 1.05 g/cm^3 (20°C)
Relative vapor density:	Pentane: Heavier than air.
Particle characteristics:	Not applicable.
Softening temperature:	Approx. 70 °C.
Evaporation rate:	The product is a non-volatile solid.
Flammability of aerosol products:	Not applicable, the product does not form flammable aerosols.
Bulk density:	Approx. 640 kg/m^3 (20 °C).

10. Stability and reactivity

Reactivity:	Hazardous reactions not likely when properly stored, handled and transported. In use may form flammable/explosive vapor-air mixture. Risk of dust-air explosion is increased if flammable vapors are present. May burn or react violently with fluorine/oxygen mixtures with 50-100% fluorine. Decomp by powerful oxidizing or reducing agents. Exposure to strong oxidizing agents can cause fire or explosion. Powdered material may form explosive dust-air mixtures.
Chemical stability:	The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions:	Hazardous polymerization not likely to occur. Powdered material may form explosive dust-air mixtures. Risk of dust-air explosion is increased if flammable vapors are present.
Conditions to avoid:	Avoid all sources of ignition: heat, sparks, open flame. Avoid direct sunlight. Avoid electro-static discharge.
Incompatible materials:	Not resistant to oxidizing agents; partially dissolves in organic solvents.
Hazardous decomposition products:	Thermal decomposition or combustion may liberate carbon oxides and other gases or vapors.

11. Toxicological information

Information on likely routes of exposure

Ingestion:	Material is not expected to be absorbed from the gastrointestinal tract so that induction of vomiting should not be necessary.
Inhalation:	May cause nausea, headache, dizziness. Vapor/heated fumes may be generated during processing. Inhalation of high concentrations of the vapour may cause depression of the central nervous system.
Skin contact:	This product may cause irritation to the skin from repetitive handling. Molten material will produce thermal burns.
Eye contact:	May cause temporary eye irritation. Molten material will produce thermal burns.

Symptoms related to physical, chemical and toxicological characteristics

Ingestion:	Product is essentially inert, however, gastrointestinal irritation and blockage of the digestive tract are possible if large amounts are swallowed.
Inhalation:	May cause nausea, headache, dizziness. Vapors may irritate the respiratory system and cause coughing or shortness of breath.
Skin contact:	Contact with hot material can cause thermal burns. Contact of powder or fines with skin may cause mild irritation that is increased by mechanical rubbing or if skin is dry.
Eye contact:	Contact with hot material can cause thermal burns which may result in permanent damage or blindness. May cause mechanical irritation.

Information on toxicological effects

Acute toxicity:	Not classified for acute toxicity based on available data.
List all possible routes of exposure	
Specified substance(s):	Pentane, Isopentane
Oral:	Based on available data, the substance is not classified for acute toxicity. LD_{50} > 2,000 mg/kg.
Inhalation:	Based on available data, the substance is not classified for acute toxicity. LC_{50} >20 mg/L.
Dermal:	Based on available data, the substance is not classified for acute toxicity. LD_{50} > 2,000 mg/kg.
Repeated dose toxicity:	No data available. For permissible exposure limits values, please see section 8.

Skin corrosion/Irritation: Specified substance(s): Pentane, Isopentane	No data available. Prolonged and repeated skin contact can cause defatting dermatitis with dryness, cracking, redness and blisters.
Serious eye damage/Irritation: Specified substance(s): Pentane, Isopentane	No data available. Contact may cause mild eye irritation including stinging, watering, and redness.
Respiratory/Skin Sensitization:	While these substances are not recognized as respiratory or skin sensitizers under EU CLP or OSHA Hazard Communication standards, prolonged inhalation of vapors may cause mild respiratory tract irritation (not an allergic response).
Germ cell mutagenicity:	There are no components of this product, present at a concentration greater than or equal to 0.1%, that classify as mutagens according to the GHS.
Carcinogenicity:	No information is available on any component of this product, present at levels greater than or equal to 0.1%, that is classified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity:	There are no components of this product, present at a concentration greater than or equal to 0.1% are classified as toxic to reproduction under EU CLP or OSHA standards.
Specified target organ toxicity (Single exposure):	Based on available data, the classification criteria are not met.
Specified target organ toxicity (Repeated exposure):	Not classified under EU CLP or OSHA Hazard Communication standards.
Endocrine disruption for human health:	Not classified as endocrine disruptors (no evidence in ECHA dossiers).
Aspiration hazard: Specified substance(s): Pentane, Isopentane	Based on available data, the classification criteria are not met. May be fatal if swallowed and enters airways.

12. Ecological information

Toxicity

Acute aquatic toxicity: Specified substance(s): Pentane, Isopentane	Not classified for acute toxicity based on available data. Not classified under EU CLP or OSHA Hazard Communication standards for acute aquatic toxicity. Fish (96 h): LC50 > 100 mg/L. Aquatic plants (72 h): EC50 > 100 mg/L. Daphnia magna (48 h): EC50 > 100 mg/L.
Chronic aquatic toxicity: Specified substance(s): Pentane, Isopentane	Not classified for chronic toxicity based on available data. Toxic to aquatic life with long lasting effects. Aquatic plants: NOEC ≤ 1 mg/L. Daphnia magna: NOEC ≤ 1 mg/L.
Persistance and degradability:	The product is not expected to be biodegradable. Do not allow to enter drains, sewers or watercourses. Blowing agent is expected to rapidly volatize from soil and water. The product is virtually insoluble in water and

	can thus be separated from water mechanically in suitable effluent treatment plants.
Bioaccumulative potential:	No bioaccumulative properties (insoluble polymer). Low water solubility and rapid evaporation limit bioavailability.
Mobility in soil:	High volatility minimizes soil leaching; EPS beads remain stationary.
Other adverse effects:	At the present state of knowledge, no negative ecological effects are expected. No toxic effects occur within the range of solubility.
Environmental fate:	Because of the product's consistency and low water solubility, bioavailability is improbable. Manage spills to prevent water contamination.
Ozone depletion potential:	No data available. Pentane is not classified as an ozone depleting chemical.
Endocrine disruption for the environment:	Not classified as endocrine disruptor (no evidence in ECHA dossiers).
Global warming potential:	No data available. Pentane has a low Global Warming Potential.

13. Disposal considerations

General information:	This product, if discarded, is not expected to be a hazardous waste. The use, mixing or processing of this product may alter its properties or hazards. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Disposal methods:	Dispose of in accordance with national, state and local regulations. Do not discharge into waterways or sewer systems without proper authorization.
Container disposal:	Dispose of in accordance with national, state and local regulations. Recycle only completely emptied packaging.

14. Transport information

DOT

UN Number:	UN 2211
Proper shipping name:	POLYMERIC BEADS, EXPANDABLE
Hazard class:	9
Packing group:	III
Label:	Class 9
Environmental hazard:	Not regulated.
Special precautions for user:	Product releases pentane, a flammable vapor. Keep from heat, sparks, lit smoking materials (cigarettes), static electricity discharges, open flame or any other potential ignition source.

IATA/ICAO

UN Number:	UN 2211
Proper shipping name:	POLYMERIC BEADS, EXPANDABLE
Hazard class:	9
Label:	Class 9M (Miscellaneous)
Packing group:	III
Environmental hazards:	Not regulated.
Special precautions for user:	Product releases pentane, a flammable vapor. Keep from heat, sparks, lit smoking materials (cigarettes), static electricity discharges, open flame or any other potential ignition source.

IMDG

UN Number:	UN 2211
Proper shipping name:	POLYMERIC BEADS, EXPANDABLE
Hazard class:	9

Label:	Class 9
Packing group:	III
Marine pollutant:	No
Special precautions for user:	Product releases pentane, a flammable vapor. Keep from heat, sparks, lit smoking materials (cigarettes), static electricity discharges, open flame or any other potential ignition source.

15. Regulatory information

For regulatory information please consult the product regulatory data sheet.

16. Other information

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care® is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

Although the information contained in this document is presented in good faith, based on available information believed to be reliable at the time of preparation of this document, it is provided for your guidance only. Because many factors may affect processing or application/use, we recommend that you make tests to determine the suitability of our products for your particular purpose prior to use. Styropek makes no warranties or representations with respect to the information, or the product/materials described herein, and expressly disclaims all implied warranties and conditions (including all warranties and conditions of merchantability or fitness for a particular purpose). No freedom from infringement of any patent owned by Styropek or others is to be inferred. In no case shall the descriptions, information, data or designs provided be considered a part of our terms and conditions of sale. Unless specifically agreed otherwise, Styropek does not take responsibility for use, transportation, storage, handling or disposal of the product/materials described herein. This information is subject to change without notice. Please contact Styropek for the most current version of this SDS.