

SAFETY DATA SHEET

1. Identification

Product identifier: DYLLITE® Expandable Polystyrene - Cup and Specialty Grade

Other means of identification

Synonyms: Foamable polystyrene, EPS

SDS number: NOVA-0089

Recommended use and restriction on use

Recommended use: Plastics. Used primarily for the manufacture of foamed cups and other food service packaging. Finished goods production is based on a variety of steam molding processes.

Restrictions on use: All uses other than the identified.

Manufacturer/Importer/Supplier/Distributor Information

Manufacturer

Company Name: NOVA Chemicals
Address: 400 Frankfort Road
Monaca, Pennsylvania USA 15061
Telephone: Product Information: 1-412-490-4063
SDS Information Email: msdsemail@novachem.com

Emergency telephone number:

1-800-561-6682, 1-403-314-8767 (NOVA Chemicals) (24 hours)
1-800-424-9300 (CHEMTREC-USA) (24 hours)

2. Hazard(s) identification

Hazard Classification

Physical Hazards

In use, may form flammable/explosive vapor-air mixture.

Label Elements

Hazard Symbol: No symbol

Signal Word: No signal word.

Hazard Statement: In use, may form flammable/explosive vapor-air mixture.

Precautionary Statements:

Prevention: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Maintain adequate ventilation during processing and use.

Storage: Keep container tightly closed.
Store in a well ventilated place.
Keep cool.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification:

Product releases pentane, a flammable vapor.
High concentration of airborne powders or dust may form explosive mixture with air.

3. Composition/information on ingredients**Mixtures**

| Chemical Identity | Common name and synonyms | CAS number | Content in percent (%)* |
|-------------------|--------------------------|------------|-------------------------|
| n-Pentane | Pentane | 109-66-0 | 3 - 8%* |
| Isopentane | | 78-78-4 | 0 - 3%* |

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Additional Information:

*All pentanes (normal- and iso-) combined are present between 3-8%.

4. First-aid measures**Ingestion:**

Product is not expected to be absorbed from the gastrointestinal tract. DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. Seek immediate medical attention.

Inhalation:

Move affected individual to non-contaminated air. Loosen tight clothing such as a collar, tie, belt or waistband to facilitate breathing. Seek immediate medical attention if the individual is not breathing, is unconscious or if any other symptoms persist.

Skin Contact:

Wash affected area with soap and water. Seek medical attention if symptoms develop or persist. In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product, or molten product that has cooled, from skin without medical assistance.

Eye contact:

Remove contact lenses, if it can be done safely. Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention if symptoms develop or persist.

Most important symptoms/effects, acute and delayed**Symptoms:**

Irritation to the respiratory system, eyes and/or skin. Overexposure to vapors may cause headache, drowsiness, dizziness or loss of coordination.

Indication of immediate medical attention and special treatment needed**Treatment:**

For more detailed medical emergency support information call 1-800-561-6682 or 1-403-314-8767 (24 hours NOVA Chemicals Emergency Response). 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: Fire and explosion risk. Vigorously supports combustion. Releases vapors which are flammable when exposed to lit smoking materials (cigarettes), sparks, static electricity discharges or open flame. When heated to decomposition, product may emit acrid smoke and irritating fumes. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. Move containers from the fire area if this can be done without risk. High concentration of airborne powders or dust may form explosive mixture with air.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Dry chemical, foam, carbon dioxide, water spray or fog. Use water to cool fire-exposed containers and to protect personnel.

Unsuitable extinguishing media: Do not use direct water stream as direct stream may scatter burning product.

Specific hazards arising from the chemical: Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. High concentration of airborne powders or dust may form explosive mixture with air. Accumulated fine powders or dust may form an explosive mixture with air. Risk of dust-air explosion is increased if flammable vapors are present.

May accumulate hazardous static charge. Take precautionary measures to prevent contact with electrostatic discharges.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Reference Emergency Response Guidebook No. 133, latest revision. Position upwind. Keep unnecessary personnel away. Move containers from fire area if you can do so without risk. For massive fire, use unmanned holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Cool containers with flooding quantities of water until well after the fire is out. ALWAYS stay away from container engulfed in fire. Control runoff waters to prevent entry into sewers, drains, ditches, underground or confined spaces and waterways.

Special protective equipment for fire-fighters: Fire fighters should wear full-face, self-contained breathing apparatus and thermal protective clothing. Avoid inhaling any smoke or combustion products.

6. Accidental release measures**Personal precautions,
protective equipment and
emergency procedures:**

Isolate area. Keep unnecessary personnel away. Alert stand-by emergency and fire fighting personnel. Avoid standing or walking on spilled product - loose beads may cause a slipping hazard. Eliminate sources of ignition. Extinguish all flames in the vicinity. No smoking or open flames permitted in storage, use or handling areas. Dissipate static electricity during transfer or processing by proper earthing (grounding) and bonding of containers and equipment. Wear appropriate protective equipment and clothing during clean-up. Individuals without appropriate protective equipment should be excluded from area of spill until cleanup has been completed.

Contact local police/emergency services and appropriate emergency telephone numbers provided in Section 1. Ensure that statutory and regulatory reporting requirements in the applicable jurisdiction are met.

**Methods and material for
containment and cleaning
up:**

Small spills: Spilled product may create a slipping hazard. Eliminate all 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. Use appropriate non-sparking tools to put spilled solid in an appropriate waste disposal container.

Large spills: Flammable vapors are released from spills. Use water spray curtain to divert vapor drift. Eliminate all sources of ignition. Consider evacuating spill or leak area immediately until ambient air sampling results indicate that the pentane vapor concentration is below the flammable range. Prevent entry into sewers, basements, or confined areas; dike if needed.

If containers are damaged or suspected to have been damaged during transit, open the truck trailer door slowly and ventilate for 15 minutes. Never permit 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. Handle and process this product in a cool, well-ventilated place. Provide adequate ventilation at all times. Avoid ingestion and inhalation. Keep this product from heat, sparks, lit smoking materials (cigarettes), static electricity discharges, open flame or any other potential ignition source. Ground (earth) all product handling and transfer equipment to dissipate build-up of static electricity. Keep handling areas free of loose beads and dust accumulation. Mechanical operations involving this product should be done in such a manner as to prevent or minimize dust generation. Small amounts of fines or dust contained in granular resins may accumulate in handling systems. If permitted to accumulate, these fines or dust can, under certain conditions, pose an explosion hazard. Every effort should be made to prevent suspension, concentration or accumulation of fines or dusts in, or around, product handling systems. For additional information on control of static and minimizing potential dust and fire hazards, refer to NFPA 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids." Spilled product may create a dangerous slipping hazard. Keep away from incompatible materials such as oxidizing agents and organic materials.

Maintain sufficient air circulation and ventilation to prevent flammable vapor concentrations from forming, especially in low-lying areas. After opening the container in a well-ventilated area, allow 15 minutes for accumulated pentane to dissipate. Partially opened containers represent a potentially serious hazard because the insides of the container permit a space for the pentane to accumulate.

Shipping containers, trucks and trailers should be ventilated for at least 15 minutes prior to unloading.

Surplus and unused beads may still contain residual pentane; handle using all safety measures as if fresh product. Empty containers may contain flammable residue.

Conditions for safe storage, including any incompatibilities:

Store in sealed original container, in a cool, dry, well-ventilated area away from direct sunlight. Store product away from incompatible materials, heat, sparks, lit smoking materials (cigarettes), static electricity discharges, open flame, or any other potential ignition source. Do not store near spark-producing equipment. Shatter-proof lighting and intrinsically safe electrical systems are recommended. Store according to applicable regulations and standards for flammable materials.

Have appropriate monitoring/detection and extinguishing capabilities readily available in storage areas (e.g. fixed systems such as sprinkler and deluge systems, portable fire extinguishers, flammable gas detectors). Storage area should be clearly identified, well-illuminated, and clear of obstruction. Adequate security must be provided so that unauthorized personnel do not have access to product.

Remove containers from storage area prior to opening. Containers should be opened only in well ventilated areas. Use only properly grounded (earthed) and bonded systems when handling or transferring product. Use only non-sparking or static dissipative tools. Use a fall arrest system when working near open bulk containers. Re-seal previously opened carton liners prior to placing partial containers into storage. Do not enter filled containers or attempt to walk over cartons or spilled product due to risk of slipping and possible suffocation.

For additional transport, handling and storage information, refer to the NOVA Chemicals Expandable Polystyrene Storage and Handling Safety Guide.

8. Exposure controls/personal protection**Control Parameters****Occupational Exposure Limits**

| Chemical Identity | type | Exposure Limit Values | Source |
|-------------------|------|-----------------------------------|---|
| n-Pentane | TWA | 1,000 ppm | US. ACGIH Threshold Limit Values (03 2014) |
| | PEL | 1,000 ppm 2,950 mg/m ³ | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006) |
| | STEL | 750 ppm 2,250 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989) |
| | TWA | 600 ppm 1,800 mg/m ³ | US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989) |
| Isopentane | TWA | 1,000 ppm | US. ACGIH Threshold Limit Values (03 2014) |

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.

Individual protection measures, such as personal protective equipment

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|--------------------------------|---|
| 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. |
| Eye/face protection: | Wear safety glasses; chemical goggles are recommended to prevent eye irritation from vapors. |
| Skin Protection | |
| Hand Protection: | Use chemically compatible gloves when handling product. |
| Other: | Wear chemical-resistant safety footwear with good traction to prevent slipping. Work clothing that sufficiently prevents skin contact should be worn, such as coveralls and/or long sleeves and pants. Fire resistant (i.e., Nomex) or natural fiber clothing (i.e., cotton or wool) is recommended. Synthetic clothing can generate static electricity and is not recommended where a flammable vapor release may occur. Static dissipative (SD) rated footwear is recommended. |
| Respiratory Protection: | If engineering controls and ventilation are not sufficient to prevent build-up of vapors or dusts, appropriate NIOSH approved air-purifying respirators or self-contained breathing apparatus (SCBA) appropriate for exposure potential should be used. Air supplied breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators. |
| Hygiene measures: | Avoid inhalation of dusts and vapors. Use effective control measures and PPE to maintain worker exposure to concentrations that are below these limits. Ensure that eyewash stations and safety showers are in close proximity to work locations. Provide adequate ventilation. Avoid inhalation of dusts and vapors. Keep this product from heat, sparks, lit smoking materials (cigarettes), static electricity discharges, open flame or any other potential ignition source. |

9. Physical and chemical properties**Appearance**

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| Physical state: | Solid. |
| Form: | Beads. |
| Color: | White. |
| Odor: | Slight hydrocarbon. |
| Odor threshold: | No data available. |
| pH: | No data available. |
| Melting point/freezing point: | Softening point between 60 to 100°C (140 to 214°F). |
| Initial boiling point and boiling range: | No data available. |
| Flash Point: | 51 to 80°C (125 to 175°F) (Product) (ASTM D3278). -49°C (-56°F) (Pentane). |
| Evaporation rate: | No data available. |

| | |
|---|--|
| Flammability (solid, gas): | Flammable (Pentane). |
| Upper/lower limit on flammability limits | |
| Flammability limit - upper (%): | 8.3% (Pentane). |
| Flammability limit - lower (%): | 1.4% (Pentane). |
| Vapor pressure: | 400 mmHg @ 20°C (Pentane). |
| Vapor density: | 2.5 (Pentane). |
| Relative density: | 0.95 to 1.05. |
| Solubility(ies) | |
| Solubility in water: | Insoluble. |
| Solubility (other): | Partially soluble in various organic solvents. |
| Partition coefficient (n-octanol/water): | No data available. |
| Auto-ignition temperature: | 260°C (500°F) (Pentane). |
| Decomposition temperature: | No data available. |
| Viscosity: | No data available. |

10. Stability and reactivity

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| 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 also present. May burn or react violently with fluorine/oxygen mixtures with 50-100% fluorine. May be decomposed by strong oxidizing agents. Strong oxidizers can increase fire and explosion hazard. Powders or dusts may form an explosive mixture with air. |
| Chemical Stability: | This product is stable under normal use conditions for shock, vibration, pressure or temperature. |
| Possibility of Hazardous Reactions: | Hazardous polymerization not likely to occur. Powders and dusts may form explosive mixture with air. Risk of dust-air explosion is increased if flammable vapors are present. |
| Conditions to Avoid: | Keep this product from heat, ignition sources, static electricity discharges and incompatible materials. Release of pentane increases with temperatures. Avoid storing or handling with UN Class 1 explosives. |
| Incompatible Materials: | Not resistant to oxidizing agents; partially dissolves in organic solvents. |
| Hazardous Decomposition Products: | Upon decomposition, this product may emit styrene, carbon monoxide, carbon dioxide, low molecular weight hydrocarbons and other toxic gases at elevated temperatures. |

11. Toxicological information

Information on likely routes of exposure

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|----------------------|--|
| Ingestion: | Product is not expected to be absorbed from the gastrointestinal tract. |
| Inhalation: | Product releases pentane vapors; overexposure may cause headache, drowsiness, dizziness or loss of coordination. Vapors/heated fumes may be generated during processing. |
| Skin Contact: | This product may cause irritation to the skin from repetitive handling. Contact with hot or molten product may cause severe thermal burns. |

Eye contact: This product may cause eye irritation. Contact with molten or heated product may cause burns.

Symptoms related to the 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: Dust or fumes produced during thermal processing may cause irritation to the respiratory system. Overexposure to vapors may cause headache, drowsiness, dizziness or loss of coordination.

Skin Contact: 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 or molten product may cause severe thermal injury, including in extreme contact, possible blindness. Contact of powder or fines with eye may cause mechanical irritation.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: ATEmix: 19,352.65 mg/kg

Dermal
Product: No data available.

Inhalation
Product: No data available.

Specified substance(s):
n-Pentane
Inhalation can irritate the nose, throat and lungs causing coughing, wheezing and/or shortness of breath. Inhalation of high concentrations may result in central nervous system (CNS) depression, causing headache, dizziness, nausea and loss of coordination. Ingestion and subsequent aspiration into the lungs may cause chemical pneumonitis.

Specified substance(s):
Isopentane
Inhalation can irritate the nose, throat and lungs causing coughing, wheezing and/or shortness of breath. Inhalation of high concentrations may result in central nervous system (CNS) depression, causing headache, dizziness, nausea and loss of coordination. Ingestion and subsequent aspiration into the lungs may cause chemical pneumonitis.

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation
Product: No data available.

Serious Eye Damage/Eye Irritation**Product:** No data available.**Specified substance(s):**

n-Pentane Contact can irritate the eyes and skin causing a rash and a burning sensation.

Specified substance(s):

Isopentane Contact can irritate the eyes and skin causing a rash and a burning sensation.

Respiratory or Skin Sensitization**Product:** No data available.**Carcinogenicity****Product:** None of this product's components are listed by ACGIH, EPA, IARC, OSHA, NIOSH or NTP.**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity**In vitro****Product:** No data available.**Specified substance(s):**

n-Pentane No mutagenic effect was found in various tests with bacterial and mammalian cell culture

Specified substance(s):

Isopentane No mutagenic effect was found in various tests with bacterial and mammalian cell culture

In vivo**Product:** No data available.**Specified substance(s):**

n-Pentane No mutagenic effect was found in various tests with bacterial and mammalian cell culture

Specified substance(s):

Isopentane No mutagenic effect was found in various tests with bacterial and mammalian cell culture

Reproductive toxicity**Product:** No data available.**Specific Target Organ Toxicity - Single Exposure****Product:** No data available.

Specific Target Organ Toxicity - Repeated Exposure**Product:** No data available.**Specified substance(s):**

n-Pentane Nervous System, Skin, Respiratory system. Prolonged and repeated skin contact can cause defatting dermatitis with dryness, cracking, redness and blisters. Chronic pentane exposure may damage the nervous system causing numbness, "pins and needles" and weakness in the arms and legs.

Specified substance(s):

Isopentane Nervous System, Skin, Respiratory system. Prolonged and repeated skin contact can cause defatting dermatitis with dryness, cracking, redness and blisters. Chronic isopentane exposure may damage the nervous system causing numbness, "pins and needles" and weakness in the arms and legs

Target Organs

No data available.

Aspiration Hazard**Product:** No data available.**Other effects:** No data available.**12. Ecological information**

The information below is based on knowledge of the components and the ecotoxicity of similar products.
Sewer/waterway obstruction: marine life may ingest beads, which may obstruct their digestive tract. Product is expected to be non-toxic, but small particles may have physical effects on aquatic and terrestrial organisms.
Blowing agents may be hazardous to aquatic life.

This product contains a substance which is classified as dangerous for the environment. However recent studies on aquatic organisms have shown that EPS-beads, while containing this substance, do not need to be classified for environmental hazard.

Ecotoxicity:**Acute hazards to the aquatic environment:****Fish****Product:** No data available.**Specified substance(s):**

n-Pentane LC 50 (Rainbow Trout, 48 h): 4.3 mg/l

Isopentane LC 50 (Rainbow Trout, 96 h): 4.26 mg/l
LC 50 : 126.012 mg/l**Aquatic Invertebrates****Product:** No data available.**Specified substance(s):**

n-Pentane EC 50 (Water flea (Daphnia magna), 72 h): 10 mg/l

Isopentane EC 50 (Water Flea, 48 h): 2.3 mg/l

Toxicity to Aquatic Plants**Product:** No data available.**Specified substance(s):**

n-Pentane EC 50 (72 h): 10.7 mg/l

Isopentane EC 50 (Green algae (*Selenastrum capricornutum*), 72 h): 7.51 mg/l**Chronic hazards to the aquatic environment:****Fish****Product:** No data available.**Aquatic Invertebrates****Product:** No data available.**Toxicity to Aquatic Plants****Product:** No data available.**Persistence and Degradability****Biodegradation****Product:** Product is expected to be inherently non-biodegradable. Integrated environmental half-life is expected to be over 100 days. Do not allow product to enter sewers or waterways. Blowing agent is expected to rapidly volatilize from soil and water.**BOD/COD Ratio****Product:** No data available.**Bioaccumulative Potential****Bioconcentration Factor (BCF)****Product:** No data available.**Partition Coefficient n-octanol / water (log Kow)****Product:** No data available.**Specified substance(s):**

n-Pentane Log Kow: 3.39

Isopentane Log Kow: 2.30

Mobility in Soil: No data available.**Known or predicted distribution to environmental compartments**

n-Pentane No data available.

Isopentane No data available.

Other Adverse Effects:**Ozone depletion potential:** Isopentane is not classified as an ozone depleting chemical.**Sewage treatment:** Practically non-toxic, EC50 >100mg/l, to organisms in sewage treatment plants (estimated).

13. Disposal considerations

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|--------------------------------|---|
| General information: | This product, if discarded, is not expected to be a hazardous waste according to US regulations. The use, mixing or processing of this product may alter its properties or hazards. Check local, state, federal and provincial environmental regulations prior to disposal. |
| Disposal instructions: | <p>Preferred disposal methods for polymers, in order of preference, are: 1) clean and reuse if possible; 2) contact resin broker; 3) contact plastic recycler; 4) incinerate with waste heat recovery and/or 5) landfill. Reuse, recycling, storing, transportation and disposal must be in accordance with applicable federal, state/provincial and local regulations. DO NOT ATTEMPT TO DISPOSE OF BY UNCONTROLLED INCINERATION.</p> <p>Surplus and unused beads may still contain residual pentane; handle using all safety measures as if fresh product. Empty containers may contain flammable residue. Waste generator is advised to carefully consider hazardous properties and control measures needed for other materials that may be found in the waste.</p> <p>No EPA Waste Numbers are applicable for this product's components.</p> <p>Refer to the NOVA Chemicals Expandable Polystyrene Storage and Handling Safety Guide for additional information.</p> |
| Contaminated Packaging: | Completely emptied packaging may be recycled. |

14. Transport information**DOT**

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|-------------------------------|---|
| UN Number: | UN 2211 |
| UN Proper Shipping Name: | POLYMERIC BEADS, EXPANDABLE, evolving flammable vapor |
| Transport Hazard Class(es) | |
| Class: | 9 |
| Label(s): | 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. Open the freight container/truck trailer slowly and ventilate for 15 minutes before unloading. |

IMDG

| | |
|-------------------------------|---|
| UN Number: | UN 2211 |
| UN Proper Shipping Name: | POLYMERIC BEADS, EXPANDABLE |
| Transport Hazard Class(es) | |
| Class: | 9 |
| Label(s): | 9 |
| EmS No.: | F-A, S-I |
| 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. Open the freight container/truck trailer slowly and ventilate for 15 minutes before unloading. |

15. Regulatory information**US Federal Regulations****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Hazard categories**

Not listed.

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

None present or none present in regulated quantities.

SARA 311/312 Hazardous Chemical

| <u>Chemical Identity</u> | <u>Threshold Planning Quantity</u> |
|--------------------------|------------------------------------|
| n-Pentane | 10000 lbs |
| Isopentane | 10000 lbs |

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

| <u>Chemical Identity</u> | <u>Reportable quantity</u> |
|--------------------------|----------------------------|
| n-Pentane | 10000 lbs |
| Isopentane | 10000 lbs |

US State Regulations

US. California Proposition 65

This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm.

Ethyl benzene Carcinogenic.

US. New Jersey Worker and Community Right-to-Know Act**Chemical Identity**

n-Pentane
Isopentane

US. Pennsylvania RTK - Hazardous Substances**Chemical Identity**

n-Pentane
Isopentane

Inventory Status:

Canada DSL Inventory List:

On or in compliance with the inventory

US TSCA Inventory:

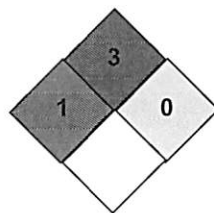
On or in compliance with the inventory

16. Other information, including date of preparation or last revision**HMIS Hazard ID**

| | |
|---------------------|---|
| Health | 1 |
| Flammability | 3 |
| Physical Hazards | 0 |
| PERSONAL PROTECTION | C |

C - Safety Glasses, Gloves & Apron

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible; *Chronic health effect

NFPA Hazard ID

| | |
|--|-----------------|
| | Flammability |
| | Health |
| | Reactivity |
| | Special hazard. |

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 05/22/2015

Revision Date: 05/22/2015

Version #: 6.0

Further Information: For additional transport, handling and storage information, refer to the NOVA Chemicals Expandable Polystyrene Storage and Handling Safety Guide.

Key/Legend:

ACGIH = American Conference of Governmental Industrial Hygienists; ADR = Transport of Dangerous Goods by Road; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; BOD = Biochemical Oxygen Demand; CAS = Chemical Abstracts Service; CEPA = Canadian Environmental Protection Act; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CFR = Code of Federal Regulations; CFR = Controlled Products Regulations; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EC50 = Effective Concentration 50%; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EPA = Environmental Protection Agency; EU = European Union; FDA = Food and Drug Administration; GHS = Globally Harmonized System for the Classification and Labelling of Chemicals; HCS = Hazard Communication Standard; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IATA = International Air Transport Association; ICAO = International Civil Aviation Organization; IDL = Ingredient Disclosure List; IDLH = Immediately Dangerous to Life or Health; IMDG = International Maritime Dangerous Goods; IMO = International Maritime Organization; ISHL = Industrial Safety and Health Law; Kow = Octanol/water partition coefficient; LC50 = Lethal Concentration 50%; LD50 = Lethal Dose 50%; LEL = Lower Explosive Limit; LFL = Lower Flammable Limit; LLV = Level Limit Ceiling Limit (Sweden dust); MAK = Maximum Concentration Value in the Workplace; MITI = Ministry of International Trade and Industry; MSDS = Material Safety Data Sheet; NAB = Threshold Values (Indonesia); NCEC = National Chemical Emergency Centre; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NIOSH = National Institute for Occupational Safety and Health; NJTSR = New Jersey Trade Secret Registry; NTP = National Toxicology Program; OEL = Occupational Exposure Limit; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; PNOC = Particulates Not Otherwise Classified; PPE = Personal Protective Equipment; PRTR = Designated Chemical Substance Law (Japan); PSD = Short Term Exposure Limit (Indonesia); RCRA = Resource Conservation and Recovery Act; REACH = Registration, Evaluation, Authorisation and Restriction of Chemical Substances; REL = Recommended Exposure Limit; RID = Transport of Dangerous Goods by Rail; SARA = Superfund Amendments and Reauthorization Act; SCBA = Self Contained Breathing Apparatus; SDS = Safety Data Sheet; SEPA = State Environmental Protection Administration; STEL = Short Term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average; UEL = Upper Explosive Limit; UFL = Upper Flammable Limit; VLA-ED = Valor límite Ambiental de Exposición Diaria (Environmental Exposure Daily Limit Value); VME = valeur limite d'exposition (Occupational Exposure Limits); WHMIS = Workplace Hazardous Materials Information Systems

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