

Material Name: **Impact Polystyrene, Natural Grades**

MSDS ID: INEOS-NOVA-0056

Section 1 - Product and Company Identification**Synonyms:** Impact modified polystyrene, HIPS**Chemical Name:** Benzene, ethenyl-, polymer with 1,3-butadiene**Chemical Family:** Polymer**Material Use:** Petrochemical industry: Plastics**Chemical Formula:** (C₈H₈ C₄H₆)_x**INEOS NOVA**25846 SW Frontage Road
Channahon, Illinois, USA 60410**EMERGENCY Telephone Numbers:**

1-800-424-9300, 703-527-3887 (CHEMTREC-USA) (24 hours)

Product Information: 1-866-890-6354**MSDS Email:** psinfo@ineos-nova.com**Section 2 - Hazards Identification****HMIS Ratings: Health: 0 Fire: 1 Physical Hazard: 0***Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard***NFPA Ratings: Health: 0 Fire: 1 Reactivity: 0***Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe***Emergency Overview**

Product is a white, inert, solid bead or pellet with slight odor. This product is not considered flammable according to OSHA, but will burn on prolonged exposure to flame or high temperature. Slipping hazard.

Potential Health Effects: Eyes

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

Potential Health Effects: Skin

Contact with hot or molten material may cause severe thermal burns. Contact of powder or fines with skin may cause mild irritation, that is increased by mechanical rubbing or if skin is dry.

Potential Health Effects: Ingestion

Ingestion of this product is unlikely. However, ingestion of product may produce mild gastrointestinal irritation and disturbances.

Potential Health Effects: Inhalation

Inhalation of fine particles may cause respiratory irritation. Fumes produced during thermal processing may cause irritation to the respiratory system.

Section 3 - Composition / Information on Ingredients

CAS #	Component	Percent by Wt.
9003-55-8	Styrene-Butadiene polymer	94-100

Additional Information

This product may be regulated, have exposure limits or other information identified as the following: Nuisance particulates.

This product is NOT considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

This material is NOT a controlled product under Canadian WHMIS regulations.

This material is NOT REGULATED as a hazardous material/dangerous goods for transportation.

See Section 8 for applicable exposure limits. See Section 11 for applicable toxicity data.

Section 4 - First Aid Measures**First Aid: Eyes**

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.

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First Aid: Skin

For 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.

First Aid: 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, unconscious or if any other symptoms persist.

First Aid: Ingestion

Material 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.

First Aid: Notes to Physician

Burns should be treated as thermal burns. Molten resin will come off as healing occurs; therefore, immediate removal from skin is not necessary. Treatment for overexposure should be directed at controlling the symptoms and clinical condition of the patient. After adequate first aid, no further treatment is necessary, unless symptoms reappear. Ingested material should pass through the digestive system without injury.

Section 5 - Fire Fighting Measures

See Section 9: Physical Properties for flammability limits, flash point and autoignition information.

General Fire Hazards

This product is not considered flammable according to OSHA, but will burn on prolonged exposure to flame or high temperature. High concentration of airborne powders or dust may form explosive mixture with air.

Explosion Hazards

Accumulated fine dusts may form an explosive mixture with air. Take precautionary measures to prevent contact with electrostatic discharges. Risk of dust/air explosion is increased if flammable vapors are present.

Hazardous Combustion Products

Styrene, butadiene, carbon dioxide, carbon monoxide.

Extinguishing Media

Dry chemical, foam, carbon dioxide, or water fog or spray. Avoid high pressure, direct water stream that may spread molten or burning resins.

Fire Fighting Equipment/Instructions

Position upwind. Keep unnecessary personnel away. Move containers from fire area if you can do so without risk. Fight fire from maximum distance or use unmanned holders or monitor nozzles. Fire fighters should wear full-face, self-contained breathing apparatus and thermal protective clothing. Avoid inhaling any smoke and combustion products. Cool containers with flooding quantities of water until well after the fire is out. Control runoff waters to prevent entry into sewers, drains, underground or confined spaces and waterways.

Section 6 - Accidental Release Measures

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Spills

Stop leak and contain spill. Prevent entry into sewers, drains, underground or confined spaces, and waterways. Spilled product may create a dangerous slipping hazard. Use appropriate tools to put the spilled solid in an appropriate recovery or waste disposal container. Reuse or recycle where possible. Meet any applicable regulations.

Special Procedures

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

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.

See Section 8 for recommended Personal Protective Equipment and see Section 13 for waste disposal considerations.

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Section 7 - Handling and Storage

Handling Procedures

Handle in contained and properly designed equipment systems. Use with adequate ventilation. Avoid ingestion and inhalation. Keep away from uncontrolled heat and incompatible materials. Ground all material handling and transfer equipment to dissipate build-up of static electricity. Keep handling areas free of loose pellets and dust accumulation. Mechanical operations involving this material 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 material 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, material 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, 2006 Edition." Spilled product may create a dangerous slipping hazard.

Storage Procedures

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. Store in grounded, properly designed and approved vessels and away from incompatible materials. Store and use away from heat, sparks, open flame, or any other ignition source. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems.

DO NOT enter filled bulk containers and attempt to walk over product, due to risk of slipping and possible suffocation. Use a fall arrest system when working near open bulk storage containers.

See Section 8 for recommended Personal Protective Equipment and see Section 10 for information on incompatibilities.

Section 8 - Exposure Controls / Personal Protection

Exposure Guidelines

A: General Product Information

Refer to published exposure limits - utilize effective control measures and PPE to maintain worker exposure to concentrations that are below these limits. Ensure that eyewash stations and safety showers are proximal to the workstation location.

B: Component Exposure Limits

ACGIH, OSHA, NIOSH, EPA, Alberta, and Ontario exposure limit lists have been checked for major components listed with CAS registry numbers. Other exposure limits may apply, check with proper authorities.

Styrene-Butadiene polymer (9003-55-8)

ACGIH: 10 mg/m³ TWA (inhalable particles, recommended); 3 mg/m³ TWA (respirable particles, recommended) (related to Particulates (insoluble or poorly soluble) not otherwise specified (PNOS))

OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction) (related to Particulates not otherwise regulated)

Alberta: 10 mg/m³ TWA (total particulate); 3 mg/m³ TWA (respirable particulate) (related to Particulates not otherwise regulated)

Ontario: 10 mg/m³ TWAEV (inhalable); 3 mg/m³ TWAEV (respirable) (related to Particulates (insoluble or poorly soluble) Not Otherwise Classified (PNOC))

ENGINEERING CONTROLS

Maintain worker exposure below recommended exposure limits by providing adequate local exhaust ventilation. Use non-sparking, grounded ventilation systems separate from other exhaust systems. Ensure that eyewash stations and safety showers are proximal to the workstation location.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses during normal handling. Wear full-face shield during thermal processing if contact with molten material is likely.

Personal Protective Equipment: Skin/Hands/Feet

Use impervious gloves when handling product. Wear safety footwear with good traction to help prevent slipping. Work clothing that sufficiently prevents skin contact should be worn, such as coveralls and/or long sleeves and pants.

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Personal Protective Equipment: Respiratory

If engineering controls and ventilation is not sufficient to prevent build up of aerosols, vapors or dusts, appropriate NIOSH/MSHA 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.

Personal Protective Equipment: General

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.

Section 9 - Physical & Chemical Properties

Physical State and Appearance:	Solid, beads or pellets	Color:	White
Odor:	Slight odor	pH:	Not applicable
Vapor Pressure:	Not applicable	Vapor Density @ 0°C (Air=1):	Not applicable
Melting Point:	105°C-135°C (221°F-275°F)	Boiling Point:	Not applicable
Solubility (H2O):	Insoluble	Specific Gravity (Water=1):	1.04 g/cc, 104 kg/m
Dispersion Properties:	Is not dispersed in cold water	Softening Point:	79°C-127°C (174°F-261°F)
Flash Point:	345°C-360°C (653°F-680°F) (Combustible Flash Ignition Temperature)	Flammability Classification:	Not considered flammable according to OSHA.
Flash Point Method:	Not available	Auto Ignition:	427°C (800°F)
Lower Flammable Limit (LFL):	Not available	Upper Flammable Limit (UFL):	Not available

Section 10 - Stability & Reactivity Information

Chemical Stability

This material is stable under normal use conditions for shock, vibration, pressure, and ambient temperature.

Instability

Decomposition temperature: 300°C (572°F)

Chemical Stability: Conditions to Avoid

Avoid processing material over 300°C (572°F).

Incompatibility

Not resistant to oxidizing agents, dissolves in organic solvents.

Hazardous Polymerization

Will not occur.

Corrosivity

Not expected to be corrosive.

Hazardous Decomposition

Styrene, butadiene, carbon dioxide, carbon monoxide

Section 11 - Toxicological Information

A: Acute Toxicity - General Material Information

Material is considered essentially inert and non-toxic. Exposure to high levels of dusts may be irritating to the eyes. Skin/eye contact with molten or heated material may cause burns. Vapors/heated fumes may be irritating to the respiratory system.

B: Acute Toxicity - LD50/LC50

No LD50/LC50's are available for this product's components.

C: Chronic Toxicity - General Material Information

No additional information available.

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D: Chronic Toxicity - Carcinogenic Effects

ACGIH, EPA, IARC, OSHA, and NTP carcinogen lists have been checked for selected similar materials or those components with CAS registry numbers.

Styrene-Butadiene polymer (9003-55-8)

IARC: Supplement 7, 1987; Monograph 19, 1979 (Group 3 (not classifiable))

Section 12 - Ecological Information

Ecotoxicity

The information below is based on knowledge of this product's components and the ecotoxicity of similar products. Sewer/waterway obstruction: If aquatic animals ingest pellets, digestive tract obstruction may occur. Product is not expected to be toxic, but small particles may cause adverse physical effects in aquatic and terrestrial organisms.

Environmental Fate/Mobility

Sinks in water. Pellets are persistent in aquatic and terrestrial systems. Product should be recovered from water and land following spills. This product has not been found to migrate through soils.

Persistence/Degradability

Pellets are persistent in aquatic and terrestrial systems. Do not allow product to enter sewer or waterways. Not expected to biodegrade.

Bioaccumulation/Accumulation

Pellets may accumulate in the digestive systems of birds and aquatic life, causing injury and possible death due to starvation.

Section 13 - Disposal Considerations

U.S./Canadian Waste Number & Descriptions

A: General Product Information

This product, if discarded, is not expected to be hazardous waste according to US or Canadian regulations. Check Local, State, Federal and Provincial Environmental Regulations prior to disposal.

The recommended 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 IGNITION.

See Section 7: Handling and Storage and Section 8: Exposure Controls/Personal Protection for additional information that may be applicable for safe handling and the protection of employees.

Waste generator is advised to carefully consider hazardous properties and control measures needed for other materials that may be found in the waste.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Section 14 - Transportation Information

Transportation Information

This material is not regulated as a hazardous material for transportation.

Section 15 - Regulatory Information

A: International Regulations

The monomers are listed by EINECS for styrene-butadiene copolymer.

Component Analysis - International Inventory Status

Component	CAS #	US - TSCA	CANADA - DSL	EU - EINECS
Styrene-Butadiene polymer	9003-55-8	Yes	Yes	Exempt

B: USA Federal & State Regulations

Ongoing occupational hygiene, medical surveillance programs, or site emission or spill reporting may be required by Federal or State regulations. Check for applicable regulations.

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USA OSHA Hazard Communication Class

This product is not considered hazardous under 29 CFR 1910.1200 (Hazard communication).

USA Right-to-Know - Federal

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

USA Right-to-Know - State

None of this product's components are listed on the state lists from NJ or PA. Some components (including those present only in trace quantities, and therefore not listed in this document) may be included on the Right To Know lists of other U.S. states. The reader is therefore cautioned to contact his or her INEOS NOVA representative for further U.S. State Right-To-Know information.

C: Canadian Regulations - Federal and Provincial

Canadian Environmental Protection Act (CEPA): The components of this product are on the Domestic Substances List (DSL), or are exempt, and are acceptable for use under the provisions of CEPA.

WHMIS Ingredient Disclosure List (IDL)

No components are listed in the WHMIS Ingredient Disclosure List (IDL).

WHMIS Classification

Workplace Hazardous Materials Information Systems (WHMIS): This product has been classified in accordance with Canadian Controlled Product Regulations (CPR) hazard criteria and this MSDS contains complete CPR-required information. Not controlled under WHMIS (Canada).

Provincial Regulations

Ongoing occupational hygiene, medical surveillance programs, or site emission or spill reporting may be required by Federal or Provincial regulations. Check for applicable regulations.

Section 16 - Other Information

Label Information

PRECAUTIONS: Product is a white, inert, solid bead or pellet with slight odor. This product is not considered flammable according to OSHA, but will burn on prolonged exposure to flame or high temperature. Slipping hazard.

FIRST AID:

SKIN: For 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.

EYES: 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.

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, unconscious or if any other symptoms persist.

INGESTION: Material 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.

IN CASE OF A LARGE SPILL: Stop leak and contain spill. Prevent entry into sewers, drains, underground or confined spaces, and waterways. Spilled product may create a dangerous slipping hazard. Use appropriate tools to put the spilled solid in an appropriate recovery or waste disposal container. Reuse or recycle where possible. Meet any applicable regulations.

References

Available on request.

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; BOD = Biochemical Oxygen Demand; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CPR = Controlled Products Regulations; DOT = Department of Transportation; DSL = Domestic Substances List; EINECS = European Inventory of Existing Commercial Chemical Substances; EPA = Environmental Protection Agency; EU = European Union; FDA = Food and Drug Administration; IARC = International Agency for Research on Cancer; IDL = Ingredient Disclosure List; Kow = Octanol/water partition coefficient; LEL - Lower Explosive Limit; NIOSH = National Institute for Occupational Safety and Health; NJTSR = New Jersey Trade Secret Registry; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; RCRA = Resource Conservation and Recovery Act; SARA Superfund Amendments and Reauthorization Act; TDG = Transportation of Dangerous Goods; TSCA = Toxic Substances Control Act.

MSDS Prepared by: INEOS NOVA

MSDS Information Phone Number: 1-866-890-6354

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Other Information

Notice to Reader

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This is the end of MSDS # INEOS-NOVA-0056.