

2. Hazards identification

Emergency overview

Appearance: Physical state at 20 °C and 101.3 kPa: solid
Form: pellets
Color: colorless
Odor: weak
Classification: This substance is classified as not hazardous.

Village Plastics
HIPS 2

Regulatory status

This material is not considered hazardous by the U.S. OSHA Hazard Communication Standard (29 CFR 1910.1200) and SIMDUT in Canada.

Hazards not otherwise classified

Dust: Can cause skin, eye and respiratory tract irritation.
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.
The melted product can cause severe burns.
see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterisation: Polymer
(C₈ H₈ C₄ H₆)_x
styrene-butadiene-copolymer, HIPS
CAS-Number: 9003-55-8
RTECS-Number: WL6478000

4. First aid measures

In case of inhalation: Provide fresh air. Put victim at rest and keep warm. seek medical attention
Following skin contact: The melted product can cause severe burns.
Do not remove the product from the skin without medical assistance.
After contact with molten product, cool skin area rapidly with cold water. Consult physician.
After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Consult an eye specialist in the event of irritation.
Remove contact lenses, if present and easy to do. Continue rinsing.
After swallowing: Do not induce vomiting. Rinse mouth with water.
Drink one or two glasses of water. Seek medical aid in case of troubles.
Never give an unconscious person anything through the mouth.

Most important symptoms and effects, both acute and delayed

Dust: Skin irritation, eye irritations and redness

Information to physician

Treat symptomatically.

5. Fire fighting measures

Flash point/flash point range:

> 280 °C

Auto-ignition temperature: not self-igniting

Suitable extinguishing media:

Water fog, foam.

Only in case of small fires: extinguishing powder, carbon dioxide, Sand, earth.

Extinguishing media which must not be used for safety reasons:

High power water jet

Specific hazards arising from the chemical

In case of fire may be liberated: Smoke, styrene-monomer, butadiene, aldehydes and acids (organic), carbon monoxide and carbon dioxide (CO₂).

Protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus.

Additional information:

Cool endangered containers with water jetspray.

6. Accidental release measures

Personal precautions:

May form explosible dust-air mixture if dispersed. Remove all sources of ignition. Provide adequate ventilation. Do not breathe dust. Wear personal protection equipment.

Environmental precautions:

Do not allow to penetrate into soil, waterbodies or drains.

Methods for clean-up:

Avoid generation of dust. Take up mechanically. Can be reused without regeneration. Otherwise, dump or burning.

Additional information:

Take precautionary measures against static discharges.
Particular danger of slipping on spilled product on the ground.

7. Handling and storage

Handling

Advices on safe handling:

Provide adequate ventilation, and local exhaust as needed.
Avoid dust formation. In the case of the formation of dust: Withdraw by suction.
Molten material: Avoid contact with the substance.

Precautions against fire and explosion:

Dust may form explosive mixtures with air. Take precautionary measures against static discharges. Keep away from sources of ignition. Use grounding equipment. Use explosion-proof equipment and non-sparking tools/utensils.

Storage

Requirements for storerooms and containers:

Store in a well-ventilated place. Keep container tightly closed.
Protect against heat /sun rays.

Further details:

Special danger of slipping by leaking/spilling product.

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
9003-55-8	Styrolution® PS HIPS	Canada, Alberta: OEL 8 hour	10 mg/m ³
		Canada, Alberta: OEL 8 hour	3 mg/m ³
		Canada, BC: OEL TWA	10 mg/m ³
		Canada, Ontario: OEL TWA	10 mg/m ³
		Canada, Ontario: OEL TWA	3 mg/m ³
		Canada, Québec: VEMP	10 mg/m ³
		USA: ACGIH: TWA	10 mg/m ³
		USA: ACGIH: TWA	3 mg/m ³
		USA: OSHA: TWA	15 mg/m ³
		USA: OSHA: TWA	5 mg/m ³
100-42-5	Styrene	Canada, Alberta: OEL 15 min	170 mg/m ³ ; 40 ppm
		Canada, Alberta: OEL 8 hour	85 mg/m ³ ; 20 ppm
		Canada, BC: OEL STEL	75 ppm
		Canada, BC: OEL TWA	50 ppm
		Canada, Ontario: OEL STEL	100 ppm
		Canada, Ontario: OEL TWA	35 ppm
		Canada, Québec: VECD	426 mg/m ³ ; 100 ppm
		Canada, Québec: VEMP	213 mg/m ³ ; 50 ppm
		OSHA: Ceiling	200 ppm
		USA: ACGIH: STEL	170 mg/m ³ ; 40 ppm
		USA: ACGIH: TWA	85 mg/m ³ ; 20 ppm
		USA: NIOSH: STEL	425 mg/m ³ ; 100 ppm
		USA: NIOSH: TWA	215 mg/m ³ ; 50 ppm
USA: OSHA: TWA	100 ppm		
106-99-0	1,3-Butadiene	Canada, Alberta: OEL 8 hour	4.4 mg/m ³ ; 2 ppm
		Canada, BC: OEL TWA	2 ppm
		Canada, Québec: VEMP	4.4 mg/m ³ ; 2 ppm
		USA: ACGIH: TWA	4.4 mg/m ³ ; 2 ppm
		USA: OSHA: STEL	11 mg/m ³ ; 5 ppm
		USA: OSHA: TWA	2.21 mg/m ³ ; 1 ppm

Biological limit values:

CAS No.	Designation	Type	Limit value	Parameter	Sampling
100-42-5	Styrene	USA: ACGIH-BEI, urine	40 µg/l	Styrene in urine	end of exposure or end of shift
		USA: ACGIH-BEI, urine	400 mg/g creatinine	Mandelic acid + Phenylglyoxylic acid	end of exposure or end of shift
106-99-0	1,3-Butadiene	USA: ACGIH-BEI, blood	2.5 pmol/g Hb	Mixture of N-1 and N2-(hydroxybutenyl)valine hemoglobin (Hb) adducts	No restriction
		USA: ACGIH-BEI, urine	2.5 mg/L	1,2 Dihydroxy-4-(N- acetylcysteinyl)-butane	end of exposure or end of shift

Additional information: The product contains very low levels of residual monomers and process chemicals (styrene, ethylbenzene and traces of butadiene) that may be evolved during thermal processing, along with possible decomposition products. As the identity and levels of these impurities evolved will depend upon the processing conditions (temperature etc.) it is the responsibility of the user to determine the adequacy of any protection or safety measures.

Engineering controls

Provide good ventilation in the work area. Additional controls are not normally necessary when handling the polymer.

Thermal extrusion: Provide local exhaust ventilation to ensure that the workplace exposure limit is not exceeded.

Use of respiratory protection may be necessary during maintenance activities.

See also information in chapter 7, section storage.

Personal protection equipment (PPE)

Eye/face protection: Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection: Wear suitable protective clothing. Boots or safety shoes
Protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Glove material: Nitrile rubber - Layer thickness: 0.11 mm.
Breakthrough time: >480 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.
In case of melting: Impervious heat protective gloves according to OSHA Standard - 29 CFR: 1910.138.
Glove material: Leather
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: In case of dust formation: The filter class must be suitable for the maximum contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used!

General hygiene considerations:

Do not breathe dust.

Take off immediately all contaminated clothing.

When using do not eat, drink or smoke.

Wash hands before breaks and after work.

Eye wash facility must be provided.

In case of dust formation: Particular danger of slipping on spilled product on the ground.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Physical state at 20 °C and 101.3 kPa: solid Form: pellets Color: colorless
Odor:	weak
Odor threshold:	not available
pH value:	not applicable
Melting point/freezing point:	105 - 135 °C
Initial boiling point and boiling range:	not applicable
Flash point/flash point range:	> 280 °C
Evaporation rate:	No data available
Flammability:	Not highly flammable.
Explosion limits:	No data available
Vapor pressure:	not applicable
Vapor density:	No data available
Density:	at 20 °C: 1030 g/cm ³ (ISO 1183)
Water solubility:	insoluble
Partition coefficient: n-octanol/water:	not relevant
Auto-ignition temperature:	not self-igniting
Thermal decomposition:	300 °C
Viscosity, dynamic:	not applicable
Explosive properties:	In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.
Oxidizing characteristics:	not oxidising
Ignition temperature:	approx. > 400 °C
Bulk density:	600 g/cm ³
Drop point/drop range:	79 - 127 °C

10. Stability and reactivity

Reactivity:	No data available
Chemical stability:	Product is stable under normal storage conditions.
Possibility of hazardous reactions	In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.
Conditions to avoid:	Avoid dust formation. Dust may form explosive mixtures with air. Keep away from sources of ignition - No smoking.
Incompatible materials:	Strong oxidizing agents
Hazardous decomposition products:	In case of fire may be liberated: Smoke, styrene-monomer, butadiene, aldehydes and acids (organic), carbon monoxide and carbon dioxide (CO ₂).
Thermal decomposition:	300 °C

11. Toxicological information

Toxicological tests

- Acute toxicity: LD50 oral: > 2000 mg/kg
LD50 dermal: > 2000 mg/kg
- Toxicological effects: Acute toxicity (oral): Based on available data, the classification criteria are not met. Mild acute toxicity
Acute toxicity (dermal): Based on available data, the classification criteria are not met. Mild acute toxicity
Acute toxicity (inhalative): Based on available data, the classification criteria are not met. Mild acute toxicity. May cause irritations.
Skin corrosion/irritation: Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.
Eye damage/irritation: Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.
Sensitisation to the respiratory tract: Lack of data. The chemical structure of the polymer does not suggest a specific alert for such an effect.
Skin sensitisation: Based on available data, the classification criteria are not met. Not sensitising
Germ cell mutagenicity/Genotoxicity: Lack of data. The chemical structure of the polymer does not suggest a specific alert for such an effect.
Carcinogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met. The chemical structure of the polymer does not suggest a specific alert for such an effect.
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): Lack of data.
Dust: Can cause skin, eye and respiratory tract irritation.
Processing, thermal hazards: Vapors: Can cause skin, eye and respiratory tract irritation.
Specific target organ toxicity (repeated exposure): Lack of data. Chronic toxic effects are not expected. The product has not been tested. The statement is derived from products of similar structure or composition.
Aspiration hazard: Lack of data.
- Other information: When handled appropriately, even after long years of experience with this product, no adverse health effects are known.

Symptoms

- Dust: Skin irritation, eye irritations and redness
The melted product can cause severe burns.
Processing, thermal hazards: Irritating to eyes, respiratory system and skin.

12. Ecological information

Ecotoxicity

- Aquatic toxicity: no evidence of aquatic toxicity
- Effects in sewage plants: Not toxic to sewage organisms
In sewage treatment plants it may be separated mechanically.

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

Mobility in soil

Product is not soluble in water.
Substance is heavier than water and sinks.
mobility in soil: low

Persistence and degradability

Further details: Biodegradation: Product is not readily biodegradable.
Degradation at UV-radiation/sunlight
Environmental half-life period: >=100 days (estimated)

Additional ecological information

General information: Do not allow to penetrate into soil, waterbodies or drains.

13. Disposal considerations

Product

Recommendation: With due observance of the regulations laid down by the local authorities, this must be brought to a suitable incineration plant/waste disposal site.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation. Non-contaminated packages may be recycled.

14. Transport information

USA: Department of Transportation (DOT)

Proper shipping name: Not restricted

Canada: Transportation of Dangerous Goods (TDG)

Shipping name: Not restricted

Sea transport (IMDG)

Proper shipping name: Not restricted
Marine pollutant: no

Air transport (IATA)

Proper shipping name: Not restricted

Further information

No dangerous good in sense of these transport regulations.

15. Regulatory information

National regulations - Canada

DSL: listed

National regulations - U.S. Federal Regulations

Product:	TSCA Inventory: listed; EPA flags XU TSCA HPVC: not listed Carcinogen Status: IARC Rating: Group 3 OSHA Carcinogen: not listed NTP Rating: not listed
Styrene:	TSCA Inventory: listed TSCA HPVC: not listed Carcinogen Status: IARC Rating: Group 2B OSHA Carcinogen: not listed NTP Rating: listed Clean Air Act: Hazardous Air Pollutants: Code XOY SOCMI Chemical: yes Clean Water Act: Hazardous Substances: RQ 1000 lbs. Other Environmental Laws: CERCLA: RQ 1000 lbs. RCRA Groundwater Monitoring: Methods 8020, 8240 / PQL 1, 5 SARA Title III Section 313, Toxic Release: Conc. 0.1% / Threshold Standard NIOSH Recommendations: Occupational Health Guideline: 0571
1,3-Butadiene:	TSCA Inventory: listed TSCA HPVC: not listed Carcinogen Status: IARC Rating: Group 1 OSHA Carcinogen: listed NTP Rating: listed Clean Air Act: Accidental Release Prevention: Threshold 10000 lbs. / Basis for listing = f Hazardous Air Pollutants: Code XOY SOCMI Chemical: yes Other Environmental Laws: CERCLA: RQ 10 lbs. SARA Title III Section 313, Toxic Release: Conc. 0.1% / Threshold Standard NIOSH Recommendations: Occupational Health Guideline: 0067

National regulations - U.S. State Regulations

California Proposition 65:
THIS PRODUCT(S) CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

National regulations - EC member states

EC-number: -

16. Other information

Hazard rating systems:



NFPA Hazard Rating:

Health: 1 (Slight)
Fire: 1 (Slight)
Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 1 (Slight)
Flammability: 1 (Slight)
Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
	X

Reason of change:

Changes in section 1: Changes of product list: NAFTA
General revision

Date of first version:

8/8/2012

Department issuing data sheet

Contact person:

see section 1: Dept. responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.