

HIPS

SAFETY DATA SHEET



1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier	
Trade name	Filament HIPS 1,75mm; Filament HIPS 2,85mm
Relevant identified uses of the substance or mixture and uses advised against	
Relevant identified uses	Thermal processing: FDM/FFF
Uses advised against	No data
Details of the supplier of the safety data sheet	
Manufacturer/Supplier	VSHAPER Sp. z o.o.
Address	Tajęcina 105, 36-002 Jasionka-Rzeszów
Telephone	+48 801 011 637
Email	contact@vshaper.com
Emergency telephone number	EU-wide emergency number: 112

2. HAZARD IDENTIFICATION

Classification of the substance/mixture	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Not classified Adverse physicochemical, human health and environmental effects. To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.
Label elements	
Labelling according to Regulation (EC) No. 1272/2008 [CLP]	No labelling applicable
Other hazards	

Other hazards not contributing to the classification: fine dust may cause irritation of respiratory system and mucous. Contact with hot material – prevent serious burns. If heated to more than 200°C, the product may form vapours or fumes which may cause irritation of respiratory tract and cause coughing and sensation of shortness of breath. Handling this product may result in electrostatic accumulation. Use proper grounding procedures. Dust may form explosive mixture in air. Combustible dust.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances			Not applicable
Mixtures			
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Hihg Impact Polystyrene	(CAS-No.) 9003-55-8	< 100	Not classified
Polybutadiene		2 – 10	Not classified
2 – 10	(CAS-No.) 100-42-5 (EC-No.) 202-851-5 (EC Index-No.) 601-026-00-0 (REACH-No.) 01-2119457861-32	< 0,08	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Repr. 2, H361d STOT SE 3, H335 STOT RE 1, H372 Asp. Tox. 1, H304 Aquatic Chronic 3, H412

4. FIRST AID MEASURES

First-aid measures after inhalation	Exposure to spray, fumes and vapours produced by heated or burned product: move to fresh air. Call a doctor.
First-aid measures after skin contact	Exposure to splashing of hot product: treat the affected part with cold water (by spraying or immersion). Do not remove clothing adhering to the skin. In case of severe burns, seek hospital treatment.
First-aid measures after eye contact	Immediately rinse with water for prolonged period while holding the eyelids wide open. In case of irritation caused by fine dust: wash with copious volumes of water, until the irritation disappears.
First-aid measures after ingestion	Ingestion during handling is not likely. Do not induce vomiting. Rinse mouth out with water.
Most important symptoms and effects, both acute and delayed	Symptoms/effects: refer to Section 11 for more details on effects.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically

5. FIREFIGHTING MEASURES

Extinguishing media	<p>Suitable extinguishing media for small fire: carbon dioxide, dry powder, water; for large fire: foam</p> <p>Unsuitable extinguishing media do not use a solid water stream as it may scatter and spread fire</p>
Advice for firefighters	<p>Fire hazard – combustible. Hazardous decomposition product in case of fire – carbon oxides (CO, CO₂), aldehydes, ketones, hydrocarbons, toluene, alcohols, styrene</p>
Informacje dla straży pożarnej	<p>Protection during firefighting – do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.</p>
Other information	<p>Notify fire brigade and environmental authorities. Evacuate unnecessary personnel. Use water spray to cool exposed surfaces</p>

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	<p>For non-emergency personnel Protective equipment: do not attempt to take action without suitable protective equipment – gloves, safety glasses.</p> <p>Dla osób udzielających pomocy Protective equipment: use personal protective equipment as required.</p>
Environmental precautions	<p>Avoid release to the environment</p>
Methods and material for containment and cleaning up	<p>For containment: if spilled, may cause the floor to be slippery. Sweep up or vacuum up the product. Keep recovered product for subsequent disposal. Do not allow to enter drains or water courses.</p> <p>Other information: dispose of contaminated material at an authorized site. Notify authorities if product enters sewers or public waters.</p>
Reference to other sections	<p>For further information refer to section 8 and section 13.</p>

7. HANDLING AND STORAGE

Precautions for safe handling	Precautions for safe handling
Conditions for safe storage, including any incompatibilities	Technical measures Comply with applicable regulations. Provide local exhaust or general room ventilation. Take precautionary measures against static discharge. Explosive atmospheres may result from the presence of flammable gas or from the evaporation of flammable liquids, such as some solvents.
Specific end use(s)	Storage conditions Explosive vapour/air mixtures may be formed. Store at ambient temperature and at atmospheric pressure in original packaging (plastic or cardboard boxes). Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking. Proper grounding procedures to avoid static electricity should be followed. Store in dry, cool, well-ventilated area.
	Recommended to professional users.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Control parameters		
High Impact Polystyrene (9003-55-8)		
USA – ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³ inhalable dust particles
Styrene (100-42-5)		
Ireland	OEL (8 hours ref) (mg/m ³)	85 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	20 ppm
Ireland	OEL (15 min ref) (mg/m ³)	170 mg/m ³
Ireland	OEL (15 min ref) (ppm)	40 ppm
United Kingdom	WEL TWA (mg/m ³)	430 mg/m ³
United Kingdom	WEL TWA (ppm)	100 ppm
United Kingdom	WEL STEL (mg/m ³)	1080 mg/m ³
United Kingdom	WEL STEL (ppm)	250 ppm
USA – ACGIH	ACGIH TWA (ppm)	20 ppm
USA – ACGIH	ACGIH STEL (ppm)	40 ppm

USA - ACGIH

Biological Exposure Indices (BEI)

400 mg/g kreatyniny (Medium: urine - Time: end of shift - Parameter: Mandelic acid plus phenylglyoxylic acid (nonspecific)

0.2 mg/l (Medium: venous blood - Time: end of shift -Parameter: Styrene (semi-quantitative)

Exposure controls

Appropriate engineering controls

Ensure good ventilation of the work station. If handling results in dust generation or high temperatures, local exhaust ventilation should be provided to insure that exposure to dust or decomposition products does not exceed the exposure recommended levels. Safety shower. Eye fountain.

Personal protective equipment

Dustproof clothing. Gloves. Safety glasses. Dust formation: dust mask.

Hand protection

Protective gloves. Use insulated gloves when handling this material hot

Eye protection

Safety glasses

Skin and body protection

Wear suitable protective clothing. Safety foot-wear

Respiratory protection

Dust/aerosol mask with filter type P1

Environmental exposure controls

Avoid release to the environment

Other information

Do not eat, drink or smoke during use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state

Solid

Appearance

Fiber, filament

Odour

Mild

Odour threshold

No data available

pH

Not applicable

Relative evaporation rate (butylacetate=1)

No data available

Melting point

No data available

Freezing point

No data available

Boiling point

No data available

Flash point	No data available
Auto-ignition temperature	≈ 490°C
Decomposition temperature	< 250°C
Flammability (solid, gas)	No data available
Vapour pressure	No data available
Relative vapour density at 20°C	No data available
Relative density	No data available
Density	1030 – 1060 kg/m ³
Solubility	Water: Insoluble
Log Pow	No data available
Viscosity, kinematic	Not applicable
Viscosity, dynamic	No data available
Explosive properties	No data available
Oxidising properties	No data available
Lower explosive limit (LEL)	0,015 kg/m ³ (< 63 µm)
Other information	Softening point 76 – 102 °C VOC content < 0,5 %

10. STABILITY AND REACTIVITY

Reactivity	Electrostatic charges may be generated during handling. Take precautionary measures static discharge during blending and transfer operations.
Chemical stability	The product is stable at normal handling and storage conditions.
Possibility of hazardous reactions	Dust may form explosive mixture in air.
Conditions to avoid	No flames, no sparks. Eliminate all sources of ignition. Avoid temperature above 250°C
Incompatible materials	Strong acids. Strong bases. Strong oxidizing agents. Halogens
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

Acute toxicity	Not classified (based on available data, the classification criteria are not met).
Styrene (100-42-5)	
LD50 oral rat	2650 mg/kg
LD50 dermal rat	> 26,4 mg/kg
LC50 inhalation rat	11,8 mg/l/4h as a vapor
LC inhalation rat (ppm)	2770 ppmv/4h
Skin corrosion/irritation	Not classified (based on available data, the classification criteria are not met) pH: not applicable Additional information: heated product causes burns. Thermal decomposition products are produced at elevated temperatures and these may be irritating.
Eye corrosion/irritation	Not classified (based on available data, the classification criteria are not met) pH: not applicable Additional information: fine dust cause irritation to ocular mucous. Thermal decomposition products are produced at elevated temperatures and these may be irritating. Heated product causes burns
Respiratory sensitization	Not classified
Skin sensitization	Not classified
Mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity (single exposure)	Not classified. Dust may cause irritation of respiratory system. If heated to more than 200°C, the product may form vapours or fumes which may cause irritation of respiratory tract and cause coughing and sensation of shortness of breath.
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration hazard	Not classified

12. ECOLOGICAL INFORMATION

Toxicity

Do not allow product to spread into the environment. This product does not present any particular risk for the environment

Styrene (100-42-5)

LC50 fish 1	3,24 – 2,99 mg/l (Exposure time: 96h – Species: Pimephales promelas [flow- through])
LC50 fish 2	19,03 – 33,53 mg/l (Exposure time: 48h – Species: Lepomis macrochirus [static])
EC50 Daphnia 1	3,3 – 7,4 mg/l (Exposure time: 48h – Species: Daphnia magna)
EC50 other aquatic organisms 1	1,4 mg/l (Exposure time: 72h – Species: Pseudokirchneriella subcapitata)
EC50 other aquatic organisms 2	0,72 mg/l (Exposure time: 96h – Species: Pseudokirchneriella subcapitata)
NOEC (acute)	44 mg/kg (Exposure time: 14 days – Species: Eisenia foetida [soil dry weight])

Persistence and degradability

High Impact Polystyrene (9003-55-8)

Persistence and degradability	Product persists. Not readily biodegradable.
BOD (% of ThOD)	Below detection limit.
Bioaccumulative potential	Low bioaccumulation potential

Styren (100-42-5)

BCF fish 1	13,5
Log Pow	2,95

Mobility in soil

High Impact Polystyrene (9003-55-8)

Ecology – soil	Low mobility.
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Results of PBT and vPvB assessment

High Impact Polystyrene (9003-55-8)

Results of PBT assessment	Not required.
Other adverse effects	No additional information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Dispose of in accordance with relevant local regulations. Recycle the material as far as possible. Do not discharge the product into the environment.

14. INFORMACJE O TRANSPORCIE

Un number	ADR IMDG IATA ADN RID	Not applicable Not applicable Not applicable Not applicable Not applicable
UN proper shipping name	ADR IMDG IATA ADN RID	Not applicable Not applicable Not applicable Not applicable Not applicable
Transport hazard class(es)	ADR IMDG IATA ADN RID	Not applicable Not applicable Not applicable Not applicable Not applicable
Packing group	ADR IMDG IATA ADN RID	Not applicable Not applicable Not applicable Not applicable Not applicable
Environmental hazard	ADR IMDG Marine Pollutant IATA ADN RID	Dangerous for the environment: No Dangerous for the environment: N Pollutant: No Dangerous for the environment: No Dangerous for the environment: No Dangerous for the environment: No
Special precautions for user	Overland transport Transport by sea (IMDG) Air transport (IATA) Inland waterway transport Rail transport	No data available No data available No data available No data available No data available
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code		Not applicable

15. REGULATORY INFORMATION

Safety, health and environmental regulation/legislation specific for the substance or mixture	
EU-Regulations	<ul style="list-style-type: none"> Contains no REACH substances with Annex XVII restrictions Contains no substance on the REACH candidate list Contains no REACH Annex XIV substances VOC content : < 0.5 %
National regulations	<ul style="list-style-type: none"> Complies the United States TSCA (Toxic Substances Control Act) inventory Not listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the AICS (Australian Inventory of Chemical Substances) Listed on KECI (Korean Existing Chemicals Inventory) Listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS) Listed on the China Inventory of Existing Chemical Substances (IECSC) Listed on the Canadian DSL (Domestic Substances List)
Chemical safety assessment	<p>The substance is not classified for human health hazards or for environment effects and it is not PBT or vPvB so that no exposure assessment or risk characterisation is required. For tasks where the intervention of workers is required, the substance must be handled in accordance with good industrial hygiene and safety procedures.</p>

16. OTHER INFORMATION

Indication of changes	No data available
Abbreviations and acronyms (Full text of H- and EUH-statements)	
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1

STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
H226	Flammable liquid and vapour
H304	May be fatal if swallowed and enters Airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H361d	Suspected of damaging the unborn child
H372	Causes damage to organs through prolonged or repeated exposure

Key literature references and sources for data

The product safety data sheet has been prepared based on the documentation provided by the manufacturer of the granulate from which the filament product was made.

Relevant R phrases and H statements	No data available.
Training advice	Not applicable

Further information

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