



TPSC Asia Polystyrene Crystal (GPPS)

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Issue date: 4/30/2021 Revision date: 4/30/2021 Version: 1.0 SDS number: P2021042501

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Trade name : TPSC Asia Polystyrene Crystal (GPPS)
Product code : Grades: 1050 / 1450 / 1450NL / 1540
Other means of identification : CAS No.: 9003-53-6

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/mixture : Extrusion, Injection and Other Purposes

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

TPSC Asia Pte Ltd
53 Tuas Crescent, Singapore 638732
T (65) 6862 1228 - F (65) 6862 3179

1.4. Emergency telephone number

Emergency number : 6596576445

SECTION 2: Hazards identification

2.1. Classification of the substance or 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.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

No labelling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : TPSC Asia Polystyrene Crystal (GPPS)

Name	Product identifier	%
Polystyrene	CAS-No.: 9003-53-6 EC-No.: 500-008-9	> 99
Styrene	CAS-No.: 100-42-5 EC-No.: 202-851-5 EC Index-No.: 601-026-00-0	< 0.1

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3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact	: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: On combustion forms:
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protective equipment for firefighters	: Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Ventilate spillage area. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Ventilate area.

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6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Mechanically recover the product. On land, sweep or shovel into suitable containers.
Minimise generation of dust. Store away from other materials.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For disposal of residues refer to section 13 : "Disposal considerations".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Provide good ventilation in process area to prevent formation of vapour.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product.
Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep container tightly closed in a cool, well-ventilated place. Keep container closed when not in use. Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. National occupational exposure and biological limit values

Polystyrene (9003-53-6)	
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	5 mg/m ³ (dust)
Styrene (100-42-5)	
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	85 mg/m ³
MAK (OEL TWA) [ppm]	20 ppm
MAK (OEL STEL)	340 mg/m ³ max. 4x15 min./Schicht
MAK (OEL STEL) [ppm]	80 ppm max. 4x15 min./Schicht
Belgium - Occupational Exposure Limits	
OEL TWA	173 mg/m ³
OEL TWA [ppm]	40 ppm
OEL STEL	346 mg/m ³
OEL STEL [ppm]	80 ppm

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Styrene (100-42-5)	
Finland - Occupational Exposure Limits	
HTP (OEL TWA) [1]	86 mg/m ³
HTP (OEL TWA) [2]	20
HTP (OEL STEL)	430 mg/m ³
HTP (OEL STEL) [ppm]	100 ppm
France - Occupational Exposure Limits	
VME (OEL TWA)	215 mg/m ³
VME (OEL TWA) [ppm]	50 ppm
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	86 mg/m ³
AGW (OEL TWA) [2]	20 ppm
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA) [1]	86 mg/m ³
VLA-ED (OEL TWA) [2]	20 ppm
VLA-EC (OEL STEL)	172 mg/m ³
VLA-EC (OEL STEL) [ppm]	40 ppm
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	43 mg/m ³
NGV (OEL TWA) [ppm]	10 ppm
KTV (OEL STEL)	86 mg/m ³
KTV (OEL STEL) [ppm]	20 ppm
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA) [1]	430 mg/m ³
WEL TWA (OEL TWA) [2]	100 ppm
WEL STEL (OEL STEL)	1080 mg/m ³
WEL STEL (OEL STEL) [ppm]	250 ppm
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA [ppm]	20 ppm
ACGIH OEL STEL [ppm]	40 ppm

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

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8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:

Avoid all unnecessary exposure.

8.2.2.1. Eye and face protection

Eye protection:

Chemical goggles or safety glasses. Use eye protection according to EN 166. Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Wear protective gloves. Wear suitable gloves tested to EN374

8.2.2.3. Respiratory protection

Respiratory protection:

Wear appropriate mask

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: Transparent.
Appearance	: Pellets.
Odour	: faint.
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not applicable
Boiling point	: Not available
Flammability	: Non flammable.
Explosive limits	: 0,015 (for polymer dust < 63 µm)
Lower explosive limit (LEL)	: Not applicable
Upper explosive limit (UEL)	: Not applicable
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: Not available
pH	: Not available
pH solution	: Not available
Viscosity, kinematic	: Not applicable
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50 °C	: Not available
Density	: Not available

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Relative density	: Not available
Relative vapour density at 20 °C	: Not applicable
Particle size	: Not available
Particle size distribution	: Not available
Particle shape	: Not available
Particle aspect ratio	: Not available
Particle aggregation state	: Not available
Particle agglomeration state	: Not available
Particle specific surface area	: Not available
Particle dustiness	: Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Combustible if exposed to flames.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Dust may form an explosive mixture with air, ignited by sparks or sources of ignition.

10.4. Conditions to avoid

Avoid proximity or contact with flames or sparks avoid overheating the product.
Do not heat to temperatures exceeding 250 °C
Keep away from light.

10.5. Incompatible materials

Avoid contact with strong oxidizing materials.

10.6. Hazardous decomposition products

Complete combustion, with an excess of oxygen forms: carbon dioxide (CO₂) and water vapour.
partial combustion, forms also: carbon monoxide (CO), soot and cracked products: aldehydes, ketones ...

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)

Styrene (100-42-5)	
LD50 oral rat	1000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 Inhalation - Rat	11.7 mg/l/4h

Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met)
Serious eye damage/irritation	: Not classified (Based on available data, the classification criteria are not met)
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met)

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Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)

Polystyrene (9003-53-6)

IARC group	3 - Not classifiable
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met)

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

No additional information available

11.2.2. Other information

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified (Based on available data, the classification criteria are not met)
Hazardous to the aquatic environment, long-term (chronic) : Not classified (Based on available data, the classification criteria are not met)

Styrene (100-42-5)

LC50 - Fish [1]	4.11 (3.24 – 4.99) mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
LC50 - Fish [2]	26.28 (19.03 – 33.53) mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 - Crustacea [1]	5.35 (3.3 – 7.4) mg/l (Exposure time: 48 h - Species: Daphnia magna)

12.2. Persistence and degradability

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Persistence and degradability	Not established.
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12.3. Bioaccumulative potential

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Bioaccumulative potential	Not established.
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Styrene (100-42-5)

BCF - Fish [1]	13.5
Partition coefficient n-octanol/water (Log Pow)	2.95

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

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12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

TPSC Asia Polystyrene Crystal (GPPS) Grades: 1050 / 1450 / 1540 is not on the REACH Candidate List

TPSC Asia Polystyrene Crystal (GPPS) Grades: 1050 / 1450 / 1540 is not on the REACH Annex XIV List

TPSC Asia Polystyrene Crystal (GPPS) Grades: 1050 / 1450 / 1540 is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

TPSC Asia Polystyrene Crystal (GPPS) Grades: 1050 / 1450 / 1540 is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

France	
Occupational diseases	
Code	Description
RG 66	Occupational rhinitis and asthma

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG)
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG)

Water hazard class (WGK) : Not classified according to Regulation Governing Systems for Handling Substances Hazardous to Waters (AwSV)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting : The substance is not listed

giftige stoffen – Borstvoeding

NIET-limitatieve lijst van voor de voortplanting : The substance is not listed

giftige stoffen – Vruchtbaarheid

NIET-limitatieve lijst van voor de voortplanting : The substance is not listed

giftige stoffen – Ontwikkeling

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number

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Abbreviations and acronyms	
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Sources of Key data : <https://echa.europa.eu/>
LOLI database

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.