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# MATERIAL SAFETY DATA SHEET

## Prusament ASA by Prusa Polymers

conforms to Regulation EC No. 1907/2006 (REACH)

## 1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY

Product name: Prusament ASA, all colours
Chemical name: Acrylonitrile-Styrene-Acrylate
Chemical family: Thermoplastic
Application: filaments for FDM 3D printing
Manufacturer/Supplier:


- Prusa Research a.s.
- Partyzánská 188/7a
- 17000 Praha 7
- Czech Republic
- +420 222 263 718
- info@prusa3d.cz


### Emergency contacts:

Toxicology Information Centre address: Na Bojišti 1, Praha 2 phone number: +420 224 919 293 phone number: +420 224 915 402

## 2. HAZARD IDENTIFICATION

### 2.1. CLASSIFICATION OF SUBSTANCE OR MIXTURE

Material is not classified as hazardous when used under recommended conditions.

### 2.2. LABEL ELEMENTS

Symbols/Pictograms: None
Signal Words: None
Hazard statement: None
Precautionary statement: None

### 2.3. OTHER HAZARDS

This substance is not classified as PBT or a vPvB.
**When heated, the product may release styrene fumes, which are harmful and irritate the respiratory tract. Ensure good ventilation when working with the product. In case of insufficient ventilation, wear respiratory equipment.**

## 3. COMPOSITION AND INFORMATION ON INGREDIENTS

### 3.1. MAIN SUBSTANCE OF SOLID POLYMER:

Chemical name: ASA (Acrylonitrile-Styrene-Acrylate)
CAS number: 26299-47-8
Information on ingredients:

| | |
|---|---|
| ASA | ~ 97 % |
| Antioxidants | ~ 1 % |
| Other additives and pigments | ~ 2 % |

Information on ingredients:

| | |
|---|---|
| Name of substance | Styrene (Styrene monomer) |
| CAS No | 100-42-5 |
| Molecular formula | C8H8 |
| Molar mass | 104.2 g/mol |

Styrene is used as one of monomers during synthesis of ASA polymer. Styrene vapours can be released into the air and consequently be inhaled by users and by surrounding people and animals. In order to keep healthy environment it is necessary enable sufficient ventilation of printer's workspace.
Other information: This material can generate Particulates Not Otherwise Classifiable (PNOC). The Occupational Safety and Health Administration (OSHA) PEL/TWA for PNOC is 15 mg/m3 for total dust and 5 mg/m3 for the respirable fraction. The American Conference of

Governmental Industrial Hygienists (ACGIH) TLV/TWA for PNOC is 10 mg/m3 for inhalable particulates and 3 mg/m3 for respirable particulates.

## 4. FIRST AID MEASURES

We are not expected hazards under normal conditions and correct usage.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a doctor if necessary.

Skin contact: After contact with hot polymer cool skin rapidly with cold water. Call a doctor if necessary. Solid form of material is not essentially irritating to skin but wash yourself after direct contact.

Inhalation: After inhalation of released fumes, take affected persons to fresh air. If necessary apply artificial respiration and call a doctor.

Ingestion: Call doctor or consider to induce vomiting. Rinse mouth with water. Call a doctor if necessary.

## 5. FIREFIGHTING MEASURES

### 5.1. EXTINGUISHING MEDIA

Suitable extinguishing media: Foam, Water, Carbon dioxide (CO2), Dry chemical.

Unsuitable extinguishing media: High pressure water jet can spread the fire

### 5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Burning produces obnoxious and toxic fumes, carbon monoxide, carbon dioxide, styrene.

### 5.3. ADVICE FOR FIREFIGHTERS

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting clothing with self-contained breathing apparatus.

Under fire conditions: Cool containers / tanks with water spray Water mist may be used to cool closed containers Fine dust dispersed in air may ignite. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. PERSONAL PRECAUTIONS

Use personal protective equipment as required Avoid contact with skin and eyes Remove all sources of ignition Sweep up to prevent slipping hazard Use with recommended personal protective equipment (see Section 8).

### 6.2. ENVIRONMENTAL PRECAUTIONS

Do not allow material to contaminate groundwater system Do not flush into surface water or sanitary sewer system Should not be released into environment

### 6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Avoid dust formation. Sweep up into suitable container for disposal (see Section 13).

## 7. HANDLING AND STORAGE

### 7.1. PRECAUTIONS FOR SAFE HANDLING

Avoid contact with skin and eyes Low hazard for usual industrial or commercial handling Users should be protected from the possibility of contact with molten material Use sufficient ventilation at the workplace, if you can smell atypical odour on workspace your ventilation is not sufficient enough. Flammable product

### 7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in original container protected from excessive heat, direct sunlight, dust and condensed water. Protect from moisture, product can be hygroscopic, Store in a cool dry place 5-30 °C. If you do not need filament for longer period of time, insert it back into container with attached silica gel. Use within 1 year from manufacture. Avoid contact with food. Remove all possible sources of ignition. Keep locked up and out of reach children.

### 7.3. SPECIFIC END USES

Material for FDM 3D-printing.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. APPROPRIATE ENGINEERING CONTROLS

Sufficient ventilation or local exhaust ventilation should be used in order to keep workspace conditions on healthy level.

### 8.2. PERSONAL PROTECTION

Avoid contact with skin, eyes and mucous membranes. Avoid prolonged or repeated contact with skin. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

Eye protection: Not required for FDM 3D printing.

Skin protection: Not required for FDM 3D printing.

Respiratory protection: Avoid unventilated closed place or use enclosure for 3D printer. In case of inadequate ventilation wear respiratory protection

Hand protection: Avoid contact with molten material.

Environmental exposure controls: Do not allow product to enter water sources or soil.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid

Appearance: Plastic wire

Odor: Specific when melted

Vapor pressure: Not determined

Vapor density: Not determined

Evaporation rate: Not determined

Density (solid): 1.07 g/cm3

Decomposition temperature: Not determined

Boiling point / boiling range: Not applicable

Water solubility: Insoluble

Solubility in other solvents: THF, Acetone and other

## 10. STABILITY AND REACTIVITY

Reactivity: None expected under conditions of normal use.

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions: None expected under conditions of normal use. Avoid keeping resin molten for excessive periods of time at elevated temperatures. Prolonged exposure above 200°C will cause polymer degradation.

Hazardous decomposition products: Burning produces obnoxious and toxic fumes. Aldehydes, Carbon monoxide (CO), carbon dioxide (CO2).

## 11. TOXICOLOGICAL INFORMATION

### 11.1. INFORMATION ON TOXICOLOGICAL EFFECT

No adverse effects for human health are expected under conditions of correct usage. Material have no toxicological effect in solid state, but vapours of styrene released from melt are toxic.

Acute toxicity: not to be expected

Irritation: Styrene may cause respiratory irritation

Sensitization: Not available.

Repeated dose toxicity: Not available.

Carcinogenic effect: IARC has classified styrene as a Group 2A, probably carcinogenic to humans.

Mutagenicity: In vitro tests showed mutagenic effects which were not observed with in vivo test.

Reproductive toxicity: No toxicity to reproduction.

## 12. ECOLOGICAL INFORMATION

Bioaccumulative potential: Not expected

Persistence and degradability: Material will remain in soil when released to environment. Insoluble in water. Degradation is expected with exposure to sunlight. No significant biodegradation is expected.

Toxicity: Expected to be inert in the aquatic environment, but if ingested by waterfowl or other animals, may cause mechanically adverse effects.

## 13. DISPOSAL CONSIDERATIONS

Waste treatment: Dispose of in accordance with local regulations. Should not be released into the environment. Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose as a common household waste. Sort out as plastic waste.

Packaging: Dispose of in accordance with local regulations.

## 14. TRANSPORT INFORMATION

The substance is not classified as dangerous for transport according to ADR/RID/IMDG/ICAO/IATA.

## 15. REGULATORY INFORMATION

This product complies with the requirements of resolution of European Parliament (WE) no. 1907/2006. Dated December 18 2006 concerning REACH.

Regulation of the European Parliament and Council Regulation (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures (CLP).

RoHS – Directive 2011/65/EU Prusa Research doesn't have any information about content of hazardous substances in Prusament ASA, these substances aren't used during production of filament. No measurements and analyses have been done, but based on information given by material suppliers, it is not expected any amount of hazardous substances in levels exceeding concentration described in Directive 2011/65/EU.

## 16. OTHER INFORMATION

The information presented in this Material Safety Data Sheet (MSDS) is based on our best knowledge in combination with original MSDS provided by manufacturer. MSDS contains information on safety use, storage and disposal.

DISCLAIMER: The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. User should consider this information only as additional. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned. No liability can be assumed for accuracy and completeness. It is the responsibility of the user to adapt the warnings to local laws and regulations. Safety information describes the product in terms of safety and can not be considered as technical information about the product.