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## Safety data sheet: Z-ABS 2

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

#### 1.1. PRODUCT IDENTIFIER

Trade name: Z-ABS 2

#### 1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Identified use: thermal processing for 3D printing in Layer Plastic Deposition (LPD) technology.

Use advised against: other than listed above.

#### 1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Supplier: Zortrax S.A.  
Lubelska 34  
10-409 Olsztyn  
Poland  
TEL. +48 89 672 40 01

Made in: UE

#### 1.4. EMERGENCY TELEPHONE NUMBER

Emergency telephone number: 112

### SECTION 2. HAZARDS IDENTIFICATION

#### 2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

According to Regulation (WE) No 1272/2008 [CLP]: The product is not classified as hazardous.

#### 2.2. LABEL ELEMENTS

According to Regulation (WE) No 1272/2008 [CLP]: The product does not require a hazard warning label in accordance with EU and national regulations.

#### 2.3. OTHER HAZARDS

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. SUBSTANCES

- 99% Acrylonitrile 1,3-Butadiene Styrene (Nr CAS. 9003-56-9),
- =< 1% additives

### 3.2. MIXTURES

- polymers,
- filling additives if needed,
- functional additives if needed.

## SECTION 4. FIRST AID MEASURES

### 4.1. DESCRIPTION OF FIRST AID MEASURES

Inhalation:	Move the victim to fresh air. Immediately contact a doctor. Remove the contaminated clothing.
Skin contact:	If molten material comes into contact with the skin, immediately rinse the skin with plenty of water with soap for at least 15 minutes. If the irritation persists, get medical assistance. Cool the skin with cold water after contact with a hot and molten polymer.
Eye contact:	Dust: Rinse eyes thoroughly with lots of water for at least 15 minutes. If irritation occurs, contact a doctor. Gas: if gases from molten or hot material come into contact with the eyes, rinse thoroughly with lots of water. If it's necessary, contact a doctor.
Ingestion:	Induce vomiting. Rinse mouth with water and drink plenty of water. If it's necessary, get medical assistance.

### 4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Symptoms:	Dust: May cause skin irritation, and may cause redness and irritation to the eyes.
Hazards:	If hot material is used incorrectly, there is a burn hazard. No other hazards are expected if the material is used as intended.

### 4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Continuation of first aid measures. Treat according to symptoms (decontamination, vital functions), no known specific antidote.

## SECTION 5. FIREFIGHTING MEASURES

### 5.1. EXTINGUISHING MEDIA

Suitable extinguishing media:

Water spray, foam, dry powder, carbon dioxide (CO<sub>2</sub>).

Unsuitable extinguishing media:

High volume water jet.

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

In the case of combustion:

Release of carbon monoxide, carbon dioxide, nitrogen oxide, organic decomposition products.

### 5.3. ADVICE FOR FIREFIGHTERS

Special protective equipment for firefighters:

Provide/wear breathing apparatus.

Other information:

The degree of risk depends on the substance that is on fire and fire conditions. Combustion may produce toxic gases/vapors. Fire residues and contaminated extinguishing water must be disposed of in accordance with local regulations.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### 6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Store away from sources of ignition. Avoid contact with eyes and skin. Do not inhale dust. If it's necessary, wear a dust mask and safety glasses.

### 6.2. ENVIRONMENTAL PRECAUTIONS

The material should not be released to environment, especially into drains and water reservoirs. Appropriate authorities should be notified should the material be released into watercourses or drains.

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

Sweep up and gather. Avoid raising dust. Provide adequate ventilation. Dispose of the collected material according to regulations.

### 6.4. REFERENCE TO OTHER SECTIONS

Exposure controls/personal protection see SECTION 8. Disposal considerations see SECTION 13.

## SECTION 7. HANDLING AND STORAGE

### 7.1. PRECAUTIONS FOR SAFE HANDLING

Machines for processing the material must be placed in a room with proper ventilation. Avoid the formation and accumulation of dust. Handle the material according to the rules of health and safety at work.

Measures to prevent the formation of aerosols and dusts: Keep appropriate standards for cleaning procedures to prevent dust from accumulating at the workspace. To avoid the risk of explosion of dust caused by the presence of powder, devices such as ducts transporting air should have electrostatic eliminators, grounding, bag filters and hoppers attached. Bag filters should be installed with filters capable of conducting electric current.

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

Information about fire and explosion protection:

Apply general fire prevention rules. In the case of dust formation: take measures to prevent electrostatic charging. Avoid any sources of ignition: heat, sparks, open fire.

Storage:

Properly closed/packed, cool and dry. Protect against moisture, direct and strong sun light, high temperature. Avoid contamination with other substances. Avoid storage together with hazardous substances.

### 7.3. SPECIFIC END USE(S)

Advice mentioned in this section should be observed in accordance with the relevant identified uses listed in SECTION 1.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. CONTROL PARAMETERS

The product does not contain any hazardous substances with occupational exposure limits.

### 8.2. EXPOSURE CONTROLS

Personal protective equipment:

Respiratory protection:

Respiratory protection is required in the case of dust formation. Solid particles filter (P1 type).

Hand protection:

Additional protective gloves against thermal risks when handling hot molten masses (EN 407).

Eye protection:

Safety glasses with side-shield (e.g. EN 166).

Body protection:

Body protection must be chosen depending on the activity of the activity and possible exposure, e.g. apron, protective boots, suit resistant to chemicals.

General safety and hygiene measures:

Avoid contact of the molten material with the skin. Avoid inhalation of dust/mist/vapors. Ensure that eyewash stations and safety showers are easily accessible. Follow the rule of industrial hygiene and safety practice. Wash hands and/or face before breaks and after work. Do not eat, drink or smoke when using the product.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	filament
Physical state:	solid (compressed)
Color:	various
Odor:	none
Odor threshold:	no data
pH:	no data
Melting point/freezing point:	no data
Initial boiling point and boiling range:	no data
Flash point:	no data
Evaporation rate:	no data
Flammability:	no data
Upper/lower flammability or explosive limits:	no data
Vapor pressure:	no data
Vapor density:	no data
Relative density:	1.05-1.07 g/cm <sup>3</sup>
Solubility:	insoluble
Partition coefficient: n-octanol/water:	no data
Auto ignition temperature:	no data
Decomposition temperature:	no data
Viscosity:	no data
Explosive properties:	no data
Oxidizing properties:	no data

### 9.2. OTHER INFORMATION

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## SECTION 10. STABILITY AND REACTIVITY

### 10.1. REACTIVITY

No reactivity under normal storage and operating conditions.

## 10.2. CHEMICAL STABILITY

The material is stable under normal storage and operating conditions.

## 10.3. POSSIBILITY OF HAZARDOUS REACTIONS

The material is stable under normal storage and operating conditions.

## 10.4. CONDITIONS TO AVOID

Avoid extreme heat. Avoid all sources of ignition, heat, sparks, open fire. Protect against moisture.

## 10.5. INCOMPATIBLE MATERIALS

Strong oxidizing and reducing agents, strong acids and alkalies.

## 10.6. HAZARDOUS DECOMPOSITION PRODUCTS

Prolonged or strong thermal load may lead to release of dangerous combustion products: carbon monoxide, carbon dioxide, nitrogen oxide, organic decomposition products.

# SECTION 11. TOXICOLOGICAL INFORMATION

## 11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

No short- or long-term toxicological effects are known.

Other information:

Styrene:

- Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure.
- Lung damage.
- May be fatal if swallowed and enters airways.
- Irritating to eyes and skin.

Acrylonitrile:

- Toxic by inhalation, skin contact and if swallowed.
- Suspected of causing cancer. May cause harm to the unborn child.
- Causes skin irritation. May cause allergic skin reaction. Causes serious eye damage.

1,3-Butadiene:

- May cause cancer. May cause heritable genetic damage.

Symptoms:

- Dust: may result in irritation to the respiratory system, skin, and eyes.
- The molten material can cause serious burns.
- Thermal processing.

Processing:

- Irritating to eyes, respiratory system and skin.
- If ingested: may cause irritation of the gastro-intestinal tract and abdominal pain.

## SECTION 12. ECOLOGICAL INFORMATION

### 12.1. TOXICITY

Short-term aquatic toxicity:

Based on available information on ingredients, the classification criteria are not met: LC (50) mixture - 5.78 mg/l (additivity method and total value, information on toxicity is available for 92.5% of the mixture)

Long-term aquatic toxicity:

Based on the available information on ingredients, the classification criteria are met, therefore, the mixture has been classified as chronically toxic for the aquatic environment: 1 NOEC = 0.0079 mg/l (additivity method and total value, information on toxicity is available for 78% of the mixture).

### 12.2. PERSISTENCE AND DEGRADABILITY

Further details:

- Degradability: the material is non-biodegradable,
- The material will probably remain in the environment.

### 12.3. BIOACCUMULATIVE POTENTIAL

To avoid bioaccumulation, plastic materials must not be disposed of into seas and other aquatic environments.

### 12.4. MOBILITY IN SOIL

No data available

### 12.5. RESULTS OF PBT AND VPVB ASSESSMENT

No data available

### 12.6. OTHER ADVERSE EFFECTS

General information:

Do not allow to enter ground and surface water, and drains.

## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1. WASTE TREATMENT METHODS

Disposal by recycling or incineration is suggested, whereby all national and local regulations must be followed.

Information on waste processing:

Improper incineration can cause the release of toxic substances, e.g. CO, HCN, AN and SM.

## SECTION 14. TRANSPORT INFORMATION

### 14.1. UN NUMBER

Not applicable

### 14.2. UN PROPER SHIPPING NAME

Not applicable

### 14.3. TRANSPORT HAZARD CLASS(ES)

Not applicable

### 14.4. PACKING GROUP

Not applicable

### 14.5. ENVIRONMENTAL HAZARDS

Not applicable

### 14.6. SPECIAL PRECAUTIONS FOR USER

Unknown

### 14.7. TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL AND THE IBC CODE

Regulation:	Not assessed
Consignment approved:	Not assessed
Pollution name:	Not assessed
Pollution category:	Not assessed
Shipment type:	Not assessed



## SECTION 15. REGULATORY INFORMATION

### 15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

Water hazard class: not hazardous to water

### 15.2. CHEMICAL SAFETY ASSESSMENT

A safety data sheet for this product is legally not required and is provided by us just as courtesy to our customers. The product is not classified as hazardous. Chemical safety assessment is not required.

## SECTION 16. OTHER INFORMATION

This Safety Data Sheet has been prepared on the basis of the currently available data on the product as well as of the Manufacturer's experience and knowledge. It should be treated as a guide for safe transportation, storage and handling. The given information is not to be considered as a warranty or quality specification. Additionally, it is the user's responsibility to handle the product in accordance with local regulations and standards.

End of Safety Data Sheet



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