Material Safety Data Sheet

TOOLCRAFT

1. Identification of the substance/mixture and of the company/undertaking

Product:	ABS for extrusion-based 3D printing
Manufacturer:	Conrad Electronic SE
Address:	Klaus-Conrad-Str. 1, D-92240 Hirschau
Telephone:	+49 (0) 9604 / 40 - 8988
Date:	16.02.2017

2. Hazards Identification

2.1 Classification of the substance of mixture

2.1.1 Classification according to Directive 67/548/EEC or 1999/45/EC as amended

This substance does not meet the criteria for classification according to Directive 67/548/EEC as amended.

2.1.2 Classification according to Regulation (EC) No 1272/2008 as amended

This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

2.2 Label elements

Not applicable.

2.3 Other hazards

Not likely to be an irritant in the solid form. Danger of burns when heated/molten material is handled.

3. Composition/information on ingredients

3.1 Substances

Chemical Name	CAS No.	Weight %	Exposure Limits
Acrylonitrile-Butadiene-Styrene copolymer	9003-56-9	>98	None
Additives	-	≤2	None

4. First aid measures

4.1 Description of first aid measures

Remove affected persons from the danger area, at the same time ensuring your own safety. Remove all contaminated clothing immediately.

4.1.1 Inhalation:

In case of gases evolving from melted resin, move subject to fresh air. Treat symptomatically

4.1.2 Skin contact:

In case of pellets or powder, wash with water. In case of smelt, wash affected skin area and clothing with plenty of (soap and) water. Seek medical advice

4.1.3 Eye contact:

In case of pellets or powder, flush with plenty of water for at least 15 minutes. Seek medical advice if any dust particles still remain.

In case of gases evolving from melted resin of high temperature, flush with plenty of water for at least 15 minutes. Seek medical advice if necessary

4.1.4 Ingestion:

Induce vomiting. Rinse mouth with water. Seek medical advice if necessary

4.2 Most important symptoms and effects, both acute and delayed

Dust: Skin irritation, eye irritations and redness

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. (Decontamination, vital functions)

5. Fire-fighting measures

5.1 Suitable extinguishing media

Water, foam, dry chemical powder

5.2 Special hazards arising from the substance or mixture

not applicable

5.3 Advice for fire fighters

Protective equipment: Self-contained breathing apparatus

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Filaments remained on ground may cause slipping

Wear protective equipment

Ensure adequate ventilation

Keep away from ignition sources

Keep unprotected persons away

6.2 Environmental precautions

Do not allow product to reach sewage system or water bodies. Inform respective authorities in case product reaches water, sewage system or soil

6.3 Methods and materials for containment and cleaning up

Recovery if not contaminated or disposal

7. Handling and storage

7.1 Precautions for safe handling

Measures to prevent fire:

Prevent from fire around handling area

Measures to prevent aerosol and dust generation:

Maintain good housekeeping standards to prevent accumulation of dust. To avoid dust explosion resulting from the existence of powder, electrostatics eliminators and grounding should be fixed to such equipment as air transferring pipes, bag filters and hoppers. Use electrically conductive filters for bag filters.

7.2 Conditions for safe storage

Store in ambient temperatures. Avoid exposure to high moisture levels. No special restrictions on storage with other products. Keep the material at a cool dry place. Protect from direct sunlight, rain and violent temperature fluctuation. Fire is inhibited around storage area.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure Limits:

None established

8.2 Engineering controls

Provide appropriate exhaust ventilation at places where dust is formed or the material is molten, such as during printing.

8.3 Personal protective equipment

Wear gloves when handling hot/molten material.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Filament, Solid
Color:	Various
Odor:	Odorless or negligible
Odor threshold:	None
pH:	Not applicable
Melting point/freezing point:	Not determined
Boiling point:	Not applicable
Flash point:	404 °C
Evaporation rate:	Not applicable
Flammability:	Not available
Upper/lower flammability or explosive limits:	45 g/m3 (open cup, powder)
Vapor pressure:	Not applicable
Vapor density:	Not applicable
Relative density:	1.03-1.10 g/cm3
Solubility:	Not soluble
Partition coefficient (n-octanol/water):	No data available
Auto-ignition temperature:	466 °C
Decomposition temperature:	Onset of decomposition > 380 °C
Viscosity:	Not applicable

10. Stability and reactivity

10.1 Reactivity

Non-reactive under normal handling and storage conditions

10.2 Chemical stability

Stable under normal handling and storage conditions

10.3 Possibility of hazardous reactions

Data no available

10.4 Conditions to avoid

Avoid excessive heat, flames and all sources of ignition

10.5 Incompatible materials

not applicable

10.6 Hazardous decomposition products

not applicable

11. Toxicological information

11.1 Likely routes of exposure

Inhalation:

Dust irritates the respiratory system, and may cause coughing and difficulties in breathing.

Skin contact:

Dust may irritate skin.

Eye contact:

Dust may irritate the eyes.

Ingestion:

May cause discomfort if swallowed.

11.2 Symptoms

Dust may irritate throat and respiratory system and cause coughing. Direct contact with eyes may cause temporary irritation.

11.3 Information on toxicological effects

Acute toxicity (oral): Lack of data.

Acute toxicity (dermal): Lack of data.

Acute toxicity (inhalative): Lack of data.

Skin corrosion/irritation: Lack of data. May cause irritations.

Eye damage/irritation: Lack of data. May cause irritations.

Sensitisation to the respiratory tract: Lack of data. Not to be expected

Skin sensitisation: Lack of data. Not to be expected

Germ cell mutagenicity/Genotoxicity: Lack of data. Not to be expected

Carcinogenicity: Lack of data. Not to be expected

Reproductive toxicity: Lack of data. Not to be expected

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): Lack of data.

Dusts: Irritating to eyes, respiratory system and skin.

Specific target organ toxicity (repeated exposure): Lack of data.

12. Ecological information

12.1 Toxicity

Short-term aquatic toxicity:

Based on available data on the constituents the classification criteria are not met.

LC(50)mixture = 5.78 mg/l (additivity and summation method, toxicity information available for 92,5 % of the mixture)

Long-term aquatic toxicity:

Based on available data on the constituents the classification criteria are met and the mixture is therefore classified as Aquatic Chronic 1. NOECmixture = 0.0079 mg/l (additivity and summation method, toxicity information available for 78 % of the mixture)

12.2 Persistence and degradability

Further details:

Biodegradation: Product is not readily biodegradable.

The product is likely to persist in the environment.

Effects in sewage plants:

In sewage treatment plants it may be separated mechanically.

12.3 Bioaccumulative potential

To avoid bioaccumulation plastics should not be disposed in the sea or in other water environments.

12.4 Mobility in soil

no data available

12.5 Other adverse effects

General information:

Do not allow to enter into ground-water, surface water or drains.

13. Disposal considerations

13.1 Waste treatment methods

Product / Packaging disposal:

Dispose in accordance with the current local regulations.

Waste treatment-relevant information:

Inadequate incineration may generate toxic gases such as CO, HCN, AN and SM

14. Transport information

ADR/RID

14.1 UN number

Not applicable

14.2 UN proper shipping name

Proper Shipping Name: NOT REGULATED

14.3 Transport hazard class(es)

Not applicable

14.4 Packing Group

Not applicable

14.5 Environmental hazards

Not considered environmentally hazardous based on available data

14.6 Special precautions for user

Special Provisions: no data available Hazard identification No:no data available

ADNR / ADN

14.1 UN number

Not applicable

14.2 UN proper shipping name

Proper Shipping Name: NOT REGULATED

14.3 Transport hazard class(es)

Not applicable

14.4 Packing Group

Not applicable

14.5 Environmental hazards

Not considered environmentally hazardous based on available data

14.6 Special precautions for user

no data available

IMDG

14.1 UN number

Not applicable

14.2 UN proper shipping name

Proper Shipping Name: NOT REGULATED

14.3 Transport hazard class(es)

Not applicable

14.4 Packing Group

Not applicable

14.5 Environmental hazards

Not considered environmentally hazardous based on available data

14.6 Special precautions for user

EMS Number: Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

ICAO/IATA

14.1 UN number

Not applicable

14.2 UN proper shipping name

Proper Shipping Name: NOT REGULATED

14.3 Transport hazard class(es)

Not applicable

14.4 Packing Group

Not applicable

14.5 Environmental hazards

Not considered environmentally hazardous based on available data

14.6 Special precautions for user

no data available

15. Regulatory information

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

Authorization and / or restrictions on use: None

Other EU regulations: The following substances are under European Seveso regulation:

Substance	Seveso category	Other Seveso categories	Seveso concentrations	Categories
Acrylonitrile	2	9ii 7b	0 % ≤ C < 20 %	2
Buta-1,3-diene	0	0	-	-
Styrene	6	-	C ≥ 12.5 %	-

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment is not yet required.

16. Other information

Declare to reader

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. This shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.