

Issuing Date 27-Jan-2020

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Revision Number 2.01

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1. Product identifier**

| | |
|-------------------------------|--|
| Product Code(s) | SDS-400616 EN E |
| Product Name | ABS-ESD7™ Model Material |
| PN (Part Number) | 311-10901 311-20800 311-60901 315-60901 316-60901 325-10901 325-60901 333-90230 355-02130 |
| Denmark PR No | N/A |
| Synonyms | ABS |
| Pure substance/mixture | Mixture |

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

| | |
|-----------------------------|--------------------------|
| Recommended Use | Additive manufacturing |
| Uses advised against | No information available |

1.3. Details of the supplier of the safety data sheet**Importer**

Stratasys EMEA Regional Office
Airport Boulevard B 120
77836 Rheinmünster, Germany
Phone: +49-7229-7772-0

For further information, please contact

E-mail address info@Stratasys.com**1.4. Emergency telephone number****Emergency Telephone** +44 1235 239670 - Europe - Multi lingual response

| | |
|-----------------------|---|
| Austria | Poison Information Centre (AT): +43-(0)1-406 43 43 |
| Belgium | Poison Centre (BE): +32 70 245 245 |
| Croatia | Poison Control (CR): +385 1 2348 342 |
| Czech Republic | Poison Control (CS): +420 224 919 293, +420 224 915 402 |
| Denmark | Poison Control Hotline (DK): +45 82 12 12 12 |
| Estonia | Poison Control (ET): 16662, (+372) 626 93 90 |
| Finland | Poison Information Centre (FI): +358 9 471 977 |
| France | ORFILA (FR): + 01 45 42 59 59 |
| Germany | Poison Centre Berlin (DE): +49 030 30686 790 (24 h service, Advice in German and English) |
| Greece | Poison Information Center (EL): (0030) 2107793777 |
| Hungary | Poison Information Service (HU): (+ 36-80) 201-199 |
| Iceland | Poison Information Center: 543 2222 |

| | |
|-------------|--|
| Italy | Poison Centre, Milan (IT): +39 02 6610 1029 |
| Latvia | Poison Information Center (LV): +371 67042473 |
| Lithuania | Poison Information Office (LT): +370 5236 20 52 or +370 687 53 378 |
| Luxembourg | Belgian Poisons Center: (+352) 8002-5500 |
| Netherlands | National Poisons Information Center (NVIC): 030-274 8888 |
| Norway | Poison Center: 22 59 13 00 |
| Portugal | Poison Information Centre (PT): +351 21 330 3284 |
| Spain | Poison Information Service (ES): +34 91 562 04 20 |
| Sweden | 112 – ask for Poisons Information |

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

EUH210 - Safety data sheet available on request

2.3. Other hazards

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. If small particles are generated during further processing, handling, or by other means, combustible dust concentrations in air may form. See section 7 for more information. See section 8 for more information.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

| Chemical name | EC No | CAS No | Weight-% | Classification according to Regulation (EC) No. 1272/2008 [CLP] | REACH Registration Number |
|---|-----------|-----------|----------|---|---------------------------|
| Acrylonitrile butadiene styrene polymer | - | 9003-56-9 | 80-100 | Not classified | No data available |
| Short tangled MWCNTs | 231-955-3 | 7782-42-5 | 3-10 | Not classified | No data available |

Full text of H- and EUH-phrases: see section 16

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|--------------|---|
| Inhalation | Remove to fresh air. |
| Eye contact | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor. |
| Skin contact | Wash skin with soap and water when in contact with molten residues. |
| Ingestion | Drink plenty of water. Do not induce vomiting without medical advice. Call a doctor immediately. |

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

| | |
|----------|-------------|
| Symptoms | None known. |
|----------|-------------|

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

Note to doctors Treat symptomatically.

Section 5: FIRE-FIGHTING MEASURES**5.1. Extinguishing media**

Suitable Extinguishing Media Foam
Water
Carbon dioxide (CO2)
Dry chemical
Alcohol resistant foam

Unsuitable extinguishing media None known.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical None known.

5.3. Advice for firefighters

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

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.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Do not flush into surface water or sanitary sewer system. Keep out of waterways.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal.

Prevention of secondary hazards Prevent dust cloud. Avoid dust accumulation in enclosed space. May form combustible dust concentrations in air if small particles are generated during further processing, handling or by other means. Remove all sources of ignition.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE**7.1. Precautions for safe handling**

Advice on safe handling Use personal protection equipment. Avoid contact with skin and eyes, when handling melted filament. If small particles are generated during further processing, handling, or by other means, combustible dust concentrations in air may form. Use respirator.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Risk Management Methods (RMM) The information required is contained in this Material Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits

| Chemical name | European Union | United Kingdom | France | Spain | Germany |
|-----------------------------------|---|---|--|---|---|
| Short tangled MWCNTs 7782-42-5 | - | TWA: 10 mg/m ³ TWA: 4 mg/m ³ STEL: 30 mg/m ³ STEL: 12 mg/m ³ | TWA: 2 mg/m ³ | TWA: 2 mg/m ³ | - |
| Chemical name | Italy | Portugal | Netherlands | Finland | Denmark |
| Short tangled MWCNTs 7782-42-5 | - | TWA: 2 mg/m ³ | - | TWA: 2 mg/m ³ | TWA: 2.5 mg/m ³ |
| Chemical name | Austria | Switzerland | Poland | Norway | Ireland |
| Short tangled MWCNTs 7782-42-5 | TWA: 5 mg/m ³ STEL 10 mg/m ³ | TWA: 2.5 mg/m ³ TWA: 5 mg/m ³ | TWA: 4.0 mg/m ³ TWA: 1.0 mg/m ³ | TWA: 5 mg/m ³ TWA: 2 mg/m ³ TWA: 10 mg/m ³ TWA: 4 mg/m ³ STEL: 10 mg/m ³ STEL: 4 mg/m ³ STEL: 15 mg/m ³ STEL: 8 mg/m ³ | TWA: 2 mg/m ³ STEL: 6 mg/m ³ |

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering controls If dust is generated during further processing provide exhaust ventilation.

Personal protective equipment

Eye/face protection Goggles. Safety glasses with side-shields.

Skin and body protection Impervious clothing.

Respiratory protection Minimise dust generation and accumulation. Wear respiratory protection.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls No information available.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | |
|------------------------|--------------------------|
| Physical state | Solid |
| Appearance | Monofilament |
| Odour | No information available |
| Colour | black |
| Odour threshold | No information available |

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|---------------------------------------|--------------------------|-------------------------|
| pH | No data available | None known |
| Melting point / freezing point | No data available | None known |
| Boiling point / boiling range | No data available | None known |
| Flash point | >380 °C | None known |
| Evaporation rate | No data available | None known |
| Flammability (solid, gas) | No data available | None known |
| Flammability Limit in Air | | None known |
| Upper flammability limit: | No data available | |
| Lower flammability limit | No data available | |
| Vapour pressure | No data available | None known |
| Vapour density | No data available | None known |
| Relative density | 1.02 - 1.07 | None known |
| Water solubility | Insoluble in water | None known |
| Solubility(ies) | No data available | None known |
| Partition coefficient | No data available | None known |
| Autoignition temperature | No data available | None known |
| Hyphen | >350 °C | None known |
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | None known |
| Explosive properties | No information available | |
| Oxidising properties | No information available | |

9.2. Other information

| | |
|-----------------------------------|--------------------------|
| Softening point | No information available |
| Molecular weight | No information available |
| VOC Content (%) | negligible |
| Liquid Density | No information available |
| Bulk density | No information available |
| Particle Size | No information available |
| Particle Size Distribution | No information available |

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity None under normal use conditions.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Excessive heat. To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials

Incompatible materials Oxidising agent. Strong bases.

10.6. Hazardous decomposition products

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

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

| | |
|---------------------|---|
| Inhalation | Specific test data for the substance or mixture is not available. |
| Eye contact | Specific test data for the substance or mixture is not available. |
| Skin contact | Specific test data for the substance or mixture is not available. |
| Ingestion | Specific test data for the substance or mixture is not available. |

Information on toxicological effects

Symptoms None known.

Numerical measures of toxicity

Acute toxicity

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|-----------------|--------------------|--------------------------------------|
| Acrylonitrile butadiene styrene polymer | >5000 mg/kg rat | >2000 mg/kg rabbit | - |
| Short tangled MWCNTs | - | - | > 2000 mg/m ³ (Rat) 4 h |

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|--|---------------------------|
| Skin corrosion/irritation | No information available. |
| Serious eye damage/eye irritation | No information available. |
| Respiratory or skin sensitisation | No information available. |
| Germ cell mutagenicity | No information available. |
| Carcinogenicity | No information available. |
| Reproductive toxicity | No information available. |

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity The environmental impact of this product has not been fully investigated

Unknown aquatic toxicity Contains 100 % of components with unknown hazards to the aquatic environment.

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|----------------------|----------------------|--|----------------------------|-----------|
| Short tangled MWCNTs | - | 100: 96 h Danio rerio mg/L LC50 semi-static | - | - |

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

12.6. Other adverse effects

Other adverse effects No information available.

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

IMDG

14.1 UN number Not regulated

14.2 UN proper shipping name Not regulated

14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Marine pollutant Not applicable
 14.6 Special Provisions None
 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

14.1 UN Number Not regulated
 14.2 UN proper shipping name Not regulated
 14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Environmental Hazard Not applicable
 14.6 Special Provisions None

ADR

14.1 UN number Not regulated
 14.2 UN proper shipping name Not regulated
 14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Environmental Hazard Not applicable
 14.6 Special Provisions None

IATA

14.1 UN Number Not regulated
 14.2 UN proper shipping name Not regulated
 14.3 Transport hazard class(es) Not regulated
 14.4 Packing group Not regulated
 14.5 Environmental Hazard Not applicable
 14.6 Special Provisions None

Section 15: REGULATORY INFORMATION

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

National regulations**France****Occupational Illnesses (R-463-3, France)**

| Chemical name | French RG number | Title |
|-----------------------------------|------------------|-------|
| Short tangled MWCNTs 7782-42-5 | RG 16 RG 25 | - |

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Authorisations and/or restrictions on use:

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009 Not applicable

15.2. Chemical safety assessment

Chemical Safety Report No information available

| |
|--------------------------------------|
| Section 16: OTHER INFORMATION |
|--------------------------------------|

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend**

SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)
 Ceiling Maximum limit value * Skin designation

| Classification procedure | |
|---|--------------------|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - Vapor | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitisation | Calculation method |
| Skin sensitisation | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Chronic aquatic toxicity | Calculation method |
| Aspiration toxicity | Calculation method |

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This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

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End of Safety Data Sheet