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

- **Product identifier**
  - Trade name: ABS Model

- **Application of the substance / the preparation** Filament for MakerBot / Stratasys® Inc. FDM™ modeler

- **Details of the supplier of the safety data sheet**
  - Manufacturer/Supplier:
    - Stratasys, Inc.
    - 7665 Commerce Way
    - Eden Prairie, MN 55344
    - USA

  - In Europe:
    - C.S.B. GmbH
    - Parkstraße 29
    - D-47829 Krefeld
    - Germany

  - Information department: Product safety department.
  - Emergency telephone number: see above

2 Composition/information on ingredients

- **Chemical characterization:** Mixtures
  - **Description:** Thermoplastic polymer
  - **Dangerous components:** Void

- **Other components:**
  - 9010-94-0 Butadiene-styrene-acrylonitrile-methyl methacrylate copolymer 70-75%
  - 9003-54-7 Styrene/acrylonitrile copolymer (SAN) 25-30%

3 Hazards identification

- **Classification of the substance or mixture**
  - The product is not classified according to the Globally Harmonized System (GHS).
  - Classification according to Directive 67/548/EEC or Directive 1999/45/EC Void

- **Information concerning particular hazards for human and environment:**
  - Heightened danger of slipping when the product is spilled on the floor.

- **Classification system:**
  - The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

- **Label elements**
  - GHS label elements Void
  - Hazard pictograms Void
  - Signal word Void
  - Hazard statements Void
  - Classification system Void
  - NFPA ratings (scale 0-4)
    - Health = 0
    - Fire = 0
    - Reactivity = 0

(Contd. on page 2)
Trade name: ABS Model

4 First aid measures

· **General information** Remove contaminated clothing.
  · **After inhalation**
    Supply fresh air; consult doctor in case of complaints.
    If dust or other particles are generated during processing, it is necessary to provide adequate ventilation and/or respiration protection. If dust/particles have been inhaled call physician.
  · **After skin contact**
    Wash with soap and water.
    After contact with the molten product, cool rapidly with cold water.
    Do not pull solidified product away from the skin.
    Call a doctor immediately.
  · **After eye contact**
    Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  · **After swallowing**
    Rinse out mouth and then drink plenty of water.
    If symptoms persist consult doctor.

5 Firefighting measures

· **Suitable extinguishing agents**
  Water spray
  Foam
  Alcohol resistant foam
· **For safety reasons unsuitable extinguishing agents**
  Carbon dioxide
  Extinguishing powder.
  Lack of cooling capacity may permit re-ignition.
· **Special hazards arising from the substance or mixture**
  In case of fire, the following can be released:
  Smoke
  Carbon monoxide and carbon dioxide
  Hydrocarbons
  Hydrogen cyanide (HCN)
  In certain fire conditions, traces of other toxic gases cannot be excluded.
· **Protective equipment:** Wear self-contained respiratory protective device.
· **Additional information**
  Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
  Wear protective clothing.
  Avoid formation of dust.
  Do not breathe dust.
  Avoid contact with eyes.
  Do not breathe vapours.
  Particular danger of slipping on leaked/spilled product.

(Contd. of page 1)
Trade name: ABS Model

- **Environmental precautions:** Do not allow to enter sewers/surface or ground water.
- **Methods and material for containment and cleaning up:**
  - Pick up mechanically.
  - Allow to solidify. Pick up mechanically.
  - Dispose of the collected material according to regulations.
- **Reference to other sections**
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

### Handling and storage

- **Precautions for safe handling**
  - Ensure good ventilation/exhaustion at the workplace.
  - Prevent formation of dust.
  - If dust/smoke is developed, avoid breathing dust/smoke.
  - Avoid contact with eyes.
  - Avoid long or repeated skin contact.
  - Avoid contact with hot product.
  - Make sure that all applicable workplace limits are observed.
- **Information about protection against explosions and fires:**
  - Dust can combine with air to form an explosive mixture.
  - Keep ignition sources away - Do not smoke.
  - Protect against electrostatic charges.
- **Storage**
  - **Requirements to be met by storerooms and receptacles:**
    - Observe all local and national regulations for storage of water polluting products.
  - **Information about storage in one common storage facility:**
    - Not required.
  - **Further information about storage conditions:**
    - Store in cool, dry conditions in well sealed receptacles.
  - **Specific end use(s)**
    - No further relevant information available.

### Exposure controls/personal protection

- **Additional information about design of technical systems:**
  - No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**
  - **TLV inhalable dust:**
    - OSHA: 15 mg/m³
  - **TLV respirable dust:**
    - OSHA: 5 mg/m³
  - **Additional information:**
    - The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
  - **General protective and hygienic measures**
    - Do not inhale dust / smoke / mist.
    - Avoid contact with the eyes.
    - Avoid close or long term contact with the skin.
    - Avoid skin contact with the liquefied material.
    - Wash hands before breaks and at the end of work.
  - **Breathing equipment:**
    - If all workplace limits are observed and good ventilation is ensured, no special precautions necessary.
  - **Protection of hands:**
    - No chemical-protective gloves required.
    - Use heat resistant gloves when handling hot/molten product.
  - **Eye protection:**
    - Safety glasses
  - **Body protection:**
    - Protective work clothing.
Wear heat-resistant protective clothing when handling hot/molten product.

9 Physical and chemical properties

- General Information
  - Appearance:
    - Form: solid
    - Color: milky white
  - Odor:
    - Nearly odorless
  - Odor threshold:
    - No data available
- pH-value:
  - Not applicable
- Change in condition
  - Melting point/Melting range:
    - Not applicable
  - Boiling point/Boiling range:
    - Not applicable
- Flash point:
  - Not applicable
- Auto igniting:
  - Product is not selfigniting.
- Danger of explosion:
  - Product does not present an explosion hazard.
  - Risk of dust explosion if enriched with fine dust in the presence of air
- Explosion limits:
  - Lower: Not determined
  - Upper: Not determined
- Oxidizing properties:
  - Not applicable
- Vapor pressure:
  - Not determined
- Density at 20°C (68 °F):
  - > 1 g/cm³ (> 8.345 lbs/gal)
- Solubility in / Miscibility with
  - Water:
    - Insoluble
- Segregation coefficient (n-octonol/water):
  - Not applicable
- Viscosity:
  - dynamic:
    - Not applicable
  - kinematic:
    - Not applicable
- Other information
  - No further relevant information available.

10 Stability and reactivity

- Thermal decomposition / conditions to be avoided:
  - No decomposition if used and stored according to specifications.
  - Avoid impact, friction, heat, sparks, electrostatic charges.
- Incompatible materials:
  - No further relevant information available.
- Hazardous decomposition products:
  - Carbon monoxide and carbon dioxide
  - Hydrogen cyanide (prussic acid)
  - Hydrocarbons
  - Possible in traces.
  - Styrene
  - Acrylonitril
  - Phenol
  - Acetophenone
11 Toxicological information

- Acute toxicity:
  - LD/LC50 values that are relevant for classification:
    | Oral  | LD50 > 5000 mg/kg (rat) |
    | Dermal| LD50 > 2000 mg/kg (rabbit) |
- Primary irritant effect:
  - on the skin: Dust particles may mechanically irritate the skin.
  - on the eye: Dust particles may mechanically irritate the eye.
  - Sensitization: No sensitizing effects known.
- Additional toxicological information:
  When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    | 9003-54-7 Styrene/acrylonitrile copolymer (SAN) | 3 |
  - NTP (National Toxicology Program)
    None of the ingredients is listed.

12 Ecological information

- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- Bioaccumulative potential: No further relevant information available.
- Additional ecological information:
  - General notes: Water hazard class 1 (Self-assessment) (German regulation): slightly hazardous for water.

13 Disposal considerations

- Waste treatment methods
  - Recommendation
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to local/official regulations.
- Uncleaned packagings:
  - Recommendation: Disposal must be made according to local/official regulations.

14 Transport information

- UN-Number
  DOT, ADR, ADN, IMDG, IATA Void
- UN proper shipping name
  DOT, ADN, IMDG, IATA Void
  ADR Void
Trade name: ABS Model

- Transport hazard class(es)
  - DOT, ADR, ADN, IMDG, IATA
  - Class: Void

- Packing group
  - DOT, ADR, IMDG, IATA
  - Class: Void

- Special precautions for user
  - Not applicable.

- Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
  - Not applicable.

- Transport/Additional information:
  - Not dangerous according to the above specifications.

- UN "Model Regulation": -

15 Regulatory information

- TSCA (Toxic Substances Control Act)
  - All ingredients are listed.

- Cancerogenity categories
  - None of the ingredients is listed.

- MAK (German Maximum Workplace Concentration)
  - None of the ingredients is listed.

- GHS label elements
  - Void
  - Hazard pictograms: Void
  - Signal word: Void
  - Hazard statements: Void

- National regulations

  - Water hazard class:
    - Water hazard class 1 (Self-assessment) (German regulation): slightly hazardous for water.

  - Other regulations, limitations and prohibitive regulations
    - The monomer compounds of this product are listed in:
      - Toxic Substance Control Act TSCA (USA)
      - Canadian Domestic Substance List DSL
      - Existing and New Chemical Substance List ENCS (Japan)
      - Australian Inventory of Chemical Substances AICS (Australia)
      - Korean Existing Chemical Inventory KECI

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing MSDS:
  C.S.B. GmbH
  Parkstraße 29
  D-47829 Krefeld
  Germany
  Phone: +49 - 2151 - 652086-0
  Fax: +49 - 2151 - 652086-9

- Abbreviations and acronyms:
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association

(Contd. on page 7)
Trade name: ABS Model

NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent