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Revision Number 1

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product identifier**

Product Name Stratasys High Yield PA11
Product Code(s) SDS-06312EN U
PN (Part Number) X3D-01014

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended Use Manufacture of: parts by laser sintering

Uses advised against No information available

Details of manufacturer or importer**Importer**

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33-35 Yazaki Way
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Emergency telephone number

Emergency telephone number +61 2 8014 4558 - Australia - English Language response

SECTION 2: HAZARDS IDENTIFICATION**2.1. Classification of the substance or mixture:**

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS).
Non Hazardous Chemical to the Australian GHS Criteria
Non Dangerous Goods to ADG Code

2.2. Label elements:**GHS-Labeling**

No label necessary for this product.

2.3. Other hazards:**Potential health effects:**

Acute exposure: Contact with the product, when handled at high temperatures, can cause serious burns.
Inhalation: Possible irritation of respiratory system (by dust inhalation).
At high temperature, products of thermal decomposition can be irritating to respiratory system Toxic effects cannot be excluded
Skin contact: At high temperature, products of thermal decomposition can be irritating to skin
Eye contact: At high temperature, products of thermal decomposition can be irritating to eyes

Environmental Effects:

Inert polymer not biodegradable on the basis of its structure

Physical and chemical hazards:

In the presence of an ignition source: Dust may form explosive mixture in air.
Thermal decomposition giving toxic and corrosive products.
Decomposition products: See chapter 10

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Chemical nature of the mixture¹:

Polyamide 11
Presence of additives

¹: See chapter 14 for Proper Shipping Name

SECTION 4: FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

General advice:

No hazards which require special first aid measures.

Inhalation:

Dust inhalation: Move to fresh air. Blow nose.

Inhalation of vapours due to decomposition of product: Move to fresh air. Oxygen or artificial respiration if needed. In case of persistent problems : Consult a physician.

Skin contact:

Wash immediately, abundantly and thoroughly with soap and water.

On contact with hot product : Cool skin rapidly with cold water after contact with molten material. Remove product with vegetable oil or paraffin. In case of adhesion, do not try to remove the product. Treat the affected areas as thermal burns. Consult a physician.

Eye contact:

Dusts : Wash well-open eyes immediately, abundantly and thoroughly with water. Remove particles remaining under the eyelids. If irritation persists, consult an ophthalmologist.

On contact with hot product : Cool eyes rapidly with cold water after contact with molten polymer. Consult an ophthalmologist immediately.

Ingestion:

In case of problems : Consult a doctor.

Protection of first-aiders:

Dusts : In case of insufficient ventilation, wear suitable respiratory equipment.

4.2. Most important symptoms and effects, both acute and delayed: No data available.

4.3. Indication of any immediate medical attention and special treatment needed: No data available.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media:

Suitable extinguishing media:

Water spray

Unsuitable extinguishing media:

High volume water jet, Fine dust dispersed in air may ignite, risk of dust explosion

5.2. Specific hazards arising from the chemical:

300 - 350 °C: possible formation of:, Monomer and oligomer (white fumes)

Temperature exceeding 350°C:, Thermal decomposition giving toxic and corrosive products :, Carbon monoxide, Ammonia, Amino derivatives

Temperature exceeding 500 °C :, Formation of toxic products through combustion:, Carbon oxides, Hydrogen cyanide (hydrocyanic acid), (traces)

5.3. Advice for firefighters:

Specific methods:

Ensure a system for the rapid emptying of containers. In case of fire nearby, remove the bags.

Special protective actions for fire-fighters:

Wear self-contained breathing apparatus and protective suit.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

Prohibit all sources of sparks and ignition - Do not smoke. Avoid contact with skin and eyes and inhalation of dust. Wear a dust mask and safety glasses/goggles if necessary. In case of insufficient ventilation, wear suitable respiratory equipment.

6.2. Environmental precautions:

Do not release into the environment. Do not let product enter drains.

6.3. Methods and materials for containment and cleaning up:

Recovery:

Shovel into suitable container for disposal. Sweep up to prevent slipping hazard. No sparking tools should be used.

Elimination:

Destroy the product by incineration (in accordance with local and national regulations).

6.4. Reference to other sections: None.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:

Technical measures/Precautions:

Storage and handling precautions applicable to products: Solid. DUST FORMING, forming EXPLOSIVE mixtures with air (In the presence of an ignition source).

Ensure ventilation of work areas and extraction of dust or vapours likely to be given off during conversion operations (product handled when hot). Provide showers, eye-baths. Provide water supplies near the point of use. Provide electrical earthing of equipment.

Safe handling advice:

At all stages of the operation, do not exceed the temperature at which decomposition into toxic and corrosive products will occur. Avoid creating dust. In case of dust formation, wear a dust mask. Prohibit all sources of sparks and ignition - Do not smoke. Take precautionary measures against static discharges. Avoid charging as a dust shower – risk of product flammability. Keep well away from naked flames. In case of insufficient ventilation, wear suitable respiratory equipment.

Hygiene measures:

Avoid contact with the skin and the eyes. Avoid breathing dust. Product handled when hot : Avoid inhalation of vapours. When using do not eat, drink or smoke.

Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities:

Store away from moisture and heat to maintain the technical properties of the product. Remove all sources of ignition. Provide electrical earthing of equipment and electrical equipment usable in explosive atmospheres.

Do not store above: 60 °C

Incompatible products:

None known.

Packaging material:

Recommended: Paper bags lined with polyethylene

7.3. Specific end use(s): None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Exposure Limit Values (dust)

| Source | Date | Value type | Value (ppm) | Value (mg/m3) | Remarks |
|------------|---------|------------|-------------|---------------|-----------------------|
| ACGIH (US) | 03 2014 | TWA | – | 3 | Respirable particles. |
| ACGIH (US) | 03 2014 | TWA | – | 10 | Inhalable particles. |

Exposure Limit Values

Not relevant

8.2. Exposure controls:

General protective measures:

Ensure ventilation of work areas and extraction of dust or vapours likely to be given off during conversion operations (product handled when hot).

Personal protective equipment:

Respiratory protection:

Effective dust mask Recommended Filter type: P2
In the case of hazardous fumes, wear self contained breathing apparatus.

Hand protection:

Gloves
Natural Rubber, Nitrile rubber

Eye/face protection:

Safety glasses

Skin and body protection:

Antistatic boots
Protective suit

Personal protection in case of fire:

See chapter 5

Environmental exposure controls: See chapter 6

OEL refers to Workplace Exposure Standards

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:

| | |
|--|--|
| Physical state (20°C): | solid |
| Form: | powder |
| Colour: | natural colour |
| Granulometry: | > 10 µm |
| Odour: | none |
| Olfactory threshold: | Not relevant |
| pH: | Not applicable |
| Melting point/range : | > 180 °C |
| Boiling point/boiling range : | Not applicable (decomposes on heating) |
| Flash point: | Not applicable |
| Evaporation rate: | Not applicable |
| Flammability (solid, gas): | |
| Flammability: | Not applicable |
| Lower flammable limit : | Not applicable |
| Upper flammable limit : | Not applicable |
| Vapour pressure: | Not applicable |
| Vapour density: | Not relevant |
| Relative vapour density: | Not applicable Reference substance: Air=1 |
| Density: | approximately 1.010 kg/m3 True volume mass |
| Relative density (Water=1): | 1,01 |
| Bulk density: | 430 - 500 kg/m3 |
| Water solubility: | insoluble, (on the basis of its structure) at 20 °C |
| Partition coefficient: n-octanol/water: | No data available. |
| Auto-ignition temperature: | > 450 °C |
| Decomposition temperature: | > 350 °C |
| Viscosity, kinematic: | Not applicable |
| Viscosity, dynamic: | Not applicable |
| Explosive properties: | |
| Explosivity: | In the presence of an ignition source: Dust may form explosive mixture in air. |
| Oxidizing properties: | Not relevant (due to its chemical structure) |

9.2. Other information:

| | |
|--------------------------------------|------------------------------------|
| Solubility in other solvents: | Insoluble in most organic solvents |
|--------------------------------------|------------------------------------|

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: No data available.

10.2. Chemical stability:

The product is stable under normal handling and storage conditions.

10.3. Possibility of hazardous reactions:

In the presence of an ignition source: Dust may form explosive mixture in air.

10.4. Conditions to avoid:

Temperatures above 60 °C

(to maintain the technical properties of the product).

Store away from moisture and heat to maintain the technical properties of the product. Remove all sources of ignition.

10.5. Incompatible materials to avoid:

Strong acids and oxidizing agents

10.6. Hazardous decomposition products:**Thermal decomposition:**

Decomposition temperature: > 350 °C

300 - 350 °C: possible formation of: Monomer and oligomer (white fumes)

Temperature exceeding 350°C: Thermal decomposition giving toxic and corrosive products: Carbon monoxide, Ammonia, Amino derivatives

Temperature exceeding 500 °C: Formation of toxic products through combustion: Carbon oxides, Hydrogen cyanide (hydrocyanic acid), (traces)

SECTION 11: TOXICOLOGICAL INFORMATION

All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

11.1. Information on toxicological effects:**Acute toxicity:**

| | |
|--------------------|--|
| Inhalation: | Inhalation of vapours due to thermal decomposition: , Risk of irritation of respiratory system, Toxic effects cannot be excluded |
| Ingestion: | Polymer: According to its composition, this product should not be harmful in normal conditions of use |
| Dermal: | Polymer: According to its composition, this product should not be harmful in normal conditions of use |

Local effects (Corrosion / Irritation / Serious eye damage):

| | |
|----------------------|--|
| Skin contact: | Polymer: According to its composition, can be considered as Slightly or not irritating to skin Contact with the product, when handled at high temperatures, can cause serious burns. At high temperature, products of thermal decomposition can be irritating to skin |
| Eye contact: | Polymer: According to its composition, can be considered as Slightly or not irritating to eyes Contact with the product, when handled at high temperatures, can cause serious burns. At high temperature, products of thermal decomposition can be irritating to eyes |

Respiratory or skin sensitisation:

| | |
|----------------------|---|
| Inhalation: | No data available. |
| Skin contact: | According to its composition, can be considered as Not a skin sensitizer No reported effect on man in industry |

CMR effects :

| | |
|-------------------------------|---|
| Mutagenicity: | Polymer: According to its composition, this product should not be harmful in normal conditions of use Contains no ingredient listed as a mutagen |
| Carcinogenicity: | Polymer: According to its composition, this product should not be harmful in normal conditions of use |
| Reproductive toxicity: | |
| Fertility: | Polymer: According to its composition, this product should not be harmful in normal conditions of use |
| Foetal development: | Polymer: According to its composition, this product should not be harmful in normal conditions of use |

Specific target organ toxicity :**Single exposure :**

| | |
|--------------------|---|
| Inhalation: | Dust inhalation: , Risk of irritation of respiratory system |
|--------------------|---|

| | |
|----------------------------------|--|
| <u>Repeated exposure:</u> | Polymer: According to its composition, this product should not be harmful in normal conditions of use |
|----------------------------------|--|

Aspiration hazard:

Not applicable

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicology Assessment: All available and relevant data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

12.1. Toxicity :

Fish: Based on the available information, it is not possible to conclude on the hazard potential of this mixture.

Aquatic invertebrates: Based on the available information, it is not possible to conclude on the hazard potential of this mixture.

Aquatic plants: Based on the available information, it is not possible to conclude on the hazard potential of this mixture.

12.2. Persistence and degradability :

Biodegradation (In water): Inert polymer Not biodegradable on the basis of its structure

12.3. Bioaccumulative potential :

Bioaccumulation: Based on the available information, it is not possible to conclude on the bioaccumulation potential of this mixture.

12.4. Mobility in soil - Distribution among environmental compartments:

Vapor pressure: Not applicable,

12.5. Results of PBT and vPvB assessment :

Based on the available information, it is not possible to conclude on PBT and vPvB criteria according to REACH regulation, annex XIII.

12.6. Other adverse effects: None known.**SECTION 13: DISPOSAL CONSIDERATIONS****13.1. Waste treatment methods:**

Disposal of product: Do not dispose of waste into sewer. Recycle if possible. Destroy the product by incineration (in accordance with local and national regulations).

Disposal of packaging: Do not release into the environment. Recycle if possible. Destroy packaging by incineration at an approved waste disposal site (in accordance with local and national regulations).

Personal protection: See chapter 8

SECTION 14: TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: REGULATORY INFORMATION

| | |
|------------|--|
| Not listed | Stockholm Convention on Persistent Organic Pollutants (POPs) |
| Not listed | Montreal Protocol. Substances that Deplete the Ozone Layer, as amended |
| Not listed | Kyoto Protocol to the United Nations Framework Convention on Climate Change, Annex A, Greenhouse Gases |
| Not listed | Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade |
| Not listed | International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors |
| Not listed | Australia. National Pollutant Inventory (NPI) - Substance Reporting List |

International Inventories

| | |
|---------|--|
| NZIoC | Complies |
| TSCA | Complies |
| DSL/NDL | All components of this product are on the Canadian DSL |
| ENCS | Complies |
| IECSC | Complies |
| KECL | Complies |
| PICCS | Complies |
| AIIC | Complies |

Legend:

NZIoC - New Zealand Inventory of Chemicals
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC - Australian Inventory of Industrial Chemicals

SECTION 16: OTHER INFORMATION**Update:**

| Safety datasheet sections which have been updated: | | Type: |
|--|--|----------------------|
| | Product | Revisions |
| 1 | Grades | Deletions |
| 8 | SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION | Additions |
| 12 | SECTION 12: ECOLOGICAL INFORMATION | Additions, Revisions |
| 15 | SECTION 15: REGULATORY INFORMATION | Revisions |
| 7 | SECTION 7: HANDLING AND STORAGE | Revisions |

Thesaurus:

NOAEL : No Observed Adverse Effect Level (NOAEL)
 LOAEL : Lowest Observed Adverse Effect Level (LOAEL)
 bw : Body weight
 food : oral feed
 dw : Dry weight

Disclaimer

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