Material Safety Datasheet
Stainless Steel 316L Filamet™

Identification of the material
Stainless Steel 316L Filamet™

Typical use of the material
This material is suitable for producing metal parts by extrusion, injection-moulding, or 3D printing.

Identification of the company
This material has been produced by The Virtual Foundry, LLC

2. Hazards Identification
2.1 Classification of the substance or mixture
2.1.1. OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910 1200)
2.1.2. Classification of the substance or mixture: CARCINOGENICITY - Category 2

2.2 Label elements: GHS09
Note: The components of this product are embedded in a polymer matrix and are therefore considered to present a negligible exposure risk under normal conditions of processing and handling, unless they are liberated during processing (fumes from melting, dusts). No toxicological studies have been performed so far on this compound (polymer mixture). This material is NOT intended to be used for medical applications, and NOT intended to be used for applications in contact with food and/or drinking water.

2.3. Other hazards
Material processing under extreme conditions above 240°C may result in fumes irritating to the eyes, nose and throat. Furthermore, there is a danger of burns while handling the heated or molten product.

3. Composition/Information on Ingredients
Chemical nature: Biodegradable thermoplastic PLA (PolyLactic Acid) blend, stainless steel 316L powder-filled, with proprietary additivation.

4. First Aid Measures
Inhalation: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Skin contact: No known significant effects or critical hazards.
Eye contact: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
Ingestion: No known significant effects or critical hazards
Notes to Physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire Fighting Measures

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.
Specific hazards: No specific fire or explosion hazard.
Special protective equipment for firefighters: Full protective clothing and self contained breathing apparatus.
Further information: Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures Personal Precautions

Avoid inhalation. Sources of ignition should be kept well clear. Methods for cleaning up or taking up Sweep/shovel up. Avoid raising dust. Ensure adequate ventilation.
Additional information High risk of slipping due to leakage/spillage of product. Avoid ingress of material into sewer systems.

7. Handling and Storage Handling

Processing machines must be fitted with local exhaust ventilation. Earth/ground all equipment.
Protection against fire and explosion Avoid dust formation. Dust can form an explosive mixture with air. Provide exhaust ventilation. When the product is ground (chopped), dust explosion regulations should be noted.
Storage: Protect against moisture. Store material in dry rooms and always carefully seal again after portions of material have been withdrawn. Store at ambient temperatures. Avoid all source of ignition: heat, sparks, open flame.

8. Exposure Controls and Personal Protection Control Parameters

Occupational exposure limits: Given suitable ventilation, it can be assumed that the threshold limits will not be reached. Ideally, granulated material is not expected to contain dust; however, dust may be generated by material abrasion in transport systems, or by cutting or machining of plastic material.
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.
Eye protection: Safety glasses with side-shields
Hand protection: Use additional heat protection gloves when handling hot molten masses (e.g. of textile or leather).
Body protection: Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical protection suit.
General safety and hygiene measures: Avoid contact of molten material with skin. Avoid inhalation of dust/mists/vapours. Eye wash fountains and safety showers must be easily accessible. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Form: Filament or Pellets
Color: Gray
Odor: Odorless.
Melting point: 1535°C (2795°F)
Solubility in water: Insoluble

10. Stability and Reactivity Stability

The material is stable under normal conditions.
Conditions to avoid: Avoid moisture absorption. Avoid all sources of ignition: heat, sparks, open flame.
Thermal decomposition: To avoid thermal decomposition, do not overheat. See on the technical datasheet for the appropriate processing temperatures.

Hazardous reactions: The product is chemically stable.
Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Chemical stability: The product is stable.

11. Toxicological Information

Nickel is reasonably anticipated to be a human carcinogen.
Primary irritant effect:
- on the skin: Irritation could be caused by dust formed during product handling
- on the eye: Irritation could be caused by dust formed during product handling

Inhalation: Large quantities may cause irritation and give rise to symptoms similar to metal fume fever.

12. Ecological Information

Aquatic toxicity: Toxic to marine plants and animals.
Information about elimination (persistence and degradability): PLA base resin of this compound is biodegradable
Other adverse effects: No known significant effects or critical hazards to soil.

13. Disposal Considerations

Product disposal: Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Incineration or landfill should only be considered when recycling is not feasible. Do not allow to enter the water course or sewage system.
Container disposal: Remove all packaging for recovery or disposal in line with the local authority regulations and EWC.

14. Transport Information

This product is not dangerous.

15. Regulatory Information

This document is compliant with the Globally Harmonized System (GHS) for the classification, labeling, and packaging (CLP) of substances and mixtures.
United States Inventory (TSCA 8b): All components are listed or exempted.
Clean Water Act (CSQ) 307: chromium, nickel
Clean Air Act Section 112: Listed

Disclaimer The information given in the Material Safety Data Sheet only applies to the described product in connection with its appropriate use. All information is based on the latest state of our knowledge. In particular, it describes our product under the aspect of possible hazards and pertaining safety measures. The information does not constitute any guarantee of specific product and/or quality properties.

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