



## MATERIAL SAFETY DATA SHEET

Filaflex Purifier

### 1. Product and company identification

#### 1.1. Trade name

Filaflex Purifier

#### 1.2. Company details

Recreus Industries S.L.,  
C/El Envelope, F13-F14. Pol. Ind. Finca Lacy  
03600, Elda, (Alicante) - Spain  
(0034) 865 777 966  
info@recreus.com  
www.recreus.com

### 2. Hazards identification

#### Classification of the substance or mixture:

This product is classified as category 2 according to REACH and Regulation for TiO<sub>2</sub> and Target Organ Toxicity (STOT) after repeated exposures.

#### Label elements:

This product does not need a dangerous label according to EC norm 1272/2008/CE (CPL).

### 3. Composition/information on ingredients

Polymer. Thermoplastic polyurethane. Polyurethane polymer from methylenediphenyl diisocyanate, glycols, polyether polyol, additives and micronised natural minerals.

### Regulatory compliance information for food contact application

#### 1) European regulation N. 10/2011, 14 January 2011:

The starting monomers and the additives used, are included in the Union List of authorized substances, as in annex 1 of regulation n. 10/2011, as updated with regulation 175/2015.

#### 2) FDA status:

The starting monomers and the additives used are included in FDA CFR21.

## 4. First-aid measures

- **General instruction:** Change clothes impregnated with the product.
- **In case of inhalation:** Supply fresh air. In case of disturbances, consult a doctor.
- **After inhalation of decomposition products,** breathe fresh air, rest, and seek medical help.
- **In case of skin contact:** Wash with soap and water. Visit your doctor if irritation continues on your skin.
- **After contact with molten products,** cool rapidly with cold water. No skin separating the solidified product. Call a doctor immediately.
- **In case of eye contact:** Rinse opened eyes for several minutes under running water. If symptoms persist, consult a doctor. Remove contact lenses, if present and easy. Continue rinsing.
- **If swallowed:** Rinse mouth and drink plenty of water. Do not induce vomiting. Consult the doctor in case of persistent symptoms.

### SIGNS AND SYMPTOMS OF EXPOSURE:

Exposure Some components of the product are also known to cause sensitising effects on skin, eyes and mucous membranes. Ingestion of large quantities may cause gastrointestinal irritation and obstruction. Inhalation of dust may irritate the nose, throat, mucous membranes and respiratory tract by mechanical abrasion.

Coughing, sneezing, chest pain, shortness of breath, mucous membrane inflammation and flu-like fever may occur following exposures exceeding appropriate exposure limits. Repeated excessive exposure can cause pneumoconiosis, such as silicosis and other respiratory effects.

## 5. Firefighting measures

- Suitable extinguishing media: Water, Foam, Dry chemical.
- Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen and traces of hydrogen cyanide. In the event of fire and/or explosion do not breathe fumes.
- Firemen must wear self-contained breathing apparatus.
- Do not allow contaminated extinguishing water to enter the soil, groundwater or surface waters.

## 6. Measures in case of accidental release

### 6.1. Personal precautions

- Protective equipment and emergency procedures.
- Avoid dust formation.
- Do not breathe dust.
- Keep away from sources of ignition.
- Avoid eye contact.
- Danger of slipping on spilled product or pouring.

### 6.2. Environmental cautions

Do not discharge into drains/surface water/groundwater.

### 6.3 Methods and Materials for containment and cleaning up

Allow to solidify, pick up mechanically. Dispose of the material collected according to regulations.

## 7. Handling and storage

### Handling

Adequate ventilation and if necessary, effective exhaust must be provided at the workplace of the fused deposition modeling process.

Provided good ventilation and/or local exhaust systems are used, the Workplace Exposure Limit(s) stated in Chapter 8 should not be exceeded. Dust must be removed by effective exhaust ventilation.

Do not breathe dust. Avoid contact with skin and eyes. Do not store near food or drink or smoking materials.

### Storage

Keep the container tightly closed and dry where there are no acidic substances and/or hazardous products. Storage temperature: < 40 °C.

## 8. Exposure controls/personal protection

Airborne OELs for components of this product:

COMPONENT(S) Chemical Name	MSHA/OSHA PEL - TWA	ACGIH TLV-TWA	NIOSH REL
Silicon Dioxide, SiO <sub>2</sub>	(R) 10 mg/m <sup>3</sup> /(% SiO <sub>2</sub> +2)	(R) 0.025 mg/m <sup>3</sup>	(R) 0.05 mg/m <sup>3</sup>
Aluminium Oxide, Al <sub>2</sub> O <sub>3</sub>	(T) 15 mg/m <sup>3</sup> , (R) 5 mg/m <sup>3</sup>	(1) (R) 1 mg/m <sup>3</sup>	-
Ferrous Oxide, FeO	-	-	-
Ferric Oxide, Fe <sub>2</sub> O <sub>3</sub>	1(2) 10 mg/m <sup>3</sup>	(R) 5 mg/m <sup>3</sup>	(3) 5 mg/m <sup>3</sup>
Magnesium Oxide, MgO	(4) 15 mg/m <sup>3</sup>	(1) 10 mg/m <sup>3</sup>	-
Calcium Oxide, CaO	5 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>
Titanium Oxide, TiO <sub>2</sub>	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	-

(1): Limits based on aluminium metal and insoluble compounds. (2): As iron oxide fume. (3): Dust and fume, as iron (4): As total particulate matter of magnesium oxide fume. (R): Respirable fraction. (T): Total dust. (1): Inhalable fraction.

**Ventilation**

During fused deposition modeling operations, use with ventilation adequate to reduce levels of air contaminants below that which may cause personal injury or illness. Local exhaust ventilation that removes air contaminants from the breathing zone is preferred. General, mechanical, or dilution ventilation may be suitable.

**Respiratory protection**

In case of dust formation use respiratory equipment with filter type particle filter P1 according to EN 143.

**Hand protection**

Suitable materials for safety gloves; EN 374-3: polyvinyl chloride - PVC ( $\geq 0.5$  mm). Contaminated and/or damaged gloves must be changed.

**Eye protection**

Wear eye/face protection.

**Skin and body protection**

Wear suitable protective clothing.

**Further protective measures**

Do not breathe dust/vapor. Grease skin.

**General hygiene considerations**

There are no known hazards associated with this material when used as recommended. Following the guidelines in this MSDS is recognized as good industrial hygiene practice. Avoid breathing dust. Avoid contact with skin and eyes. Wash skin exposed to dust with soap and water before eating, drinking, smoking and using the toilet. Wash work clothes after each use.

## 9. Physical and chemical properties

Colour:	Mineral
Odor:	Odorless
Odour Threshold:	NA
PH:	NA
Boiling Point (° C):	NA
Melting point (° C):	220-240
Softening point (° C):	105
Evaporation Rate:	NA
Properties Flammable / Explosive:	NA
Vapor pressure / vapor density:	NA
Relative density:	1.17
Solubility:	NA
Octanol/water partition:	NA
Auto-ignition temperature:	NA
Decomposition temperature:	NA
Viscosity:	NA
Other properties:	NA

## 10. Stability and reactivity

### Reactivity

Non-applicable

### Chemical stability

Thermal decomposition/conditions to be avoided:

- No decomposition with storage and proper handling.
- Avoid impact, friction, heat, sparks, and electrostatic charges and acids.

**Possibility of dangerous reactions:** Non-applicable.

**Conditions to be avoided:** No further relevant information.

**Incompatible materials:** Strong oxidants as fluor

### Strong decomposition products

- Irritant gases/vapours
- Toxic gases/vapours.
- Silica dissolves in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride.
- Smoke
- Carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>) emissions

## 11. Toxicological information

**Acute toxicity LD50 oral rat:** > 5000 mg/kg.

**Acute toxicity LD50 subcutaneous, rat:** > 5000 mg/kg.

**Primary skin irritation, rabbit:** non-irritant.

**Primary mucosal irritation, rabbit:** non-irritant.

**Skin sensitisation according to Magnusson/Kligman (maximizing test):** No sensitisation established on guinea-pigs.

**Additional information:** According to our experience and information the product has no harmful effects on health if properly handled.

## MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

This product contains natural mineral components in low concentrations. Inhalation of respirable dust may aggravate existing diseases of the respiratory system and/or dysfunctions. Exposure to dust may aggravate existing skin and eye conditions. Smoking and obstructive/restrictive lung disease may also exacerbate the effects of excessive exposure to this product. Toxicological information for each component is listed below:

**Silicon dioxide:** Crystalline silica does not exceed  $\pm 0,5$  % of the total silicon dioxide composition in the bulk product.

**Aluminium oxide:** inhalation, ingestion, eye / skin contact.

Acute effect: Inhalation or ingestion of high concentrations of this substance may cause gastrointestinal and/or upper respiratory problems. Eye and skin irritation.

Chronic effect/carcinogenicity: is not classifiable. Occasionally workers chronically exposed to dusts or fumes containing aluminium have occasionally developed severe pulmonary reactions including fibrosis, emphysema and pneumothorax. Long-term exposure may have effects on the central nervous system.

**Ferrous/Ferric oxide:** inhalation, ingestion, eye / skin contact.

Acute effect: Inhalation or ingestion of high concentrations of this substance may cause stupor, shock, acidosis, haematemesis, bloody diarrhoea or coma.

Chronic effect/carcinogenicity: is not classifiable.

**Calcium oxide:** inhalation, ingestion, eye / skin contact.

Acute effect: direct tissue contact in high concentrations can cause burns and severe irritation due to its high reactivity and alkalinity.

Chronic effect/carcinogenicity: is not classifiable.

**Magnesium oxide:** inhalation, ingestion, eye / skin contact.

Chronic effect/carcinogenicity: is not classifiable.

**Titanium dioxide:** inhalation.

Acute effect: classified as inert.

Chronic effect/carcinogenicity: classified as Group 2B, possibly carcinogenic to humans by IARC and as class 2 by REACH.



## 12. Ecological information

### Ecotoxicity

It is not expected to be very toxic, but if ingested by birds or aquatic life, can cause adverse mechanical effects.

### Mobility

Bioconcentration is not expected because of the high molecular weight (MW > 1000). In the terrestrial environment, material is expected to remain in the soil. In the aquatic environment material will sink and remain in the sediment.

### Persistence and degradability

This solid water-insoluble polymeric is expected to be inert in the environment. Surface degradation is expected with exposure to sunlight. Appreciable biodegradation is not expected.

### Additional ecological information

General instructions: CPA 1 (auto classification): not dangerous for water.

## 13. Disposal considerations

Dispose in accordance with applicable international, national and local laws, ordinances and statutes. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

After containers have been emptied as thoroughly as possible (e.g. by pouring, scraping or draining until "drip-dry"), they can be sent to an appropriate collection point to set the framework of the existing take-back scheme of the chemical industry. Containers must be recycled in compliance with national legislation and environmental regulations.

The product is suitable for mechanical recycling. After appropriate treatment it can be remelted and reprocessed into new moulded articles. Mechanical recycling is only possible if the material has been selectively retrieved and can be fully segregated according to type.



## 14. Transport information

Not regulated.

## 15. Regulatory information

**SARA Title III: Section 311 and 312:** Immediate Health Hazard and Health Delay TSCA: All components of the product are listed on the EPA TSCA chemical inventory.

**RCRA:** Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

**CERCLA:** Crystalline silica (quartz) is not classified as a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulations, 40 CFR §302.4.

**EPCRA** (Emergency Planning and Community Right-to-Know): Crystalline silica (quartz) is not an extremely hazardous substance under the Emergency Planning and Community Right-to-Know Act regulations.

**40 CFR Part 355, Appendices A and B** it is not a toxic chemical subject to the requirements of Section 313.

## 16. Other information

The data is based on the current state of knowledge, but it is not a guarantee of the product features and it is not legally valid in a contractual relationship.

## Disclaimer

Is under responsibility of the 3d printer parts manufacturer or end user the compliance of the plastic object, for the specific use, with the overall migration limit, the specific migration limit and other restrictions. Do not hesitate to contact our technical service for explanations, advising and for any other need.