

FUNCTIONALIZE, INC

SAFETY DATA SHEET

Version 1.0

Revision Date 6/26/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : F-Electric PLA

Product Number : 1000-011

Brand : Functionalize

CAS-No. : Contains 308068-56-6 and 26100-51-6

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

Identified uses : 3D printing, electronics manufacture, manufacture of printed parts

1.3 Details of the supplier of the safety data sheet

Company : Functionalize, Inc.
3220 E Mercer St.
Seattle, WA 98112
USA

Telephone : +1 425-341-3711

Fax : N/A

1.4 Emergency telephone number

Emergency Phone # : +1 425-341-3711

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H320 May cause eye irritation (powder from sanding or machining)

H335 May cause respiratory irritation (powder from sanding or machining)

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H320 May cause eye irritation (powder from sanding or machining)

H335 May cause respiratory irritation (powder from sanding or machining)

Precautionary statement(s)

P261 Avoid breathing dust (from sanding or finishing material)

P264 Wash skin thoroughly after handling

P301 IF SWALLOWED: Get immediate medical advice/attention

P304 + P340 IF INHALED: If material dust is inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P314 Get medical advice/attention if you feel unwell

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Multiwall carbon nanotube reinforced PLA

CAS-No. : Contains 308068-56-6 (<10%) and 94525-01-6 (>90%)

Hazardous components

Component	Classification	Concentration
Carbon nanotubes	See below	<10% weight
Eye Irrit.	Eye irritation	
H319	Causes serious eye irritation.	
H335	May cause respiratory irritation.	
STOT SE	Specific target organ toxicity - single exposure (Category 3)	

Compound is in a polymeric form with carbon nanotubes bonded into a polymer matrix and is not expected to present exposure risk under conditions of normal use.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If material dust is breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off dust or particles of material with soap and plenty of water.

In case of eye contact

Rinse out dust or particles thoroughly with plenty of water. If eye irritation persists, consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where aerosols or dust are formed. Normal measures for preventive fire protection. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection

For nuisance exposures to material dust, use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|---|--|
| a) Appearance | Form: solid |
| b) Odor | no data available |
| c) Odor Threshold | no data available |
| d) pH | no data available |
| e) Melting point/freezing | Melting point/range: 65 °C (glass transition Tg), 205C melting point |
| f) Initial boiling point and boiling range | no data available |
| g) Flash point | no data available |
| h) Evaporation rate | no data available |
| i) Flammability (solid, gas) | no data available |
| j) Upper/lower flammability or explosive limits | no data available |
| k) Vapor pressure | no data available |
| l) Vapor density | no data available |
| m) Relative density | 1.24 g/cm ³ at 25 °C (77 °F) |
| n) Water solubility | insoluble |
| o) Partition coefficient: n-octanol/water | no data available |
| p) Auto-ignition temperature | no data available |
| q) Decomposition temperature | no data available |
| r) Viscosity | no data available |
| s) Explosive properties | no data available |
| t) Oxidizing properties | no data available |

9.2 Other safety information

no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

no data available

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

no data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Dispose of in accordance with local regulations.

Packaging

Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Carbon Nanotubes

CAS-No.
308068-56-6

Revision Date

New Jersey Right To Know Components

Carbon Nanotubes

CAS-No.
308068-56-6

Revision Date

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

Copyright 2015 Functionalize, Inc. The above information is believed to be correct but is not all inclusive and should only be used as a guide. The information in this document is based on our current knowledge and is applicable to the product regarding safety precautions considered appropriate. It does not represent any guarantee of the properties of the product. Functionalize shall not be held liable for any damage resulting from handling or from contact with the above product.

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