Safety Data Sheet

Filament-Eco Graphene

Section 1: Identification

Product Name: Filament-Eco Graphene

Product Code(s): FEco Graphene

Use: Material for 3D Printing .

Manufacturer/Supplier : COLFEED4Print S.R.L.
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Section 2: Hazards identification

2.1 Classification :
The material is not classified as hazardous in compliance with Regulation (EC) 1272/2008.

2.2 Label elements :
Labelling is not required according to Regulation (EC) No 1272/2008 [CLP]

Signal words:

P285 In case of inadequate ventilation wear respiratory protection.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Section 3: Composition/information on ingredients

CAS Number	Weight %	Component Name
7782-42-5	15-35	Graphene
26100-51-6	55-75	Poly(lactic acid)
24980-41-4	>10	Polycaprolactone
9002-98-6	> 5	Polyethyleneimine
25322-68-3	>5	Polyethilene Glycol

Section 4: First aid measures

4.1 Description of first-aid measures

If inhaled: After inhalation: fresh air.

In case of skin contact: No adverse effect, wash hands after use with water and neutral soap.

In case of eye contact: Rinse thoroughly with water. Remove contact lenses.

If swallowed: After swallowing: make victim drink water. No adverse effects are expected under normal conditions of use - no special requirements needed. Consult doctor if feeling unwell.

4.2 Most important symptoms and effects,

No adverse effects are expected under normal conditions of use - no special requirements needed.

When melted, it can cause serious burns if contacted with skin and eyes. Inhaling of loosen dust or potential decomposition products of melted/overheated mixture in high concentration can irritate moderately respiratory system and mucous membranes.

4.3 Indication of any immediate medical attention and special treatment needed

Graphene is embedded within the thermopolymer, and should not be considered a nanosized free powder. If any symptom is observed when handling, use supportive and symptomatic treatment.

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: water spray, alcohol resistant foam, dry-powder, carbon dioxide

Unsuitable extinguishing media: direct water stream - could spread fire

5.2 Special hazards arising from the substance or mixture

Incomplete combustion and thermolysis may produce toxic, irritating and flammable decomposition. Do not inhale smokes.

5.3 Advice for fire-fighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Firefighters should wear proper protective equipment.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

No special requirements are needed. Observe all user considerations and safety measures. All unprotected persons should be restraint.

Avoid inhaling the gases produced when printing the filament. Provide adequate ventilation.

6.2 Environmental precautions

No special requirements are needed. Avoid dispersion of spilled material and runoff and contact with soil, watercourses, drains and sewers.

6.3 Methods and materials for containment and cleaning up

Collect mechanically. All storage vessels have to be labeled. Dispose according to valid legislation (see Section 13);

6.4 Reference to other sections:

See section 1 for emergency contact details

See section 8 for all information on suitable personal protective equipment

See section 13 for additional information on waste treatment.

Section 7: Handling and storage

7.1 Precautions for safe handling

Observe all user considerations, safety measures and exposure limits. See Section 8 for advice on the mínimum requirements for personal protective equipment. Avoid breathing decomposition products or loosened dust. Use only with adequate ventilation. Observe all fire protection measures (work with open flame is prohibited, remove all posible sources of ignition, smoking is prohibited). During the product's thermal treatment volatile organic compounds may be released. Thus suction and discharge of these emissions must be locally secured. All devices must be properly grounded.

7.2 Conditions for safe storage, including any incompatibilities

Observe all fire protection measures (work with open flame is prohibited, remove all possible sources of ignition, smoking is prohibited). Keep away from direct sunlight and heat sources.

7.3 Specific end uses

Material for 3D-printing

Section 8: Exposure controls / Personal protection

8.1 Control parameters

CAS Number	Component Name	Exposure limits
7782-42-5	Graphene	5 mg/m3 TWA
26100-51-6	Poly(lactic acid)	None established.
24980-41-4	Polycaprolactone	None established.
9002-98-6	Polyethyleneimine	None established.
25322-68-3	Polyethilene Glycol	None established.

8.2 Exposure controls

Personal protective equipment:

Eye / face protection: No special requirements are needed under normal conditions of usage.

Skin protection: No special requirements are needed under normal conditions of usage. When manipulating with heated/hot material use heat isolating gloves made of paraaramid/carbon with thermal isolation up to 270°C and forearm protection. Example of recommended gloves: KCL, Karbo TECT with leather forearm cuffs, with thermal isolation up to 350°C.

Respiratory protection: No special requirements are needed under normal use conditions. Ensure appropriate ventilation or exhaustion at the workplace. Do not inhale decomposition products from overheated product or dust produced by mechanical operations. If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate.

Thermal hazards: No such risk when normally used.

Environmental exposure controls:

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

Section 9: Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance: solid wire (20°C)

Colour: Black

Odour: no odour.

pH: information not available.

Melting point/freezing point: 152°C.

Initial boiling point and boiling range: information not available.

Flash point: information not available.

Evaporation rate: information not available.

Flammability (solid, gas) information not available.

Upper/lower flammability or explosive limits: information not available.

Vapour pressure: information not available.

Vapour density: information not available.

Bulk density: 1.3 – 1.4 g/cm^3.

Solubility/ies: insoluble in wáter. Polymers are soluble in 1,2 dichloroethane, toluene,tetrahydrofuran.

Partition coefficient: n-octanol/water: information not available.

Auto-ignition temperature: information not available.

Decomposition temperature: information not available.

Viscosity: information not available.

Explosive properties: no explosive properties.

Oxidising properties: no oxidative properties.

Other information

Self heating ability: It is not a substance capable of spontaneous heating.

Radioactivity: not radioactive for transport purposes.

Hygroscopy: Non-hygroscopic.

Section 10: Stability and Reactivity

10.1 Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

10.2 Chemical stability

The product is stable if stored and handled as prescribed/indicated. Depolymerizes at elevated temperatures.

10.3 Possibility of hazardous reactions

During printing dust may form and may cause irritation to the eyes, throat and respiratory tract.

10.4 Conditions to avoid

Heating above the maximum recommended temperature.

10.5 Incompatible materials

None known

10.6 Hazardous decomposition products:

Under normal condition of storage and use, no hazardous decomposition products. When heating over decomposition temperature irritating gases can be produced.

Section 11: Toxicological Information

Acute toxicity: Based on composition, the mixture has low acute toxicity and no adverse effects for human health are expected under applicable conditions of exposure

Skin corrosion/irritation: The product has no direct corrosive / irritating properties. Melted product may cause serious burns following the contact with the skin.

Serious eye damage/irritation: The mixture has no direct corrosive / irritating properties. Melted product may cause serious burns following the contact with the eyes.

Respiratory or skin sensitisation: The classification criteria are not met.

Germ cell mutagenicity: The classification criteria are not met.

Carcinogenicity: The classification criteria are not met.

Reproductive toxicity: The classification criteria are not met.

STOT-single exposure: The classification criteria are not met. Inhalation of dust loosened dust during manipulation can mechanically irritate airways. However, these effects do not require classification.

STOT-repeated exposure: Based on available data, the classification criteria are not met.

Aspiration Hazard: Based on available data, the classification criteria are not met.

Section 12: Ecological information

Toxicity: No adverse effects in the environment are expected for the mixture; the mixture is almost biologically inert.

Persistence and degradability: Within the environment the mixture underlies biological decomposition (biodegradable) of the polymer.

Bioaccumulative potential: The mixture has no bioaccumulative potential.

Mobility in soil: No data for the mixture. Insoluble in water, mobility in soil is not expected.

Results of PBT and vPvB assessment: The substances in the mixture do not meet the PBT/vPvB criteria

Other adverse effects: not known

Section 13: Disposal Considerations

Waste treatment methods: It is recommended to dispose all rests in authorized dangerous waste facility. Disposal has to comply all local legal requirements on wastes. Do not dispose as a common household waste.

Packages disposal methods: Recycle empty packages.

Section 14: Transport Information

Non-dangerous goods for DOT (US)/IMDG/IATA/ADR/RID.

No Environmental hazards.

Not required special precautions for user.

Transport in bulk according to Annex II of MARPOL and the IBC Code: not transported

Section 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture: According to the CLP regulation EC 1272/2008, the constituent substances are not classified as dangerous.

Chemical safety assessment: Chemical safety assessment not carried yet

Section 16: Other information

Safety Data Sheet (SDS) is compiled in accordance with the Regulation EC No. 1907/2006 (REACH), Regulation EC No. 1272/2008 (CLP) and Commission Regulation EU No. 2015/830; and contains information on safety use, occupational health protection, and environmental protection. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. This particular information applies on the product as supplied and may not be valid in mixtures with other substances. If used for other purposes as identified in this SDS, the distributor is not liable for any damage.

The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfill his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.