

Date of issue: October 20, 2021

In according to EU Regulations No. 1907/2006 (REACH), No. 2015/830, No. 1272/2008 (CLP)
and EU Commission Resolution No. 453/2010

CFC PETG 3D Printer Filament, TU 20.60.13-002-11757806-2017 CN code 3916 90 900 0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/ENTERPRISE

Product information:

Trade name:	PET-G 3D Printer Filament (polyethylene terephthalate, modified ethylene glycol)
Chemical name (according to IUPAC):	None
Synonyms:	PET-G monofilament, lavsan filament, plastic
CAS No.:	None
EC No.:	None
Registration No. (REACH):	Unlisted

Appropriate methods of use of the substance/mixture as intended and non-recommended methods of use:

Product use:

The filament is intended for use as an expendable for creating 3D objects by applying successive layers that recreate the outlines of a digital model using the Fused Deposition Modeling (FDM).

Product use:

When using the filament, the temperature must be within the range of 130 to 280 °C. If the filament has been transported or stored at the temperature below 10 °C, it must be kept in production premises at a temperature of at least 18 °C within 8 hours or more.

At a temperature above 35 °C the color of the filament can change while the quality of the product deteriorates (deviation).

SDS supplier information:

Manufacturer:	REC LLC 124498, Russia, Moscow, Zelenograd, passage 4922, 4, bld 5
Tel.:	+7 800 775 73 31
E-mail:	support@anisoprint.com

Emergency tel.:

Emergency contact information:

112 (EU),
112 and 911 (USA, Canada)

Other information:

www.anisoprint.com

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or blend:

According to CLP Regulation and GHS Regulation No. 1272/2008:

The product is not classified as dangerous.

Label elements:

The dangerous effect of the filament can be caused only by the possible release of polymer dust during transport, storage or use.

Signal word:

None

Hazard symbols:

None needed

Hazard statements:

None needed

Precautions:

None needed

Other hazards:

Flammable, non-explosive.

Polymer dust irritates the mucous of eyes and upper respiratory tract, adversely affects the central nervous, cardiovascular and respiratory systems, digestive tract, morphological composition of peripheral blood, liver, kidneys.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name, formula	CAS No.	EC No.	Weight fraction, %
Polyoxy-1,2-ethanediyl-oxycarbonyl-1,4-phenylene-carbonyl, [C ₁₀ H ₈ O ₄] _n	25038-59-9	none	up to 100.0

SECTION 4: FIRST AID MEASURES

First aid measures:

Maintain strict personal hygiene when using the filament; avoid inhalation of aerosols and eye contact. At a temperature above 250 oC, the release of thermal destruction toxic products (mainly carbon oxides, acetaldehyde, dimethylterephthalate, ethylene glycol, terephthalic acid, organic acids) into the air of the working area is possible.

General advice:

Eye contact:

Aerosol: open eyes widely and flush thoroughly.

Skin contact:

Wash off with flowing water and soap.

Inhalation:

Move person to fresh air, ensure warm and comfortable environment.

Ingestion:

Drink a lot of water, take activated carbon and saline purgative.

The most significant symptoms and effects, both acute and delayed:

Eye contact:	Not possible Aerosols – possible mechanical irritation with reddening and lacrimation.
Skin contact:	Non-irritant
Inhalation:	In case of fire free the area and remove all the nearby people. In case of fire: cool the containers etc. by diffusing water. Extinguish the fire from a safe distance or a protected spot. All the materials remaining after a fire and contaminated water should be disposed according to local regulations.
Ingestion:	Not possible No cases of acute PET aerosol poisoning in production conditions recorded.

Indication of immediate medical attention and special treatment needed:

Aerosol inhalation and eye contact

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media:

Appropriate extinguishing media:

In case of fire use carbon dioxide, chemical foam, fine water, water with wetting agents, chemical powders are used; in case of fire in rooms use total flooding, foam or carbon dioxide fire extinguishers, sand, fire blanket, asbestos blanket. In case of massive fire, isolate the dangerous zone, extinguish the fire using air foam from a maximum distance.

Inappropriate extinguishing media:	Unknown
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Special hazards arising from the substance or mixture:

Hazardous combustion products:

Main products of PET thermal destruction: oxides of carbon, acetaldehyde, dimethyl terephthalate, ethylene glycol, terephthalic acid, organic acids.

Harmful effects of thermal destruction products: excitation, shortness of breath, respiratory failure, cyanosis of the nasal mucosa (dimethyl terephthalate), atony, slowness, dizziness, headache, breathing loss, sharp exophthalmos, convulsions, narcotic effect (acetaldehyde), excitation followed by oppression, motor dysfunction, sore throat, cough, respiratory dysrhythmia and rate dysfunction, low blood pressure, nausea, vomiting (terephthalic acid), drowsiness, nausea, sometimes vomiting and fainting; memory dips, movement disorders, convulsions; up to a prolonged loss of consciousness, clonic or tonic convulsions (carbon monoxide).

Advice for firefighters:

Packaging can burn too.

When extinguishing fires in warehouses or transport containers, use gas masks and protective clothing. The need for evacuation in an emergency area is determined based on the local evacuation plan.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protection equipment and emergency procedures:

Take the vehicle to a safe place. Isolate the danger zone within a radius of 50 m. Correct the indicated distance according to the results of chemical reconnaissance. Move away onlookers. Use protective equipment for dangerous zones. Eliminate the cause of the filament spilling. Observe fire safety measures. Do not smoke. Give first aid to the injured. Take the injured to the hospital.

Environmental precautions:

Inform the sanitary and epidemiological inspection bodies if the filament caused damage to the environment.

Methods and materials for containment and cleaning up:

See information about personal protective equipment in section 8 hereof and information about cleaning up in section 13 hereof.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:

The product can be transported using all types of transport in accordance with the rules of transportation of goods applicable for this type of transport. During transport, avoid contact with water or heavy pressure.

Conditions for safe storage, including any incompatibilities:

Storage recommendations:

Store packed in closed clean, dry warehouses; in places protected from moisture and direct sunlight, at a temperature of 5 to 35 °C and a relative humidity of not more than 80%, at a distance of at least 1 m from heating devices. Store no alkalis, acids and other aggressive substances together with the filament.

Specific guidelines

Any other package that ensures the filament integrity during the stated shelf life is allowed.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Controlled parameters: The maximum permissible concentration in the air of the working area is set according to PET filament: 5 mg/m³, hazard category 3 (moderately hazardous substance).

Exposure controls:

Recommended monitoring procedures: The content of harmful substances in the air of the working area must be below the established threshold (ET) and checked using a metrologically certified method at least once a month.

Appropriate engineering controls:

Handle the filament in the open air or in a well ventilated room. Use cyclones, bag filters as dust collectors. The systems of forced air exhaust ventilation must take into account the local environment: air must flow away from the source of emission of harmful sub-stances and from the personnel. The equipment and devices must be sealed, if applica-ble.

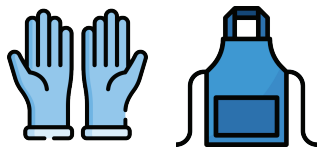
Before releasing the air with PET aerosols into the atmosphere, purify it to maintain the levels below the exposure limit. Clean the working area at the end of each shift.

Do not store and consume food or smoke in the working area. Wash hands and rinse mouth before eating; take a shower at the end of the shift.

Personal protective equipment:

- eyes/face None is needed under normal conditions.
In case of emergency: safety glasses with side shields.

- skin (hands/other): None is needed under normal conditions.
In case of emergency: cotton gloves, skin safety products, industrial pollution protection clothing.



- respiratory protection: None is needed under normal conditions.
In case of emergency: cotton-gauze dressing, respirator. For high concentrations – filtering mask.



- protection against heat: Ensure flowing water source to rinse eyes. Wash contaminated clothing on a regular basis. Flush shoes, gloves and glasses on a regular basis.

Other protective measures: Communication lines and pantographs in the areas of possible static charges must be earthed, workplaces must be equipped with rubber mats.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Basic physical and chemical properties:

Appearance:	Round cross-section filament, dull or glossy
Color:	Natural or according to the approved pattern
Odor:	None
Odor threshold:	Not applicable
pH:	Water extract neutral
Chilling point:	Not applicable
Melting point:	Not applicable
Boiling point:	Not applicable
Flash point:	At least 390 °C
Self-ignition temperature:	At least 500 °C
Lower flammable level:	Lower explosive limit: 40 g/m3
Upper flammable level:	No data available
Relative density:	Not applicable
Specific density (water = 1):	No data available
Vapor density (air = 1):	Not applicable
Vapor pressure:	Not applicable
Evaporation rate:	Not applicable
Solubility in water:	Insoluble
Solubility in other substances:	Not soluble in fat
Partition coefficient: n-octanol/water:	Not applicable
Dynamic viscosity:	Not applicable
Oxidizing properties:	Not applicable
Explosibility:	Maximum explosion pressure: 675 kPa, pressure rise rate: 13.7 MPa/s (maximum), minimum ignition energy: 35 mJ, MEHOC 13% if dust-air mixture is diluted with carbon dioxide
Relative molecular mass:	Not applicable

Other information:

Standard humidity:	6% or lower
Actual humidity:	8% or lower
Diameter:	1.75 or 2.85 mm
Elastic strain perception:	Elastic or non-elastic
Breaking strength:	At least 20 MPa
Bending strength:	At least 40 MPa
Breaking elongation:	At least 10%
Elasticity of elongation (Young's modulus):	At least 1,000 MPa
Water adsorption per 24 hours at 20 °C:	8.5% or less

SECTION 10: STABILITY AND REACTIVITY

Reactivity:

The filament is insoluble in water and fat, reactive with acids, alkalis and organic solvents. It degrades (fades) if long exposed to sunlight.

Stability:

The filament is stable under normal conditions of use, transport and storage; non-oxidizable, non-degradable. No PET thermal oxidative destruction products are released under normal conditions.

Possibility of hazardous reactions:

No hazardous reactions known.

Conditions to avoid:

Avoid contact with acids, alkalis and oxidants (nitric, sulfuric acids and others), exposure to water, high humidity and direct sunlight, as well as excessive heating.

Incompatible substances and materials:

Oxidizers, alkalis, acids.

Hazardous decomposition products:

None under normal conditions.

SECTION 10: STABILITY AND REACTIVITY

Toxic action:

Skin contact:	Non-irritant. Not absorbed through skin
Eye contact:	Not possible. Possible mechanical eye irritation
Inhalation:	Not possible. Aerosols cause respiratory irritation
Ingestion:	Not possible. Aerosols are safe if swallowed in small amounts. If swallowed, they can cause discomfort in the digestive system and diarrhea; if regularly consumed, they can cause liver and kidneys disorders
Chronic toxicity:	No data available
Acute toxicity:	DL50 > 151 mg/kg (oral, rats, PET)
Respiratory sensitization:	None
Skin sensitization:	None
Mutagenic effect:	None
Cancerogenic effect:	None
Reproductive toxicity:	None
Specific target organ toxicity:	None
Toxic action:	Low cumulativity

SECTION 12: ECOLOGICAL INFORMATION

Toxicity:

No data available. PET: no harmful effect expected (WKG 0).

Persistence and degradability:

Inert in the environment. Extremely stable under abiotic conditions. No secondary dangerous goods are generated if the filament interacts with environmental objects.

Bioaccumulation:

Biochemically non-oxidative (BD = BOD5/ COD × 100% < 10%).

Mobility in soil:

No data available

Results of PBT and vPvB assessment:

The substance is not PBT or vPvB.

Other adverse effects:

Have no adverse effect on bacteria.

SECTION 13: DISPOSAL CONSIDERATIONS

Safety precautions for waste disposal:

Safety precautions for waste disposal are the same as for the finished product.

Waste treatment areas and methods:

Waste is collected in special containers (non-re-
turnable), the containers are baled and disposed
of in areas (polygons) authorized by local bodies.

Disposal of non-revertible scrap and material
waste must be in compliance with the envi-ron-
mental protection requirements and applicable
laws.

UN No. :

Not applicable

UN shipping name:

Not applicable

Hazard category:

Non-hazardous goods

Packaging group:

Non-hazardous goods

Environmental hazards:

Environmentally safe under normal conditions of
use.

Special precautions for users:

“Keep away from sunlight” and “keep dry” labels
are put before transportation.

Bulk transport in accordance with
Annex II of MARPOL 73/78 and IBC:

Not applicable. Transported packaged only.

SECTION 15: REGULATORY INFORMATION

GOST 19433-88	Dangerous goods. Classification and marking.
GOST 31340-2013	Chemical products safety marking. General requirements.
GOST 32419-2013	Chemical hazards classification. General requirements.
GOST 32423-2013	Chemical mixture hazards classification by effect on the human body.
SanPiN 2.1.7.1322-03	Hygienic requirements for disposal and treatment of production and consumer waste.
GN 2.2.5.2893-11	Maximum permissible level of harmful substances skin contamination.
GN 2.2.5.1313-03	Maximum permissible level of harmful substances in working area air.
GN 2.1.5.1315-03	Maximum permissible concentrations of chemicals in drinking and household, as well as cultural and social water bodies.
GN 2.1.6.1338-03	Maximum permissible level of pollution of community air. Guideline for hygienic assessment of working environment factors and work process. Labor conditions criteria and classification.
R 2.2.2006-05	

Hazardous chemical substance data card. Polyoxy-1,2-ethanediyl-oxycarbonyl-1,4-phenylenecarbonyl. Certificate No. BT-002837 – M: RPOKhBV (Register of Potentially Hazardous Chemical and Biological Substances), 18.07.2006.

Norms of maximum permissible concentrations of harmful substances in fisheries (approved by Order No. 552 of the Ministry of Agriculture of the Russian Federation as of December 13, 2016).

Unified Sanitary, Epidemiological and Hygienic Requirements for Goods Subject to Sanitary and Epidemiological Control (approved by Decision No. 299 of the Customs Union Commission as of May 28, 2010), chapter II, section 19.

Unified List of Goods Subject to Sanitary and Epidemiological Control at Customs Border and the Customs Union Customs Area approved by Decision No. 299 of the Customs Union Commission as of May 28, 2010.

PN ISO 11014-1:2008: Chemical safety – Chemical Product Safety Data Sheet.

Regulation 1907/2006/WE on Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) establishing the European Chemicals Agency, making amendments to Directive 1999/45/EC and superseding EEC Regulation No. 793/93, EC Regulation No. 1488/94, EEC Directive No. 76/769/EEC and Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Regulation 1272/2008/WE of the European Parliament and Council on Classification, Marking and Packaging of Chemical Substances and Mixtures as of December 16, 2008, making amendments to and superseding Directives 67/548/EEC and 1999/45/EC and making amendments to EC Regulation No. 1907/2006.

EC Regulation No. 790/2009 as of August 10, 2009, making amendments to EC Regulation No. 1272/2008 of the European Parliament and Council on Classification, Marking and Packaging of Chemical Substances and Mixtures for the purpose of adapting to the scientific and technical progress.

EC Regulation No. 453/2010 as of May 20, 2010, making amendments to EC Regulation No. 1907/2006 of the European Parliament and Council on Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH).

SECTION 16: OTHER INFORMATION

Abbreviations:

IUPAC	The International Union of Pure and Applied Chemistry.
CAS No.	Chemical Abstract Service Registry Number.
EC No.	European Commission Harmful Substances Classification and Marking Number.
BOD	Biochemical Oxygen Demand.
COD	Chemical Oxygen Demand.
GOST	State standard adopted by the Interstate Council for Standardization, Metrology and Certification.
TR CU	Technical Regulations of the Customs Union.
RPOKhBV	Russian Register of Potentially Hazardous Chemical and Biological Substances (database).
MEHOC	Minimum explosion-hazard oxygen content.

Disclaimer:

The information in this safety data sheet is intended to characterize the filament in terms of the required safety rules. It does not guarantee certain properties and is based on the scientific information and the normative and technical documentation known to date. It disclaims all warranties.

Regulation of normative documents:

The state standards and normative documents referred to herein are mandatory for use on the territory of the Russian Federation and CIS countries that have accepted them; they are non-regulatory on the territory of other countries.