

SAFETY DATA SHEET

according to EU Regulation No. 1907/2006



Revision date: 06.09.2018

Version 1

Date of print: 06.09.2018

3DGence ESM-10

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1. IDENTIFICATION OF THE SUBSTANCE

1.1. Product identifier

Trade name	3DGence ESM-10
Product type	Acrylate Terpolymer based polymer blend

1.2. Recommended use Monofilament for FFF technology-based 3D printing

1.3. Company 3DGence sp. z o.o.

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1.4. Emergency telephone number +48 32 438 98 65

2. IDENTIFICATION OF HAZARDS

2.1. Classification

According to EC regulation 1272/2008 (CLP) the substance is classified as not hazardous.

2.2. Labeling (CLP)

Hazard statements: not applicable

Precautionary statements: not applicable

2.3. Other hazards

Danger of burns while handling the heated or molten product.

3. COMPOSITION/INFORMATION OF INGREDIENTS

3.1. Substances

Acrylate Terpolymer based polymer blend enhanced for 3D printing.

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4. FIRST AID MEASURES

4.1. Description of first aid measures

General information:	Contaminated clothing must be taken off immediately.
After inhalation:	After inhalation of decomposition products gases or dust, bring the affected person to a source of fresh air and keep calm. Contact a physician in case of discomfort.
After eye contact:	Vapor or heated product may cause eye irritation. In case of contact with eyes, rinse open eyes thoroughly with water. Remove contact lenses and continue flushing. If irritation develops, seek immediate medical attention.
After skin contact:	After contact with the molten product, cool skin area immediately with cool water. Do not remove the product from the affected skin areas without medical assistance. Cover with sterile cotton sheeting to protect against infection. Seek medical attention.
After ingestion:	Rinse mouth with water. Induce vomiting immediately and seek medical attention. If a person vomits when lying on his back, place him in the recovery position.
Note to the physician:	Treat symptomatically.

4.2. Most important symptoms and effects, both acute and delayed

Dust: Skin irritation, eye irritations and redness.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Decontamination, vital functions.

5. FREFIGHTING MEASURES

5.1. Extinguishing media

Water spray jet, foam, extinguishing powder, carbon dioxide.

5.2. Unsuitable media

Full water jet or a solid water stream. It might scatter and spread fire.

5.3. Special hazards arising from the substance or mixture

Exposure to decomposition products may be a hazard to health. The smoke of a fire can, in addition to the originating material, also contain combustion products of varying composition, which may be toxic and/or irritating. Combustion products may include and are not limited to carbon monoxide and carbon dioxide.

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5.4. Advice to firefighters

Wear self-contained breathing apparatus and full protective clothing.

5.5. Additional information

Fine dust dispersed in air may ignite. Risk of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust.

Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. In the event of fire and/or explosion do not breathe fumes. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Hazchem-Code: -

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Do not inhale vapors/fumes released during thermal processing. Use personal protective equipment/clothing (see section 8). Avoid eye contact and dust formation and remove all sources of ignition. Sweep up to prevent slipping hazard.

6.2. Methods and material for containment and cleaning up

Sweep/shovel into suitable container for disposal. Avoid raising dust and ensure adequate ventilation. Clean contaminated surface thoroughly.

6.3. Environmental precautions

Prevent entry into drainage systems, or surface water. See section 13, disposal consideration.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Handle in a well-ventilated area. Install local exhaust at 3D printer's area is recommended when many printers are operated at once. Avoid contact with heated or molten product. Use personal protective equipment (see section 8). Avoid dust formation and electrostatic charge. Keep away from fire ignition.

7.2. Conditions for safe storage, including any incompatibilities

Protect from water, moisture and direct sunlight. Store material in dry rooms and keep material in closed and air tight packaging/container with desiccant when not in use. Store at ambient temperatures. Avoid all sources of ignition.

7.3. Precautions

No special precautions required.

7.4. Specific use(s)

Primarily used for 3D printing.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Occupational exposure limits

Given suitable ventilation it can be that the threshold limits will not be reached. Provide good ventilation to ensure that the workplace exposure limit is not exceeded. Use of respiratory protection may be necessary during maintenance activities.

8.2. Exposure controls

Thermal extrusion: Provide local exhaust ventilation to ensure that the workplace exposure limit is not exceeded. Use respiratory protection may be necessary during maintenance activities.

8.3. Personal protective equipment

Hand protection: Heat protective gloves according to EN 374. Glove material: Nitrile rubber – Layer thickness: 0,11 mm. Breakthrough time: > 480 min. Observe glove manufacturer's instructions concerning penetrability and breakthrough time. In case of melting: Impervious heat protective gloves according to EN 407. Glove material: Leather, KevlarR. Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to EN 166.

Skin and body protection: Wear suitable protective clothing. Boots or safety shoes. IN case of dust formation: Overall.

Safety and hygiene measures: Avoid contact of hot molten material to skin. Avoid inhalation of dust, mists and vapors. Eye wash fountains and safety showers must be easily accessible. Handle in accordance with good industrial hygiene and safety practice. No eating or drinking during work.

8.4. Environmental exposure controls

Prevent entry into drainage systems, or surface water.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Fundamental physical and chemical properties

Form:	Filament (solid), Granulate (solid)
Color:	Natural
Odor:	Weak, characteristic
Melting index:	1 – 10 g/10 min (200 °C/10 kg)
Ignition temperature:	> 450 °C
Flash point/ flash point range:	No data available.
Explosion limit:	No data available.
Density:	No data available.
Solubility in water:	Insoluble

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Solubility in 0,5 N NaOH:	50 g/l
Decomposition temperature:	> 290 °C
Specific gravity:	1,1 g/cc (20 °C)

10. STABILITY AND REACTIVITY

10.1. Stability

Product is stable at recommended storage conditions.

10.2. Conditions to avoid

Avoid extreme heat and all sources of ignition. Avoid heating for a long time above processing temperatures.

10.3. Substances to avoid

Alkaline, strong acids and oxidation substances.

10.4. Hazardous reactions

The product is chemically stable.

10.5. Hazardous decomposition products

Dangerous/toxic fumes and other gaseous products of degradation can be given off if the product is greatly overheated. The decomposition of product depends on temperature, air supply and the presence of other materials (carbon monoxide, hydrocarbon oxidation products, including organic acids aldehydes and alcohol). In case of fire may be liberated: Smoke, hydrogen cyanide, hydrocarbons, carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

11.1. Toxicological effects

Acute toxicity (oral):	No data available.,
Acute toxicity (dermal):	No data available.
Acute toxicity (inhalative):	No data available.
Skin corrosion/irritation:	Not expected to be irritating.
Serious eye damage/irritation:	Not expected to be irritating.
Sensitization:	Not expected to be a skin sensitizer.
Repeated dose toxicity:	No data available.
Carcinogenicity:	No data available.
Mutagenicity:	No data available.
Toxicity for reproduction:	No data available.

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Other information: Based on our state of knowledge and experience no injurious health effects are expected if the product is properly handled for the designated use.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Eco-toxicity: No ecological toxicity data has been generated for this product. There are no test results available and information is based on similar products.

Ecological toxicity effects: No negative ecological effects are known at the present state of knowledge.

12.2. Persistence and degradability

Biodegradation: The product is not readily biodegradable. The product is likely to persist in the environment.

12.3. Bio accumulative potential

No data available, but the product is expected not to be readily bioavailable due to its consistency and insolubility in water.

12.4. Mobility in soil

The product is essentially insoluble in water. Avoid contamination of soil, surface and sewage system water.

13. DISPOSAL CONSIDERATIONS

Product: Generation of waste should be minimized, check the possibility for recycling. Waste product can be incinerated or dumped together with domestic waste in compliance with the local authority.

Packaging: The packaging material must be emptied completely and disposed in accordance with the regulations. The packaging can be recycled if not contaminated.

14. TRANSPORT INFORMATION

IATA (AIR): This product is not classified as hazardous.

IMDG (SEA): This product is not classified as hazardous.

UN, IMO, ADR/RID, ICAO Code (Road/Rail): This product is not classified as hazardous.

14.1. Transport in bulk according to Annex II of Marpol and the IBC Code

No data available.

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15. REGULATORY INFORMATION

EU/National regulations:

This product does not require a hazard warning label in accordance with EC Directives.

16. OTHER INFORMATION

The information in this data sheet has been established to our best knowledge and was up-to-date at time of reversion. It is only meant for providing assistance for the processor.

It does not represent a guarantee for the properties of this product described in terms of the legal warranty regulations.

3DGence does not guarantee the suitability of the product and does not assume responsibility for this information.

The rights and/ or licenses are not warranted directly or indirectly on consisting or pendent patents, their application or trading names. The processor is responsible for the fulfilment of all provisions and patents.