

# Material Safety Data Sheet

## 1. Identification of substance:

### Product name: Conductive TPU Filament

Synonyms: conductive TPU 3D printing filament

Prepared on 07/15/2016

This form is subject to changes

All Materials Sold by Black Magic 3D are for Research & Development Only.

## Manufacturer/Supplier:

### Graphene 3D Lab, Inc.

[www.blackmagic3d.com](http://www.blackmagic3d.com)

[www.graphene3dlab.com](http://www.graphene3dlab.com)

Suite 111

4603 Middle Country Rd

[info@graphene3dlab.com](mailto:info@graphene3dlab.com)

Phone: (631) 405-5116

Fax: (631) 405-5118

## 2. Composition/Data on components:

### • Chemical characterization:

**Description: (CAS#)** Thermoplastic Polyurethane (CAS# 75701-44-9), Tris(nonylphenyl)phosphite (CAS# 26523-78-4), proprietary mixture of carbon-based materials\*\*, proprietary processing aids \*\*

\*\*The specific identity for components not identified by a CAS Registry Number is withheld as a trade secret.

### • Composition:

Thermoplastic Polyurethane  $\geq$  70%

Tris(nonylphenyl)phosphite  $\leq$  1%

Carbon-based materials  $\geq$  15%

Proprietary processing aids  $\leq$  14%

## 3. Hazards identification

**Hazard description:** May cause skin irritation or allergic reaction in some individuals

**Ingestion:** Do not ingest. If ingested, contact a poison control center immediately

### • Information pertaining to particular dangers for man and environment

R 38 Irritating to skin.

The material contains less than 1% of Tris(nonylphenyl)phosphite.

H361 Tris(nonylphenyl)phosphite is suspected of damaging fertility or the unborn child.

H410 Tris(nonylphenyl)phosphite is very toxic to aquatic life with long lasting effects.

H315 Tris(nonylphenyl)phosphite causes skin irritation.

## 4. First aid measures

### • After skin contact

If irritation occurs, immediately wash with water and soap and rinse thoroughly.

### • After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

• **After swallowing** Rinse mouth for several minutes with water. Seek immediate medical advice.

## 5. Fire fighting measures



Graphene  
Lab Inc.

[www.blackmagic3d.com](http://www.blackmagic3d.com)  
[www.graphene3dlab.com](http://www.graphene3dlab.com)

Suite 111  
4603 Middle Country Road  
Calverton NY, 11933  
[info@graphene3dlab.com](mailto:info@graphene3dlab.com)  
Ph: (631) 405-5116  
Fax: (631) 405-5118

Conductive TPU Filament is combustible. Will emit harmful irritating fumes if burned.

- **Suitable extinguishing agents:** CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray.
- Special hazards caused by the material, its products of combustion or resulting gases: In case of fire, the following can be released: CO and CO<sub>2</sub> and small amounts of nitrogen oxides, amines, nitriles, aromatic and aliphatic hydrocarbons, aldehydes, cyanidric acid and isocyanates and/or combinations of the previous, oxides of phosphorus and smoke.
- Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

#### 6. Accidental release measures

- **Person-related safety precautions:** Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation

- **Measures for environmental protection:**

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

- **Measures for cleaning/collecting:** Collect mechanically, use a suitable tight container

- **Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

#### 7. Handling and storage

- **Information for safe handling:** Store with desiccant in a cool, dry place in tightly closed containers. Provide good ventilation at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Further information about storage conditions:**

Store in cool, dry conditions with desiccant in well-sealed containers.

#### 8. Exposure controls and personal protection

- **General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

- **Breathing equipment:**

Use suitable respirator when high concentrations are present.

- **Protection of hands:** Impervious gloves

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing .

#### 9. Physical and chemical properties:

- **General Information**

- **Form:** Solid

- **Color:** Black

- **Odor:** Slight odor

- **Change in condition**

- **Melting point/Melting range:** 180-230 degrees Celsius

- **Boiling point/Boiling range:** Not determined



Graphene  
Lab Inc.

[www.blackmagic3d.com](http://www.blackmagic3d.com)  
[www.graphene3dlab.com](http://www.graphene3dlab.com)

Suite 111  
4603 Middle Country Road  
Calverton NY, 11933  
[info@graphene3dlab.com](mailto:info@graphene3dlab.com)  
Ph: (631) 405-5116  
Fax: (631) 405-5118

- **Sublimation temperature / start:** Not determined
- **Flash point:** Not applicable
- **Ignition temperature:** Not determined
- **Decomposition temperature:** Not determined
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**
- **Lower:** Not determined
- **Upper:** Not determined
- **Vapor pressure:** Not determined
- **Density:** Not Determined
- **Solubility in / Miscibility with Water:** none.

#### 10. Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**  
Decomposition will not occur if used and stored according to specifications.
- **Materials to be avoided:** Oxidizing agents
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** Carbon monoxide and carbon Dioxide

#### 11. Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Irritating effect.
- **Sensitization:** No data.
- **Subacute to chronic toxicity:**  
The inhalation of graphite, both natural and synthetic, has caused pneumoconiosis in exposed workers. The pneumoconiosis found is similar to coal worker's pneumoconiosis.
- **Additional toxicological information:**  
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

#### 12 Ecological information

- **General notes:** Do not allow material to be released to the environment without proper governmental permits. Tris(nonylphenyl)phosphite is very toxic to aquatic life with long lasting effects.
- **Biodegradability:** TPU is biodegradable after 3-5 years in the soil.

#### 13. Transport information

- Not a hazardous material for transportation.
- **DOT regulations:**  
**Hazard class:** None
  - **Land transport ADR/RID (cross-border)**
  - **ADR/RID class:** None
  - **Maritime transport IMDG:**
  - **IMDG Class:** None



Graphene  
Lab Inc.

[www.blackmagic3d.com](http://www.blackmagic3d.com)  
[www.graphene3dlab.com](http://www.graphene3dlab.com)

Suite 111  
4603 Middle Country Road  
Calverton NY, 11933  
[info@graphene3dlab.com](mailto:info@graphene3dlab.com)  
Ph: (631) 405-5116  
Fax: (631) 405-5118

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** None
- **Transport/Additional information:**  
Not dangerous according to the above specifications.

• **14. Regulations**

• **Product related hazard information:**

• **National regulations**

**Massachusetts Right To Know Components**

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

**Pennsylvania Right To Know Components**

Tris(nonylphenyl) phosphite

CAS-No.

26523-78-4

Revision Date

4-Nonylphenol, branched 84852-15-3 1989-12-01

**New Jersey Right To Know Components**

Tris(nonylphenyl) phosphite

CAS-No.

26523-78-4

Revision Date

4-Nonylphenol, branched 84852-15-3 1989-12-01

• **Information about limitation of use:**

For use only by technically qualified individuals.

**15. Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.



**Graphene  
Lab Inc.**

**[www.blackmagic3d.com](http://www.blackmagic3d.com)  
[www.graphene3dlab.com](http://www.graphene3dlab.com)**

Suite 111  
4603 Middle Country Road  
Calverton NY, 11933  
[info@graphene3dlab.com](mailto:info@graphene3dlab.com)  
Ph: (631) 405-5118  
Fax: (631) 405-5118