

# DELRAY Material

## Safety Data Sheet

According to EU Directive 1907/2006

**Product name: ABS**

Date of issue: 31-05-2018

Version: 1.2

### 1. Identification of the substance/preparation and of the company

- 1.1 Trade name:**  
ABS
- 1.2 Use of the product:**  
3Dprinter Filament
- 1.3 Supplier:**  
DELRAY Systems LLC  
419 Golf View Lane  
Rochester, MI 48309  
Phone: 248-218-1916

### 2. Hazards identification

- 2.1 Classification of the substance or mixture**  
According to Regulation (EC) No 1272/2008 [CLP]  
This mixture is classified as not hazardous.
- 2.2 Label elements**  
Labelling (CLP)  
Hazard statements: not applicable  
Safety precautions: not applicable
- 2.3 Other hazards**  
Dust: Can cause skin, eye and respiratory tract irritation.  
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.  
The melted product can cause severe burns.  
Special danger of slipping by leaking/spilling product.  
Results of PBT and vPvB assessment:  
This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

### 3. Composition/information on ingredients

#### 3.2. Mixtures

	Trade Name	CAS No.	Content(%)
2-Methyl-2-propenoic acid methyl ester homopolymer	PMMA	9011-14-7	~50%
2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene	Acrylonitrile-butadiene-styrene	9003-56-9	~50%
additives	confidential	confidential	<3%

### 4. First aid measures

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### 4.1 Description of first aid measures

General information:

Immediately remove any contaminated clothing, shoes or stockings.

After inhalation:

Provide fresh air. Seek medical attention if needed.

In case of skin contact:

The melted product can cause severe burns.

Do not attempt to remove molten product, or molten product that has cooled, from skin without medical assistance.

After contact with molten product, cool skin area rapidly with cold water. Consult physician.

After eye contact:

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

Consult an eye specialist in the event of irritation.

After swallowing:

Rinse mouth with water. Drink one or two glasses of water.

Never give an unconscious person anything through the mouth. seek medical attention. Do not induce vomiting without medical advice.

### 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.

## 5. Fire fighting measures

### 5.1 Extinguishing media

Suitable extinguishing media:

Water spray, Foam, Dry powder, Carbon dioxide (CO<sub>2</sub>).

Unsuitable extinguishing media :

Do not use a solid water stream as it may scatter and spread fire.

### 5.2 Special hazards arising from the substance or mixture

Not available

### 5.3 Advice for fire fighters

Fire fighting measures

Wear a self-contained breathing apparatus and chemical protective clothing. Avoid inhalation of materials or combustion by-products.

Unusual Fire Hazards:

Do not allow fire water to penetrate into surface or ground water. Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

## 6. Accidental release measures

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- 6.1 Personal precautions, protective equipment and emergency procedures**  
May form explosible dust-air mixture if dispersed. Remove all sources of ignition.  
Provide adequate ventilation. Do not breathe dust. Wear appropriate protective equipment.  
Take off contaminated clothing and wash it before reuse.  
Keep unprotected people away.
- 6.2 Environmental precautions**  
Do not allow to penetrate into soil, waterbodies or drains.
- 6.3 Methods and materials for containment and cleaning up**  
Avoid generation of dust. Take up mechanically. Can be reused without regeneration.  
Additional information: Take precautionary measures against static discharges.  
Special danger of slipping by leaking/spilling product.

## 7. Handling and storage

### 7.1 Handling

Advices on safe handling:

Provide adequate ventilation, and local exhaust as needed. Do not breathe dust. Avoid dust formation.

In the case of the formation of dust: Withdraw by suction.

Molten material: Avoid contact with the substance.

Precautions against fire and explosion:

In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

Take precautionary measures against static discharges. Keep away from sources of ignition. Use grounding equipment. Use explosion-proof equipment and non-sparking tools/utensils.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Store in a well-ventilated place. Keep container tightly closed.

Protect against heat /sun rays. Protect from moisture contamination.

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### 8. Exposure controls/personal protection

#### 8.1 Exposure controls

Provide good ventilation in the work area. Additional controls are not normally necessary when handling the polymer.

Thermal extrusion: Provide local exhaust ventilation to ensure that the workplace exposure limit is not exceeded.

Use of respiratory protection may be necessary during maintenance activities.

#### Personal protection equipment

Occupational exposure controls

Respiratory protection: In case of dust formation:

Use filter type A-P2 according to EN 14387.

Hand protection:

Protective gloves according to EN 374.

Protective gloves made of fabric or leather.

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

Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection:

Tightly sealed goggles according to EN 166.

Body protection:

Wear suitable protective clothing. Boots or safety shoes

General protection and hygiene measures:

Do not breathe dust.

Take off contaminated clothing and wash it before reuse.

When using do not eat, drink or smoke. Wash hands before breaks and after work.

When handling large quantities, supply emergency spray.

In case of dust formation: Particular danger of slipping on spilled product on the ground.

### 9. Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Appearance	Solid Filament
Odour	weak
Colour	depending on product grade
Odour threshold	No information available
pH	Not applicable
Melting/freezing point	200-220 °C
Initial boiling point and boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	No information available

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Upper/lower flammability or explosive limits	UEL: No data available LEL: No data available
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density	1.06 g/cc
Solubility(ies)	Insoluble in water, soluble in THF, acetone or other solvents.
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	not self-igniting
Decomposition temperature	No information available
Viscosity	Not applicable
Explosive properties	No data available
Oxidizing properties	No data available

## 10. Stability

**10.1 Reactivity:** No information available

**10.2 Chemical stability:**  
Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions:**  
In case of dust formation (Fine dust): May form explosible dust-air mixture if dispersed.

**10.4 Conditions to avoid:**  
Avoid elevated temperatures for prolonged periods of time. Take precautionary measures against static discharges.

**10.5 Incompatible materials:**  
Not available

**10.6 Hazardous decomposition products**  
May emit flammable vapour when ignited.

## 11. Toxicological information

### 11.1 Information on toxicological effects

Toxicological effects:

Acute toxicity (oral):	Based on available data, the classification criteria are not met
Acute toxicity (dermal):	Based on available data, the classification criteria are not met.
Acute toxicity (inhalative):	Based on available data, the classification criteria are not met.
Skin corrosion/irritation:	Lack of data.
Eye damage/irritation:	Lack of data. May cause irritations.
Sensitisation to the respiratory tract:	

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Skin sensitisation:	Based on available data, the classification criteria are not met
Dust:	Based on available data, the classification criteria are not met
Processing, thermal hazards:	Can cause skin, eye and respiratory tract irritation.
	Vapours: Can cause skin, eye and respiratory tract irritation.
Germ cell mutagenicity/Genotoxicity:	Lack of data. Not to be expected
Carcinogenicity:	Lack of data. Not to be expected
Reproductive toxicity:	Lack of data. Not to be expected
Effects on or via lactation:	Lack of data.
Specific target organ toxicity (single exposure):	Lack of data.
Dusts:	Irritating to eyes, respiratory system and skin.
Specific target organ toxicity (repeated exposure):	Lack of data.
Aspiration hazard:	Lack of data.

### Symptoms

Dust:	Skin irritation, eye irritations and redness The melted product can cause severe burns.
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## 12. Ecological information

### 12.1 Toxicity

Aquatic toxicity: no evidence of aquatic toxicity

### 12.2. Persistence and degradability

Further details: Biodegradation: Product is not readily biodegradable.  
Degradation at UV-radiation/sunlight  
Environmental half-life period:  $\geq 100$  days (estimated)

### 12.3 Bioaccumulative potential

To avoid bioaccumulation plastics should not be disposed in the sea or in other water environments.

Partition coefficient n-octanol/water:  
No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

### 12.6 Other adverse effects

General information:  
Do not allow to enter into ground-water, surface water or drains.

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### 13. Disposal considerations

#### 13.1 Waste treatment methods

Disposal methods

Dispose according to local regulations.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation.

Non-contaminated packages may be recycled.

### 14. Transport information

Product has been classified as being non-dangerous substance according to transport regulations ADR, RID, IMDG, IATA/DGR

#### 14.1 UN number

Not applicable

#### 14.2 UN proper shipping name

Not applicable

#### 14.3 Transport hazard class(es)

Not applicable

#### 14.4 Packing Group

Not applicable

#### 14.5 Environmental hazards

No additional data is available

#### 14.6 Special precautions for user

No data available

#### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not evaluated

### 15. Regulatory information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

##### National regulations - Great Britain

Hazchem-Code: -

No data available

##### National regulations - EC member states

Volatile organic compounds (VOC):

0.2 % by weight

#### 15.2 Chemical Safety Assessment

For this substance a chemical safety assessment is not required

### 16. Other information

*Information is referenced from other manufacturers.*

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*For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).*

*This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 and Regulation (EC) No. 2015/830. Label element according to Regulation (EC) No 1272/2008.*

*The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.*