1. Name of material, preparation method and manufacturer

1.1 Product data : Continuous Basalt Roving

Trade Name : Mafic Basalt Fiber

1.2 Application : Pultrusion, filament winding, production of prepregs, woven fabrics, UD tapes and multi-axial fabrics

1.3 Manufacturer : Mafic Black Basalt (Ireland) Ltd
Unit R, Kells Business Park,
Cavan Road,
Kells
County Meath
Ireland
+ 353 46 924 4602

Supplier : Mafic Black Basalt (Ireland) Ltd
Unit R, Kells Business Park,
Cavan Road,
Kells
County Meath
Ireland
+ 353 46 924 4602

1.4 Department to contact : Production Manager, Ian Maguire + 353 46 924 4602 (GMT).

1.5 Date Published : February 24th 2014 – Version 1.0

2. Data on composition/ingredients

2.1 Product data : Roving of continuous basalt filaments with:
Nominal filament diameter of 9-18µm and moisture content below 0.1%.
Silane based coating for lubrication and protection of filaments (0.4% – 0.8% w/w).

2.2 Hazardous ingredients : Basalt is a naturally occurring inert rock; it is non-toxic and does not contain any toxic impurities.
The surface coating is considered as non-hazardous.
### 2. Data on composition/ingredients

#### 2.3 Additional remarks

: None

### 3. Potential Risks

#### 3.1 Type of Risk

: Fibers are not normally respirable as they have an average diameter of 9µm to 18µm. The World Health Organization classifies fibers with a diameter of >3µm are considered non-respirable.

- Potential irritant causing irritation to skin, eyes and respiratory tract during mechanical handling.
- High concentrations of airborne dust may cause a build up of dust in the ears, eyes and upper respiratory tract.
- High volumes of airborne basalt fiber may also reduce visibility in the workplace.

- Basalt fiber has diameter >9µm and only splits longitudinally when processed mechanically through grinding or sanding etc. Sections 3.2, 8.2 define safe exposure limits if these processes are used.

Long Term Risks

: There are no known long term health effects connected to the long term use of basalt fiber.

#### 3.2 Special risks to individuals and environment

: Inhalation risk if mechanical grinding or sanding is performed on the product:

- To UK HSE EH40/2005
- Workplace Exposure Limit (8 h TWA)
- Long Term Exposure Limit of MMMF
  - 5 mg/m³ (respirable dust)
  - 2 fiber/cm³

### 4. First Aid

#### 4.1 General

: It is very unlikely that continuous basalt fibers will cause harm. However Basalt fibers can cause irritation through splinters of filament entering the skin or other body areas. Any fiber fragments should be removed from the person by gentle washing.
4. First Aid

4.2 After inhalation: Inhalation is unlikely to occur unless the basalt is being mechanically ground or sanded from continuous fibers into dust. If irritation to the respiratory tract occurs and persists seek medical attention. See also sections 3.2 above for exposure limits and 8.3 for correct handling.

4.3 After skin contact: Remove from skin and with gentle washing of affected site with soap and cool clean water. Seek medical attention if symptoms persist or if the fibers become embedded in the skin.

4.4 After eye contact: Rinse with clean water for several minutes and seek medical attention if symptoms of irritation persist.

4.5 After swallowing: Seek medical attention immediately.

5. Fire fighting

5.1 Appropriate firefighting media: Basalt fiber is non-flammable and non-explosive. Use normal firefighting measures in the event of a fire.

5.2 Inappropriate fire fighting media (safety reasons): None

5.3 Particular risks specific to the product, its combustion products or developing gasses: None

5.4 Required fire fighting PPE: None

5.5 Additional information: None

6. Actions on inadvertent release

Recover using vacuum or brushing means and dispose of according to item 13. Avoid creating airborne dust during recovery by means of wetting with water. See also item 8 for safe airborne particulate limits.
7. Handling and storage

7.1 Safe handling information including technical safe guarding

: Processing basalt roving may generate dust and airborne fibers. This may cause discomfort on skin contact. Skin irritations and splinters are possible. Availability of local exhaust ventilation with vacuum system is advised to remove any dust and loose fiber. The general hygiene rules and measures applying for the handling of chemicals must be employed. Use of gloves and masks

See also item 8.

Fire and explosion related information

: The products are non-combustible.

7.2 Safe storage conditions

Storage room/warehouse requirements

: Storage rooms should be dry with low humidity. Always store it in original packing, which should be intact. Basalt fiber is heavy; ensure that all storage is suitable for the weight that is being stored

Incompatible materials/restrictions on combined storage

: None

Storage conditions

: Storage at room temperature in dry, low humidity atmosphere.

Special requirements on electric systems and equipment

: None

Static charge prevention

: None

Storage class

: 13
8. Exposure control and Personal Protective Equipment (PPE)

8.1 Additional information for the design of technical equipment

- Fire and explosion related information: See item 7.1

8.2 Substances with work-place related limit values/classification subject to control

- Continuous basalt fiber is uniform in diameter and is not subject to EC Guideline 97/69/EC. Continuous basalt fiber is considered carcinogenic according to EC Guideline 1999/45/EC and TRGS 220 (Germany). The continuous basalt fibers produced have a nominal diameter of 9 - 18 micron. Manmade mineral fibers categorized in appendix 7 HazMat Ordinance or TRGS 521 are subject to a TRK value of 250,000 fibers/m³ according to TRGS 900.

8.3 Personal Protective Equipment (PPE)

- Respiratory protection: At elevated airborne fiber and dust levels, use of respiratory equipment is recommend (dust mask with fine filter according to EN 143), Filter P1 (EN 141).

- Eye protection: In case of airborne fibers and dust, safety glasses are recommended; EN 166.

- Hand protection: Safety gloves should be worn to avoid possible skin irritation and the application of a suitable work hand cream for additional protection.

- Body protection: Long-sleeved safety clothing should be worn as well as normal personnel protective equipment such as safety boots to EN 344.

- General protection and hygiene: Wash hands thoroughly before eating, visiting the toilet and at the end of the working day. In case of sensitive skin, apply a protective moisturizing barrier cream after washing hands and before handling fibers.
# 9. Physical and chemical properties

## 9.1 Appearance Shape/State of aggregation
- Color: Dark brown, gold.
- Odor: None

## 9.2 pH-Value
(2g in 100 ml of water, 20 °C)
- Not Applicable (DIN 54276)

## 9.3 Boiling point/boiling range
- Not Applicable

## 9.4 Melting point/melting range
- ~1050 °C (softening)

## 9.5 Flash point
- Not Applicable

## 9.6 Flammability
- The product is non-combustible.

## 9.7 Ignition temperature
- Not Applicable

## 9.8 Self-ignition
- Not Applicable

## 9.9 Danger of explosion
- Not Applicable

## 9.10 Explosion limits
- Lower
- Not Applicable
- Upper
- Not Applicable

## 9.11 Fire promoting properties
- Not Applicable

## 9.12 Vapor pressure
- Not Applicable

## 9.13 Density, expressed as bulk density (20 °C)
- 2.67 g/cm³ (raw basalt)

## 9.14 Solubility in water
- Insoluble

## 9.15 Solubility in fat
- Insoluble

## 9.16 Distribution coefficient n-Octanol/water
- No Data Available
### 9. Physical and chemical properties

#### 9.17 Other

: None

### 10. Stability and reactivity

#### 10.1 Conditions to be avoided

: Humidity >65%

#### 10.2 Substances to be avoided

: None

#### 10.3 Hazardous decomposition products

: None

#### 10.4 Other

: This product is inert.

### 11. Toxicology data

#### 11.1 General remarks

: Basalt fiber is non-toxic.

#### 11.2 Toxicological tests

**Acute toxicity, e.g. LD50**

: No Data Available

**Specific symptoms of animal tests**

: No Data Available

**Primary irritant/caustic action**

: No Data Available

**Sensitization**

: No Data Available

**Effects after repeated or prolonged exposure (sub-acute to chronic toxicity)**

: No Data Available

**Carcinogenic risks**

: No Data Available

**Genotype and reproduction risks**

: No Data Available

**Other**

: None
11. Toxicology data

11.3 Practical experience
Classification specific information : No Data Available

12. Ecology data

12.1 Toxicity : This product in non-toxic

12.2 Persistence and degradability : Not applicable

12.3 Bioaccumulative potential : Not applicable

12.4 Mobility in soil : Not applicable

12.5 Results of PBT and vPvB assessment : Not applicable

12.6 Other adverse effects : Not applicable

12.7 Additional information : None

13. Disposal

13.1 Disposal of Product : Basalt fiber is non-hazardous, inert solid waste and should be disposed of according to local laws and guidelines.

Waste Code No : EWC-Code 101103
Appropriate landfill.

13.2 Disposal of Used Packing/Wrapping material : Remove waste basalt fiber from cardboard tube and recycle according to local disposal/recycling rules.

Waste Code No : EWC Code 03038
Waste type : Cardboard
Waste Code No : EWC Code 150102
Waste type : Plastic Heat Shrink Wrap
14. Transport

14.1. UN number : Not Applicable – Product is Non-hazardous

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 : Not Applicable

14.6. Special precautions for user : Not Applicable

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not Applicable

15. Regulations

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

   EU regulations :

   Authorizations and/or restrictions on use : Not Applicable

   Water hazard class : Substances non-hazardous to waters Number 1.2a Class 765

   Other regulations, restrictions and prohibition regulations:
      If mechanically ground or sanded air exposure guidelines to UK HSE EH40/2005
      Workplace Exposure Limit (8 h TWA)
      Long Term Exposure Limit of MMMF
      5 mg/m³ (respirable dust)
      2 fiber/cm³

15.2 Chemical Safety Assessment : Basalt fiber is an inert product made purely of molten basalt stone. No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier
## 16. Other

### 16.1 European Chemical Hazard and Precautionary Statements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>P301 + P330 + P331</td>
<td><strong>IF SWALLOWED:</strong> rinse mouth with fresh water. Do NOT induce vomiting.</td>
</tr>
<tr>
<td>P302 + P350</td>
<td><strong>IF ON SKIN:</strong> Gently wash with plenty of soap and water.</td>
</tr>
<tr>
<td>P304 + P340</td>
<td><strong>IF INHALED:</strong> Remove person to fresh air and keep comfortable for breathing.</td>
</tr>
<tr>
<td>P305 + P351 + P338</td>
<td><strong>IF IN EYES:</strong> Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</td>
</tr>
<tr>
<td>P335</td>
<td>Brush off loose particles from skin.</td>
</tr>
<tr>
<td>P402</td>
<td>Store in a dry place.</td>
</tr>
<tr>
<td>P501</td>
<td>Dispose of contents/container to local refuse facility.</td>
</tr>
<tr>
<td>H316</td>
<td>Causes mild skin irritation.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
</tbody>
</table>

### R-phrases:

<table>
<thead>
<tr>
<th>Code</th>
<th>Phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>R36/37/38</td>
<td>Irritating to eyes, respiratory system and skin.</td>
</tr>
</tbody>
</table>

### S-phrases:

<table>
<thead>
<tr>
<th>Code</th>
<th>Phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>S22</td>
<td>Do not breathe dust.</td>
</tr>
<tr>
<td>S25</td>
<td>Avoid contact with eyes.</td>
</tr>
<tr>
<td>S26</td>
<td>In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</td>
</tr>
<tr>
<td>S37/39</td>
<td>Wear suitable gloves and eye/face protection.</td>
</tr>
<tr>
<td>S63</td>
<td>In case of accident by inhalation: remove casualty to fresh air and keep at rest.</td>
</tr>
<tr>
<td>S64</td>
<td>If swallowed, rinse mouth with water (only if the person is conscious).</td>
</tr>
</tbody>
</table>

### 16.2 Further information:

None

---

**General Disclaimer**

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by Mafic, and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee is given in respect of the properties of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.