1. Identification of the substance/mixture and of the company/undertaking

1.1. Product Details

Product Code : M117  
Name : Fullerene C_{60}  
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.  
CAS No. : 99685-96-8

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals

1.3. Supplier details

Supplied by : Ossila Limited  
Kroto Innovation Centre  
Broad Lane, Sheffield  
S3 7HQ, UK  
Telephone : 0114 213 2770  
Email address : info@ossila.com

2. Hazards identification

2.1. Classification of the substance or mixture

Hazard statements according to Regulation (EC) 1272/2008
Eye irritation (Category 2)  
Specific target organ toxicity - single exposure (Category 3)

Hazard statements defined under EU Directive 67/548/EEC or 1999/45/EC:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xi</td>
<td>Irritating to eyes and respiratory system</td>
<td>R36/37</td>
</tr>
</tbody>
</table>

2.2. Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]

Signal word : Warning

Hazard statement(s)
H319 Causes serious eye irritation.
H335 May cause respiratory irritation

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P305 + P351 + P338 If in eyes: Rinse cautiously with water for several minutes. Remove
contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements

2.3. Other hazards

None.

3. Composition/Information on ingredients

3.1. Substances

Synonyms: Buckminsterfullerene, C60
Formula: C₆₀
Molecular weight: 720.64 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>EC #</th>
<th>Weight %</th>
<th>CLP Classification</th>
<th>DSD Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fullerene-C₆₀</td>
<td>99685-96-8</td>
<td>100</td>
<td>100</td>
<td>Eye Irrit. 2 (H319); STOT SE 3 (H335)</td>
<td>Xi, R36/37</td>
</tr>
</tbody>
</table>

4.1. Description of first aid measures

**After Inhalation**
If inhaled, remove to fresh air. If not breathing give artificial respiration. Call a physician.

**After skin contact**
In case of skin contact, wash with soap and flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

**After eye contact**
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**After Ingestion**
If swallowed, wash out mouth with water. Call a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available.

5. Fire fighting

5.1. Extinguishing media

Use agent most appropriate to extinguish fire. In case of small fire, use “alcohol” foam, dry chemical or carbon dioxide. For large fires apply water from as safe a distance as possible. Use very large quantities or spraying water opposed to a solid stream.

5.2. Special hazards arising from the substance of mixture

*Hazardous combustion products*
Carbon oxides
5.3. Advice for firefighters
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases and vapours may be generated by thermal decomposition.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Wear personal protective equipment. Avoid dust formation. Avoid breathing in vapours, mist, gas or dust. Ensure room is well ventilated. Remove all sources of ignition.

6.2. Environmental precautions
Do not let product enter drains.

6.3. Containment and cleaning:
Contain and clean up spill if safe to do so, without raising dust. Dispose of dry waste in closed container for proper disposal according to local regulations.

7. Handling and storage

7.1. Precautions for safe handling
Avoid contact with eyes, skin, and clothing. Avoid formation of dust or vapour. Keep away from sources of ignition and avoid the build of electrostatic charge. Provide exhaust ventilation in places where dust is formed. In case of an accident or if you are feeling unwell, immediately seek medical advice.

7.2. Conditions for safe storage, including any incompatibilities
Store in a cool, dry and well-ventilated place inside of a tightly sealed container.

7.3. Specific end uses
Use in laboratories.

8. Exposure controls / Personal protection

8.1. Control parameters

Exposure limit sources
UK – EH40 Workplace Exposure Limits (WEL) for use with the Control of Substances Hazardous to Health (COSHH) Regulations.

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

Biological occupational exposure limits
This product does not contain any hazardous materials with biological limits.
8.2. Exposure controls

Engineering measures

Handle in accordance with good industrial practices for hygiene and safety. Ensure eyewash stations and safety showers are close to the laboratory workstation.

Personal protective equipment

Eyes: Wear safety glasses with side-shields conforming to appropriate government standards such as NOISH (US) or EN166 (EU).

Skin: Handle with appropriate gloves and use proper glove removal technique to avoid skin contact. Dispose of gloves in accordance with applicable laws. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Clothing: Wear complete suit protecting against chemicals; the type of equipment should be appropriate for the concentration and amount of dangerous substance used.

Respirators: A respiratory protection program that meets OSHA’s 29 CFR §1910.134 and ANSI Z88.2 requirements or European standard EN 149 must be followed whenever workplace conditions warrant a respirator’s use.

General hygiene measures

Wash thoroughly after handling. Wash contaminated clothing before reuse.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Black powder</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting/freezing point</td>
<td>280 °C (lit.)</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 94 °C (lit.)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.6 g/cm³ at 20 °C</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
</tr>
<tr>
<td>n-octanol/water</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other safety information

No data available.

10. Stability and reactivity

10.1 Reactivity

No data available.
10.2. Chemical stability
Stable under normal temperatures and pressures under recommended storage conditions.

10.3. Possibility of hazardous reactions
No data available.

10.4. Conditions to avoid
No data available.

10.5. Incompatible materials
Strong oxidising agents.

10.6. Hazardous decomposition products
Carbon oxides.

11. Toxicological information

11.1. Information on toxicological effects

**Acute toxicity**
No data available.

**Skin corrosion/irritation**
Based on available data the classification criteria are not met

**Serious eye damage/eye irritation**
May cause eye irritation.

**Respiratory or skin sensitization**
Based on available data the classification criteria are not met

**Germ cell mutagenicity**
No data available.

**Carcinogenicity**
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**
No data available.

**Specific target organ toxicity - single exposure**
Inhalation - May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**
No data available.

**Aspiration hazard**
No data available.

**Potential health effects**

<table>
<thead>
<tr>
<th>Path</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. Causes respiratory tract irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May be harmful if swallowed.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. May cause skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>Causes serious eye irritation.</td>
</tr>
</tbody>
</table>

**Signs and Symptoms of Exposure**
No data available.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. Ecological information

12.1. Toxicity
No data available.
12.2. Persistence and degradability
Readily biodegradable. Persistence is unlikely based on available information.

12.3. Bioaccumulative potential
Bioaccumulation is unlikely.

12.4. Mobility in soil
No data available.

12.5. Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted, but substance is not considered (very) persistent, (very) bioaccumulative and toxic (PBT/vPvB).

12.6. Other adverse effects
No data available.

13. Disposal

13.1. Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations and in accordance with European Directives on waste and hazardous waste. Offer surplus material to a licensed professional waste disposal professional.

Contaminated packaging
Dispose of as unused product.

14. Transport

IATA:

14.1. UN number
ADR/RID: IMDG: IATA:

14.2. UN proper shipping name
ADR/RID: IMDG: IATA:

14.3. Transport hazard class
ADR/RID: IMDG: IATA:

14.4. Packaging group
ADR/RID: IMDG: IATA:

14.5. Environmental hazards
No hazards identified.

14.6. Special precautions for user
No special precautions required.
15. Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

No data available.

15.2 Chemical safety assessment

No chemical safety report/assessment was carried out for this product.

16. Other information

Warranty

This material is for research and development use only. The information provided here is based upon the available information from material suppliers but not warranted as complete and is provided only as a guide. Ossila Limited shall not be held responsible for any damage resulting from use or handling of this product.