SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers
   Product name: Fluorene
   CAS-No.: 86-73-7

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses: Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet
   Company: Central Drug House (P) Ltd
   7/28 Vardaan House
   New Delhi -110002
   INDIA
   Telephone: +91 11 49404040
   Email: care@cdhfinechemical.com

1.4 Emergency telephone number
   Emergency Phone #: +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification according to Regulation (EC) No 1272/2008
   Acute aquatic toxicity (Category 1), H400
   Chronic aquatic toxicity (Category 1), H410
   For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements
   Labelling according Regulation (EC) No 1272/2008
   Pictogram
   
   Signal word: Warning
   Hazard statement(s): Very toxic to aquatic life with long lasting effects.
   H410
   Precautionary statement(s): Avoid release to the environment.
   P273
   P501
   Supplemental Hazard: None
2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients
3.1 Substances
Formula : \text{C}_{13}\text{H}_{10}
Molecular weight : 166.22 g/mol
CAS-No. : 86-73-7
EC-No. : 201-695-5

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluorene</td>
<td>Aquatic Acute 1; Aquatic</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td></td>
<td>Chronic 1; H400, H410</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M-Factor - Aquatic Acute: 1</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures
4.1 Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult 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

SECTION 5: Firefighting measures
5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance dust (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance  Form: crystalline
   Colour: white
b) Odour     No data available
c) Odour Threshold  No data available
d) \( pH \)  No data available
e) Melting point/freezing point  Melting point/range: 111 - 114 °C - lit.
f) Initial boiling point and boiling range  298 °C - lit.
g) Flash point  151.0 °C - closed cup
h) Evaporation rate  No data available
i) Flammability (solid, gas)  No data available
j) Upper/lower flammability or explosive limits  No data available
k) Vapour pressure  No data available
l) Vapour density  No data available
m) Relative density  No data available
n) Water solubility  No data available
o) Partition coefficient: n-octanol/water  No data available
p) Auto-ignition temperature  No data available
q) Decomposition temperature  No data available
r) Viscosity  No data available
s) Explosive properties  No data available
t) Oxidizing properties  No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable 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 oxidizing agents

10.6 **Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 **Information on toxicological effects**

**Acute toxicity**
LD50 Intraperitoneal - Mouse - > 2.0 mg/kg(Fluorene)

**Skin corrosion/irritation**
No data available(Fluorene)

**Serious eye damage/eye irritation**
No data available(Fluorene)

**Respiratory or skin sensitisation**
No data available(Fluorene)

**Germ cell mutagenicity**
No data available(Fluorene)

**Carcinogenicity**
This product is or contains a component that is not classifiable as to its classification.(Fluorene)
(Fluorene)
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Fluorene)

**Reproductive toxicity**
No data available(Fluorene)

**Specific target organ toxicity - single exposure**
No data available(Fluorene)

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

**Aspiration hazard**
No data available(Fluorene)

**Additional Information**
RTECS: LL5670000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(Fluorene)

SECTION 12: Ecological information

12.1 **Toxicity**

**Toxicity to fish**
LC50 - Fish - 0.82 mg/l - 96 h(Fluorene)

**Toxicity to daphnia and other aquatic invertebrates**
Remarks: No data available(Fluorene)
SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish LC50 - Fish - 0.82 mg/l - 96 h(Fluorene)
Toxicity to daphnia and other aquatic invertebrates Remarks: No data available(Fluorene)
Toxicity to algae EC50 - Algae - 3.4 mg/l - 96 h(Fluorene)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation Oncorhynchus mykiss (rainbow trout) - 24 h
- 0.0191 mg/l(Fluorene)
Bioconcentration factor (BCF): 512

12.4 Mobility in soil
Adsorbs on soil(Fluorene)

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chem scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 3077 IMDG: 3077 IATA: 3077

14.2 UN proper shipping name
ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Fluorene)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Fluorene)
IATA: Environmentally hazardous substance, solid, n.o.s. (Fluorene)

14.3 Transport hazard class(es)
ADR/RID: 9 IMDG: 9 IATA: 9

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

14.5 Environmental hazards
ADR/RID: yes IMDG Marine pollutant: no IATA: yes
14.6 Special precautions for user

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.