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

- Product identifier
- Trade name: Phenanthrene
- Part number: FRNH-068R
- CAS Number: 85-01-8
- EC number: 201-581-5
- Relevant identified uses of the substance or mixture and uses advised against
  Reagents and Standards for Analytical Chemical Laboratory Use

- Details of the supplier of the safety data sheet
- Manufacturer/Supplier:
  Agilent Technologies Manufacturing GmbH & Co. KG
  Hewlett-Packard-Str.8
  76337 Waldbronn
  Germany

- Further information obtainable from:
  Telephone: 0800 603 1000
  pdl-msds_author@agilent.com
- Emergency telephone number: CHEMTREC®: +(44)-870-8200418

2 Hazards identification

- Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008

GHS09 environment

Aquatic Acute 1  H400 Very toxic to aquatic life.

GHS07

Acute Tox. 4  H302 Harmful if swallowed.
Skin Irrit. 2  H315 Causes skin irritation.
Eye Irrit. 2  H319 Causes serious eye irritation.
Skin Sens. 1  H317 May cause an allergic skin reaction.
STOT SE 3  H335 May cause respiratory irritation.

Aquatic Chronic 4  H413 May cause long lasting harmful effects to aquatic life.

- Label elements
- Labelling according to Regulation (EC) No 1272/2008
  The substance is classified and labelled according to the CLP regulation.

(Contd. on page 2)
Trade name: Phenanthrene

- **Hazard pictograms**

  ![Pictogram GHS07](image1)
  ![Pictogram GHS09](image2)

- **Signal word** Warning

- **Hazard-determining components of labelling:**

  phenanthrene

- **Hazard statements**

  H302 Harmful if swallowed.
  H315 Causes skin irritation.
  H319 Causes serious eye irritation.
  H317 May cause an allergic skin reaction.
  H335 May cause respiratory irritation.
  H400 Very toxic to aquatic life.
  H413 May cause long lasting harmful effects to aquatic life.

- **Precautionary statements**

  P101 If medical advice is needed, have product container or label at hand.
  P102 Keep out of reach of children.
  P103 Read label before use.
  P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
  P264 Wash thoroughly after handling.
  P270 Do not eat, drink or smoke when using this product.
  P271 Use only outdoors or in a well-ventilated area.
  P272 Contaminated work clothing should not be allowed out of the workplace.
  P273 Avoid release to the environment.
  P280 Wear protective gloves / eye protection / face protection.
  P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
  P303 Rinse mouth.
  P302+P352 IF ON SKIN: Wash with plenty of water.
  P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P362+P364 Take off contaminated clothing and wash it before reuse.
  P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
  P321 Specific treatment (see on this label).
  P337+P313 If eye irritation persists: Get medical advice/attention.
  P391 Collect spillage.
  P403+P233 Store in a well-ventilated place. Keep container tightly closed.
  P405 Store locked up.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Other hazards**

- **Results of PBT and vPvB assessment**

  - **PBT:** Not applicable.
  - **vPvB:** Not applicable.

(Contd. on page 3)
3 Composition/information on ingredients

- Chemical characterisation: Substances
- CAS No. Description
  85-01-8 phenanthrene
- Identification number(s)
  - EC number: 201-581-5
- SVHC
  85-01-8 phenanthrene

4 First aid measures

- Description of first aid measures
  - General information:
    Immediately remove any clothing soiled by the product.
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - After inhalation:
    Supply fresh air and to be sure call for a doctor.
    In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact:
    Immediately wash with water and soap and rinse thoroughly.
  - After eye contact:
    Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing:
    Call for a doctor immediately.
  - Information for doctor:
    - Most important symptoms and effects, both acute and delayed: No further relevant information available.
    - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Firefighting measures

- Extinguishing media
  - Suitable extinguishing agents: Use fire extinguishing methods suitable to surrounding conditions.
  - Special hazards arising from the substance or mixture: No further relevant information available.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- Environmental precautions:
  Do not allow product to reach sewage system or any water course.
  Inform respective authorities in case of seepage into water course or sewage system.
  Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up:
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
Trade name: Phenanthrene

7 Handling and storage

- Handling:
  - Precautions for safe handling: Ensure good ventilation/exhaustion at the workplace.
  - Information about fire and explosion protection: No special measures required.

- Conditions for safe storage, including any incompatibilities
  - Storage:
    - Requirements to be met by storerooms and receptacles: No special requirements.
    - Information about storage in one common storage facility: Not required.
    - Further information about storage conditions: Keep container tightly sealed.
  - Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical facilities: No further data; see item 7.
- Control parameters
  - Ingredients with limit values that require monitoring at the workplace: Not required.
  - Additional information: The lists valid during the making were used as basis.

- Exposure controls
  - Personal protective equipment:
    - General protective and hygienic measures:
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Wash hands before breaks and at the end of work.
      Avoid contact with the eyes and skin.
    - Respiratory protection:
      When used as intended with Agilent instruments the use of the product under normal laboratory conditions and
      with standard practices does not result in significant airborne exposures and therefore respiratory protection is not
      needed.
      Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved
      device equipment with appropriate organic or acid gas cartridge.
    - Protection of hands:
      Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil
      thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct
      contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times
      exceeding 4 hrs. Supplier recommendations should be followed.
    - Material of gloves
      For normal use: nitrile rubber, 11-13 mil thickness
      For direct contact with the chemical: butyl rubber, 12-15 mil thickness
      The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and
      varies from manufacturer to manufacturer.
    - Penetration time of glove material
      For normal use: nitrile rubber: 1 hour
      For direct contact with the chemical: butyl rubber: > 4 hours

(Contd. on page 5)
Eye protection: 

Tightly sealed goggles

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Solid
      - Colour: Not determined.
    - Odour:
      - Odour: Characteristic
      - Odour threshold: Not determined.
  - pH-value: Not applicable.
- Change in condition
  - Melting point/freezing point: 101 °C
  - Initial boiling point and boiling range: 332 °C
  - Flash point: Not applicable.
  - Flammability (solid, gas): Product is not flammable.
  - Decomposition temperature: Not determined.
  - Auto-ignition temperature: Not determined.
  - Explosive properties: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
  - Vapour pressure at 20 °C: 0.00012 hPa
  - Density at 20 °C: 1.063 g/cm³
  - Relative density
    - Not determined.
  - Vapour density
    - Not applicable.
  - Evaporation rate
    - Not applicable.
  - Solubility in / Miscibility with water: Insoluble.
  - Partition coefficient: n-octanol/water: Not determined.
  - Viscosity:
    - Dynamic: Not applicable.
    - Kinematic: Not applicable.
  - Solvent content:
    - VOC (EC): 0.00 %
  - Solids content: 100.0 %
10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability:
  - Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
  - Acute toxicity
    Harmful if swallowed.

- LD/LC50 values relevant for classification:
  - ATE (Acute Toxicity Estimates)
    - Oral LD50 700 mg/kg (mouse)

85-01-8 phenanthrene
  - Oral LD50 700 mg/kg (mouse)

- Primary irritant effect:
  - Skin corrosion/irritation
    Causes skin irritation.
  - Serious eye damage/irritation
    Causes serious eye irritation.
- Respiratory or skin sensitisation
  May cause an allergic skin reaction.
- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
  - Germ cell mutagenicity
    Based on available data, the classification criteria are not met.
  - Carcinogenicity
    Based on available data, the classification criteria are not met.
  - Reproductive toxicity
    Based on available data, the classification criteria are not met.
- STOT-single exposure
  May cause respiratory irritation.
- STOT-repeated exposure
  Based on available data, the classification criteria are not met.
- Aspiration hazard
  Based on available data, the classification criteria are not met.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
- Behaviour in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
Trade name: Phenanthrene

- Ecotoxicological effects:
  - Remark: Very toxic for fish
  - Additional ecological information:
  - General notes:
    Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
    Do not allow product to reach ground water, water course or sewage system, even in small quantities.
    Danger to drinking water if even extremely small quantities leak into the ground.
    Very toxic for aquatic organisms
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

### 13 Disposal considerations

- Waste treatment methods
- Recommendation
  Must not be disposed together with household garbage. Do not allow product to reach sewage system.

- European waste catalogue
  | HP 4  | Irritant - skin irritation and eye damage |
  | HP 5  | Specific Target Organ Toxicity (STOT)/Aspiration Toxicity |
  | HP 6  | Acute Toxicity |
  | HP 13 | Sensitising |
  | HP 14 | Ecotoxic |

- Uncleaned packaging:
  - Recommendation: Disposal must be made according to official regulations.

### 14 Transport information

- UN-Number
  UN3077

- UN proper shipping name
  ADR, IMDG, IATA
  3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (phenanthrene)

- Transport hazard class(es)
  - ADR, IATA
    9 Miscellaneous dangerous substances and articles.
Trade name: Phenanthrene

<table>
<thead>
<tr>
<th>Label</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMDG</td>
<td></td>
</tr>
</tbody>
</table>

- **Class**: 9 Miscellaneous dangerous substances and articles.
- **Label**: 9

<table>
<thead>
<tr>
<th>Packing group</th>
<th>ADR, IMDG, IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td></td>
</tr>
</tbody>
</table>

**Environmental hazards:**
- **Special marking (ADR):** Symbol (fish and tree)
- **Special marking (IATA):** Symbol (fish and tree)

**Special precautions for user**
- **Warning:** Miscellaneous dangerous substances and articles.
- **Danger code (Kemler):** 90
- **EMS Number:** F-A,S-F
- **Stowage Category:** A
- **Stowage Code:** SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.

**Transport in bulk according to Annex II of Marpol and the IBC Code**
- Not applicable.

**Transport/Additional information:**

<table>
<thead>
<tr>
<th>ADR</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Limited quantities (LQ):</strong> 5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g</td>
<td></td>
</tr>
<tr>
<td><strong>Exempted quantities (EQ):</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMDG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Limited quantities (LQ):</strong> 5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UN &quot;Model Regulation&quot;:</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (PHENANTHRENE), 9, III</td>
</tr>
</tbody>
</table>

**15 Regulatory information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category** E1 Hazardous to the Aquatic Environment
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t
48.1.26

· Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t

· National regulations:

· Other regulations, limitations and prohibitive regulations

· Substances of very high concern (SVHC) according to REACH, Article 57

85-01-8 phenanthrene

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· Department issuing SDS: Document Control / Regulatory

· Contact: regulatory@ultrasci.com

· Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

* Data compared to the previous version altered.