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

- Product identifier
- Trade name: Malathion
- Part number: FRSP-1800
- CAS Number: 121-75-5
- EC number: 204-497-7
- Index number: 015-041-00-X
- 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.
  Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.
  GHS07
  Acute Tox. 4 H302 Harmful if swallowed.
  Skin Sens. 1 H317 May cause an allergic skin reaction.
- Label elements
- Labelling according to Regulation (EC) No 1272/2008
  The substance is classified and labelled according to the CLP regulation.
- Hazard pictograms
  GHS07  GHS09
- Signal word Warning
Trade name: Malathion

- **Hazard-determining components of labelling:**
  - malathion (ISO)

- **Hazard statements**
  - H302 Harmful if swallowed.
  - H317 May cause an allergic skin reaction.
  - H410 Very toxic to aquatic life with long lasting effects.

- **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.
  - P272 Contaminated work clothing should not be allowed out of the workplace.
  - P273 Avoid release to the environment.
  - P280 Wear protective gloves.
  - P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
  - P302+P352 IF ON SKIN: Wash with plenty of water.
  - P362+P364 Take off contaminated clothing and wash it before reuse.
  - P330 Rinse mouth.
  - P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
  - P321 Specific treatment (see on this label).
  - P391 Collect spillage.
  - 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.

### 3 Composition/information on ingredients

- **Chemical characterisation: Substances**
- **CAS No. Description**
  - 121-75-5 malathion (ISO)
- **Identification number(s)**
  - EC number: 204-497-7
  - Index number: 015-041-00-X

### 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.
Trade name: Malathion

- **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.
- **Advice for firefighters**
- **Protective equipment**: No special measures required.

### 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**:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.
- **Reference to other sections**
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

### 7 Handling and storage

- **Handling**
- **Precautions for safe handling**
  - Ensure good ventilation/exhaustion at the workplace.
  - Prevent formation of aerosols.
- **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**: None.
  - **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.
Trade name: Malathion

- 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.
- 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
- Eye protection: Goggles recommended during refilling

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Fluid
      - Colour: Not determined.
    - Odour: Like rotten eggs (mercaptans)
    - Odour threshold: Not determined.
  - pH-value: Not determined.
  - Change in condition
    - Melting point/freezing point: 2.85 °C
    - Initial boiling point and boiling range: 156-157 °C
  - Flash point: Not applicable.
  - Flammability (solid, gas): Not applicable.
  - Decomposition temperature: Not determined.
Trade name: Malathion

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Auto-ignition temperature:</td>
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<tr>
<td>Explosive properties:</td>
<td>Product does not present an explosion hazard.</td>
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<td>Explosion limits:</td>
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<tr>
<td>Lower:</td>
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<tr>
<td>Upper:</td>
<td>Not determined.</td>
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<tr>
<td>Vapour pressure at 20 °C:</td>
<td>0.000167 hPa</td>
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<tr>
<td>Density at 20 °C:</td>
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<tr>
<td>Relative density:</td>
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<tr>
<td>Vapour density:</td>
<td>Not determined.</td>
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<tr>
<td>Evaporation rate:</td>
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<tr>
<td>Solubility in / Miscibility with water at 20 °C:</td>
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<td>Partition coefficient: n-octanol/water:</td>
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<tr>
<td>Viscosity:</td>
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<td>Dynamic:</td>
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<tr>
<td>Kinematic:</td>
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<tr>
<td>Solvent content:</td>
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<td>Organic solvents:</td>
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<tr>
<td>VOC (EC)</td>
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<tr>
<td>Solids content:</td>
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<tr>
<td>Other information:</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

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 1,000 mg/kg (rat)

  **121-75-5 malathion (ISO)**
  - Oral LD50 1,000 mg/kg (rat)
Trade name: Malathion

- **Primary irritant effect:**
  - Skin corrosion/irritation: Based on available data, the classification criteria are not met.
  - Serious eye damage/irritation: Based on available data, the classification criteria are not met.
  - 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: Based on available data, the classification criteria are not met.
  - 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.
- **Ecotoxic effects:**
  - Remark: Very toxic for fish
- **Additional ecological information:**
- **General notes:**
  - Water hazard class 3 (German Regulation) (Assessment by list): 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.
  - Also poisonous for fish and plankton in water bodies.
  - 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 6 Acute Toxicity
  - HP 13 Sensitising
  - HP 14 Ecotoxic
14 Transport information

- **UN-Number**
  - ADR, IMDG, IATA: UN3082

- **UN proper shipping name**
  - ADR: 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (malathion (ISO))
  - IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (malathion (ISO)), MARINE POLLUTANT
  - IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (malathion (ISO))

- **Transport hazard class(es)**
  - ADR
  - **Class**: 9 Miscellaneous dangerous substances and articles
  - **Label**: 9

- **IMDG, IATA**
  - **Class**: 9 Miscellaneous dangerous substances and articles
  - **Label**: -

- **Packing group**
  - ADR, IMDG, IATA: III

- **Environmental hazards:**
  - **Marine pollutant**: Symbol (fish and tree)
  - **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
  - **Stowage Category**: A

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

**Transport/Additional information:**

- **ADR**
  - **Limited quantities (LQ)**: 5L
  - **Excepted quantities (EQ)**: Code: E1
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 1000 ml
Trade name: Malathion

| · Transport category | 3 |
| · Tunnel restriction code | |
| · IMDG | - |
| · Limited quantities (LQ) | 5L |
| · Exempted quantities (EQ) | Code: E1 |
| | Maximum net quantity per inner packaging: 30 ml |
| | Maximum net quantity per outer packaging: 1000 ml |
| · UN "Model Regulation": | UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (MALATHION (ISO)), 9, III |

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
  · Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t
  · REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

· Regulation (EU) No 649/2012

· 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.

· 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
  vPvB: very Persistent and very Bioaccumulative
  Acute Tox. 4: Acute toxicity – Category 4
  Skin Sens. 1: Skin sensitisation – Category 1
  Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
  Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1