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

- **Product identifier**
- **Trade name:** 4-Bromoaniline
- **Part number:** FRNH-179G
- **CAS Number:** 106-40-1
- **EC number:** 203-393-9
- **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**
  - GHS06 skull and crossbones
  - Acute Tox. 3 H311 Toxic in contact with skin.
  - Acute Tox. 2 H330 Fatal if inhaled.
  - GHS08 health hazard
  - STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
  - GHS07
  - Acute Tox. 4 H302 Harmful if swallowed.

- **Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
  The substance is classified and labelled according to the CLP regulation.
- **Hazard pictograms**
  - GHS06
  - GHS08

(Contd. on page 2)
Trade name: 4-Bromoaniline

- **Signal word** Danger

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

- **Hazard statements**
  H302 Harmful if swallowed.
  H311 Toxic in contact with skin.
  H330 Fatal if inhaled.
  H373 May cause damage to organs through prolonged or repeated exposure.

- **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.
  P260 Do not breathe 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.
  P280 Wear protective gloves / protective clothing.
  P284 [In case of inadequate ventilation] wear respiratory protection.
  P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
  P330 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.
  P310 Immediately call a POISON CENTER/doctor.
  P320 Specific treatment is urgent (see on this label).
  P314 Get medical advice/attention if you feel unwell.
  P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
  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.

### 3 Composition/information on ingredients

- **Chemical characterisation: Substances**

  - **CAS No. Description**
    106-40-1 4-bromoaniline

  - **Identification number(s)**

  - **EC number:** 203-393-9

### 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.
    Remove breathing equipment only after contaminated clothing have been completely removed.
Trade name: 4-Bromoaniline

In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After inhalation:**
  Supply fresh air or oxygen; call for doctor.

- **After skin contact:**
  Immediately wash with water and soap and rinse thoroughly.

- **After eye contact:**
  Rinse opened eye for several minutes under running water. Then 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:**
  Use fire extinguishing methods suitable to surrounding conditions.

- **Suitable extinguishing agents:**
  During heating or in case of fire poisonous gases are produced.

- **Advice for firefighters:**
  - Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:** Mount respiratory protective device.

- **Environmental precautions:** 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.

- **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:
    Thorough dedusting.
    Ensure good ventilation/exhaustion at the workplace.
    Open and handle receptacle with care.
  - Information about fire - and explosion protection: Keep respiratory protective device available.

- **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.

(Contd. on page 4)
8 Exposure controls/personal protection

- **Specific end use(s)**: No further relevant information available.

- **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**
  - **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. Store protective clothing separately. 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
  - **Eye protection**: Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance**
  - Form: Crystalline
  - Colour: Beige
### 4-Bromoaniline

#### 48.1.26

- **Odour:** Characteristic
- **Odour threshold:** Not determined.
- **pH-value:** Not applicable.

#### Change in condition

- **Melting point/freezing point:** 63 °C
- **Initial boiling point and boiling range:** 124 °C

- **Flash point:** 112 °C

- **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:** Not applicable.

#### Density:

- **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 %
- **Other information** No further relevant information available.

### 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.
  Toxic in contact with skin.
  Fatal if inhaled.

- LD/LC50 values relevant for classification:

<table>
<thead>
<tr>
<th>ATE (Acute Toxicity Estimates)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>456 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>300 mg/kg</td>
</tr>
<tr>
<td>Inhalative LC50/4 h</td>
<td>0.05 mg/L</td>
</tr>
</tbody>
</table>

106-40-1 4-bromoaniline

- 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 Based on available data, the classification criteria are not met.
  - CMR effects (carcinogenity, 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 May cause damage to organs through prolonged or repeated exposure.
  - 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.

- Additional ecological information:

- General notes:
  Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
  Do not allow product to reach ground water, water course or sewage system.
  Danger to drinking water if even small quantities leak into the ground.

- 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.

14 Transport information

- UN-Number
  ADR, IMDG, IATA UN2811

- UN proper shipping name
  ADR 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-bromoaniline)
  IMDG, IATA TOXIC SOLID, ORGANIC, N.O.S. (4-bromoaniline)

- Transport hazard class(es)
  ADR, IMDG, IATA
  - Class 6.1 Toxic substances.
  - Label 6.1

- Packing group
  ADR, IMDG, IATA III

- Environmental hazards:
  Not applicable.

- Special precautions for user
  Warning: Toxic substances.
  60

- Danger code (Kemler):
  F-A,S-A

- EMS Number:
  A

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

- Transport/Additional information:
  ADR
  - Limited quantities (LQ) 5 kg
  - Excepted quantities (EQ) Code: E1
  - Maximum net quantity per inner packaging: 30 g
  - Maximum net quantity per outer packaging: 1000 g
  - Transport category
  2

(Contd. on page 6)
Trade name: 4-Bromoaniline

- Tunnel restriction code: E
- IMDG
- Limited quantities (LQ): 5 kg
  - Code: E1
- Excepted quantities (EQ)
  - Maximum net quantity per inner packaging: 30 g
  - Maximum net quantity per outer packaging: 1000 g
- UN "Model Regulation": UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (4-BROMOANILINE), 6.1, 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 H2 ACUTE TOXIC
- Qualifying quantity (tonnes) for the application of lower-tier requirements: 50 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements: 200 t
- 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
  - Acute Tox. 3: Acute toxicity – Category 3
  - Acute Tox. 2: Acute toxicity – Category 2
  - STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2