1 Identification

- Product identifier
- Trade name: 4,4’-Methylenebis(2-chloroaniline)
- Part number: RCC-011
- CAS Number: 101-14-4
- EC number: 202-918-9
- Index number: 612-078-00-9
- Application of the substance / the mixture: Reagents and Standards for Analytical Chemical Laboratory Use
- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier: Agilent Technologies, Inc.
    5301 Stevens Creek Blvd.
    Santa Clara, CA  95051  USA
  - Information department:
    Telephone: 800-227-9770
    e-mail: pdl-msds_author@agilent.com
  - Emergency telephone number: CHEMTREC®: 1-800-424-9300

2 Hazard identification

- Classification of the substance or mixture
  - GHS08 Health hazard
    Carcinogenicity - Category 1B  H350  May cause cancer.
  - GHS07
    Acute Toxicity (Oral) - Category 4  H302  Harmful if swallowed.
- Label elements
  - GHS label elements: The substance is classified and labeled according to the Globally Harmonized System (GHS).
  - Hazard pictograms
    - GHS07
    - GHS08
- Signal word: Danger
- Hazard-determining components of labeling:
  2,2’-dichloro-4,4’-methyleneedianiline
- Hazard statements
  Harmful if swallowed.
  May cause cancer.
- Precautionary statements
  If medical advice is needed, have product container or label at hand.

(Contd. on page 2)
Safety Data Sheet  
according to HPR, Schedule 1

Trade name: 4,4’-Methylenebis(2-chloroaniline)

- Keep out of reach of children.  
- Read label before use.  
- Obtain special instructions before use.  
- Do not handle until all safety precautions have been read and understood.  
- Wash thoroughly after handling.  
- Do not eat, drink or smoke when using this product.  
- Wear protective gloves/protective clothing/eye protection/face protection.  
- If swallowed: Call a poison center/doctor if you feel unwell.  
- Rinse mouth.  
- IF exposed or concerned: Get medical advice/attention.  
- Store locked up.  
- Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
- NFPA ratings (scale 0 - 4)
  - Health = 1  
  - Fire = 1
  - Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  - Health = *1
  - Fire = 1
  - Reactivity = 0

3 Composition/Information on ingredients
- Chemical characterization: Substances
- CAS No. Description
  - 101-14-4 2,2'-dichloro-4,4'-methylenedianiline
- Identification number(s)
  - EC number: 202-918-9
  - Index number: 612-078-00-9

4 First aid measures
- Description of first aid measures
- General information:  
  - 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; consult doctor in case of complaints.  
  - After skin contact: Generally the product does not irritate the skin.  
  - After eye contact: Rinse opened eye for several minutes under running water.  
  - After swallowing: Immediately call a doctor.
- 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 fighting measures that suit the environment.
- 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 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
    - Ensure good ventilation/exhaustion at the workplace.
    - Open and handle receptacle with care.
  - Information about protection against explosions and fires: 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 receptacle tightly sealed.
- Specific end use(s): No further relevant information available.

8 Exposure controls/ Personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters

  - Components with limit values that require monitoring at the workplace:

    | CAS Number | Substance                  | EL Limit Value | EV Limit Value |
    |------------|----------------------------|----------------|----------------|
    | 101-14-4   | 2,2'-dichloro-4,4'-methyleneedianiline | 0.01 ppm       | 0.005 mg/m³, 0.0005 ppm |
    |            |                            | Skin: ACGIH A2; IARC I | Skin              |

- Additional information: The lists that were valid during the creation were used as basis.
9 Physical and chemical properties

- Information on basic physical and chemical properties
- General Information
- Appearance:
  - Form: Solid
  - Color: Not determined.
- Odor:
  - Odor: Characteristic
  - Odor threshold: Not determined.
- pH-value: Not applicable.

- Change in condition
  - Melting point/Melting range: 110 °C
  - Boiling point/Boiling range: Undetermined.
- Flash point: 113 °C
- Flammability (solid, gaseous): Product is not flammable.
### 10 Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reactivity</strong></td>
<td>No further relevant information available.</td>
</tr>
<tr>
<td><strong>Chemical stability</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Thermal decomposition / conditions to be avoided</strong></td>
<td>No decomposition if used according to specifications.</td>
</tr>
<tr>
<td><strong>Possibility of hazardous reactions</strong></td>
<td>No dangerous reactions known.</td>
</tr>
<tr>
<td><strong>Conditions to avoid</strong></td>
<td>No further relevant information available.</td>
</tr>
<tr>
<td><strong>Incompatible materials</strong></td>
<td>No further relevant information available.</td>
</tr>
<tr>
<td><strong>Hazardous decomposition products</strong></td>
<td>No dangerous decomposition products known.</td>
</tr>
</tbody>
</table>

### 11 Toxicological information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information on toxicological effects</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Acute toxicity</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LD/LC50 values that are relevant for classification:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ATE (Acute Toxicity Estimate)</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50</td>
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<tr>
<td>Dermal</td>
<td>LD50</td>
</tr>
<tr>
<td><strong>101-14-4 2,2′-dichloro-4,4′-methylenedianiline</strong></td>
<td></td>
</tr>
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<td>Oral</td>
<td>LD50</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50</td>
</tr>
</tbody>
</table>
48.1.26
· Primary irritant effect:
  · on the skin: No irritant effect.
  · on the eye: No irritating effect.
· Sensitization: No sensitizing effects known.
· Additional toxicological information:
  · Carcinogenic categories
    · IARC (International Agency for Research on Cancer)
      1
    · NTP (National Toxicology Program)

12 Ecological information
· Toxicity
· Aquatic toxicity: No further relevant information available.
· Persistence and degradability No further relevant information available.
· Behavior 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 (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 of together with household garbage. Do not allow product to reach sewage system.
· Uncleaned packagings:
· Recommendation: Disposal must be made according to official regulations.

* 14 Transport information
· UN-Number
  · DOT, TDG, IMDG, IATA UN3077
· UN proper shipping name
  · DOT Environmentally hazardous substance, solid, n.o.s. (2,2’-dichloro-4,4’-methylenedianiline)
Trade name: 4,4’-Methylenebis(2-chloroaniline)

- TDG: 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,2′-dichloro-4,4′-methylenedianiline)
- IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,2′-dichloro-4,4′-methylenedianiline), MARINE POLLUTANT
- IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,2′-dichloro-4,4′-methylenedianiline)

- Transport hazard class(es)
  - DOT, TDG, IMDG, IATA

- Class
  - 9 Miscellaneous dangerous substances and articles

- Label
  - 9

- Packing group
  - DOT, TDG, IMDG, IATA
  - III

- Environmental hazards:
  - Marine pollutant: Yes (DOT)
    - Symbol (fish and tree)

- Special marking (TDG):
  - 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

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  - Not applicable.

- Transport/Additional information:
  - DOT
    - Quantity limitations
      - On passenger aircraft/rail: No limit
      - On cargo aircraft only: No limit
      - 10 lbs, 4.54 kg
    - Remarks: Special marking with the symbol (fish and tree).

- TDG
  - Excepted quantities (EQ)
    - Code: E1
    - Maximum net quantity per inner packaging: 30 g
    - Maximum net quantity per outer packaging: 1000 g

- IMDG
  - Limited quantities (LQ)
    - 5 kg
    - Code: E1
    - Maximum net quantity per inner packaging: 30 g
    - Maximum net quantity per outer packaging: 1000 g

(Contd. of page 6)

(Contd. on page 8)
## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Sara**
  - **Section 355 (extremely hazardous substances):**
    Substance is not listed.
  - **Section 313 (Specific toxic chemical listings):**
    Substance is listed.
  - **TSCA (Toxic Substances Control Act):**
    Substance is listed.
  - **Canadian substance listings:**
    - **Canadian Domestic Substances List (DSL)**
      Substance is listed.
    - **Canadian Ingredient Disclosure list (limit 0.1%)**
      Substance is listed.
    - **Canadian Ingredient Disclosure list (limit 1%)**
      Substance is not listed.
  - **National regulations:**
    - **Additional classification according to Decree on Hazardous Materials:**
      Carcinogenic hazardous material group I (extremely dangerous).
      Carcinogenic hazardous material group II (very dangerous).
      Carcinogenic hazardous material group III (dangerous).
  - **Information about limitation of use:**
    Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.
  - **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
- **Date of the latest revision of the safety data sheet** 03/24/2019 / 1
- **Abbreviations and acronyms:**
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
Trade name: 4,4'-Methylenebis(2-chloroaniline)

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</thead>
<tbody>
<tr>
<td>LC50:</td>
<td>Lethal concentration, 50 percent</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50:</td>
<td>Lethal dose, 50 percent</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PBT:</td>
<td>Persistent, Bioaccumulative and Toxic</td>
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<tr>
<td>vPvB:</td>
<td>very Persistent and very Bioaccumulative</td>
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</tbody>
</table>

- * Data compared to the previous version altered.