1. PRODUCT AND COMPANY IDENTIFICATION

Product name: 2,4-Dimethylaniline
Product Number: 301493
Brand: Aldrich
Company: Sigma-Aldrich
            3050 Spruce Street
            SAINT LOUIS MO  63103
            USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption

Target Organs
Eyes

GHS Label elements, including precautionary statements

Pictogram

Signal word
Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin.
H311 Toxic if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P311 Call a POISON CENTER or doctor/ physician.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: *
Flammability: 1
Physical hazards: 0

NFPA Rating
Health hazard: 2
Fire: 1
Reactivity Hazard: 0

Potential Health Effects
Inhalation Toxic if inhaled. May cause respiratory tract irritation.
Skin Toxic if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion Toxic if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Synonyms:**
- 1-Amino-2,4-dimethylbenzene
- 4-Amino-*m*-xylene
- 2,4-Xyolidine

**Formula:** $\text{C}_8\text{H}_{11}\text{N}$

**Molecular Weight:** 121.18 g/mol

<table>
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<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
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<tr>
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<td>202-440-0</td>
<td>612-027-00-0</td>
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### 4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**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. Take victim immediately to hospital. 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.

### 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for fire-fighters**
Wear self-contained breathing apparatus for fire fighting if necessary.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

**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.

**Methods and materials for containment and cleaning up**
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

### 7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Normal measures for preventive fire protection.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand 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.

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

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
  Form clear, liquid
  Colour colourless

Safety data
  pH no data available
  Melting point -14.3 °C (6.3 °F) - lit.
  Boiling point 218 °C (424 °F) - lit.
  Flash point 98 °C (208 °F) - closed cup
  Ignition temperature 460 °C (860 °F)
  Lower explosion limit 1.1 % (V)
  Upper explosion limit 7 % (V)
  Vapour pressure 0.51 hPa (0.38 mmHg) at 38 °C (100 °F)
                  0.21 hPa (0.16 mmHg) at 25 °C (77 °F)
  Density 0.98 g/cm³ at 25 °C (77 °F)
  Water solubility no data available
  Partition coefficient: n-octanol/water log Pow: 1.68
  Relative vapour density 4.18
                  - (Air = 1.0)

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.
Conditions to avoid
no data available

Materials to avoid
acids, Acid chlorides, Acid anhydrides, Oxidizing agents, Chloroformates, Halogens

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - mouse - 250 mg/kg

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
Genotoxicity in vitro - rat - Liver
 Unscheduled DNA synthesis
Genotoxicity in vivo - mouse - Oral
 DNA inhibition
Genotoxicity in vivo - mouse - Intraperitoneal
 DNA damage

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (2,4-Xyldine)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
no data available

Potential health effects

Inhalation Toxic if inhaled. May cause respiratory tract irritation.
Ingestion Toxic if swallowed.
Skin Toxic if absorbed through skin. May cause skin irritation.
Eyes
May cause eye irritation.

**Signs and Symptoms of Exposure**
Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. Damage to the eyes, Nausea, Dizziness, Headache, Blood disorders

**Additional Information**
RTECS: ZE8925000

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**12. ECOLOGICAL INFORMATION**

**Toxicity**
- Toxicity to fish: LC0 - Leuciscus idus melanotus - 98 mg/l - 48 h
- LC50 - Leuciscus idus melanotus - 196 mg/l - 48 h
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - 9.9 mg/l - 48 h

**Persistence and degradability**
- Biodegradability: aerobic Theoretical oxygen demand
- Result: 0 - 29 % - Not readily biodegradable.

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

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**13. DISPOSAL CONSIDERATIONS**

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.

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**14. TRANSPORT INFORMATION**

**DOT (US)**
- UN-Number: 1711
- Class: 6.1
- Packing group: II
- Proper shipping name: Xylidines, liquid
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IMDG**
- UN-Number: 1711
- Class: 6.1
- Packing group: II
- Proper shipping name: XYLIDINES, LIQUID
- Marine pollutant: No
- EMS-No: F-A, S-A

**IATA**
- UN-Number: 1711
- Class: 6.1
- Packing group: II
- Proper shipping name: Xylidines, liquid

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**15. REGULATORY INFORMATION**
OSHA Hazards
Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption

DSL Status
This product contains the following components listed on the Canadian NDSL list. All other components are on the
Canadian DSL list.

<table>
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<td>2,4-Xylidine</td>
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SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold
(De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other
reproductive harm.

16. OTHER INFORMATION

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a
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product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the
above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.