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

1.1 Product identifiers

Product name : N-(2-Hydroxyethyl)aniline
Product Number : 156876
Brand : Aldrich
CAS-No. : 122-98-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO  63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 2), H310
Serious eye damage (Category 1), H318
Skin sensitization (Category 1), H317
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 1), Blood, hematopoietic system, H370
Specific target organ toxicity - repeated exposure (Category 2), Blood, H373
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411
2.2 **GHS Label elements, including precautionary statements**

**Pictogram**

<table>
<thead>
<tr>
<th>Signal Word</th>
<th>Danger</th>
</tr>
</thead>
</table>

**Hazard statement(s)**

- H301: Toxic if swallowed.
- H310: Fatal in contact with skin.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H351: Suspected of causing cancer.
- H370: Causes damage to organs (Blood, hematopoietic system).
- H373: May cause damage to organs (Blood) through prolonged or repeated exposure.
- H411: Toxic to aquatic life with long lasting effects.

**Precautionary statement(s)**

- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P260: Do not breathe mist or vapors.
- P262: Do not get in eyes, on skin, or on clothing.
- P264: Wash skin thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P272: Contaminated work clothing must not be allowed out of the workplace.
- P273: Avoid release to the environment.
- P280: Wear protective gloves, protective clothing, eye protection, face protection.
- P302 + P350 + P310: IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician.
- P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- P307 + P311: IF exposed: Call a POISON CENTER or doctor/physician.
- P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.
- P362: Take off contaminated clothing and wash before reuse.
- P391: Collect spillage.
- P405: Store locked up.
- P501: Dispose of contents/container to an approved waste disposal plant.

**Sensitizing components:**

- Aniline
  May produce an allergic reaction.

2.3 **Hazards not otherwise classified (HNOC) or not covered by GHS** - none
SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-anilinoethanol</td>
<td>Acute Tox. 3; Acute Tox. 2; Eye Dam. 1; STOT SE 1; Aquatic Acute 2; Aquatic Chronic 2; H301, H310, H318, H370, H401, H411</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

| Aniline         | Flam. Liq. 4; Acute Tox. 3; Eye Dam. 1; Skin Sens. 1; Muta. 2; Carc. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H227, H301, H331, H311, H318, H317, H341, H351, H372, H400, H410 | >= 0.2 - < 1 % |

Concentration limits:
- >= 1 %: STOT RE 1, H372; 0.2 - < 1 %: STOT RE 2, H373;
- M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 1

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.
**If inhaled**
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

**In case of skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

**In case of eye contact**
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

**If swallowed**
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 **Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 **Indication of any immediate medical attention and special treatment needed**
No data available

---

**SECTION 5: Firefighting measures**

5.1 **Extinguishing media**

*Suitable extinguishing media*
Water Foam Carbon dioxide (CO2) Dry powder

*Unsuitable extinguishing media*
For this substance/mixture no limitations of extinguishing agents are given.

5.2 **Special hazards arising from the substance or mixture**
Carbon oxides
Nitrogen oxides (NOx)
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 **Advice for firefighters**
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 **Further information**
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
SECTION 6: Accidental release measures

6.1 **Personal precautions, protective equipment and emergency procedures**
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 **Environmental precautions**
Do not let product enter drains.

6.3 **Methods and materials for containment and cleaning up**
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 **Reference to other sections**
For disposal see section 13.

SECTION 7: Handling and storage

7.1 **Precautions for safe handling**
*Advice on safe handling*
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

*Hygiene measures*
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 **Conditions for safe storage, including any incompatibilities**
*Storage conditions*
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

*Storage class*
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 **Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 **Control parameters**

*Ingredients with workplace control parameters*

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aniline</td>
<td>62-53-3</td>
<td>TWA</td>
<td>2 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>Confirmed animal carcinogen with unknown relevance to</td>
</tr>
</tbody>
</table>
**humans**

Danger of cutaneous absorption

<table>
<thead>
<tr>
<th>PEL</th>
<th>2 ppm 7.6 mg/m3</th>
<th>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</th>
</tr>
</thead>
</table>

Skin

| TWA | 5 ppm 19 mg/m3 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |

**Biological occupational exposure limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aniline</td>
<td>62-53-3</td>
<td>Aniline</td>
<td>0.5 mg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

Remarks: End of shift (As soon as possible after exposure ceases)

---

**8.2 Exposure controls**

**Appropriate engineering controls**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

**Skin protection**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Chloroprene

Minimum layer thickness: 0.65 mm

Break through time: 480 min

Material tested: KCL 720 Camapren®

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Latex gloves

Minimum layer thickness: 0.6 mm

Break through time: 240 min
Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

**Body Protection**
protective clothing

**Respiratory protection**
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains.

---

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

- **a)** Appearance
  - Form: liquid
  - Color: dark brown

- **b)** Odor
  - No data available

- **c)** Odor Threshold
  - No data available

- **d)** pH
  - 10.2 at 10 g/l at 20 °C (68 °F)

- **e)** Melting point/freezing point
  - Melting point/freezing point: 11 °C (52 °F)

- **f)** Initial boiling point and boiling range
  - 278 - 282 °C 532 - 540 °F at 1,013 hPa - lit.

- **g)** Flash point
  - 113 °C (235 °F) - closed cup

- **h)** Evaporation rate
  - No data available

- **i)** Flammability (solid, gas)
  - No data available

- **j)** Upper/lower flammability or explosive limits
  - Upper explosion limit: 6.8 % (V)
  - Lower explosion limit: 1 % (V)

- **k)** Vapor pressure
  - < 0.01 hPa at 20 °C (68 °F)

- **l)** Vapor density
  - 5.5

- **m)** Density
  - 1.094 g/cm³ at 25 °C (77 °F) - lit.
  - Relative density
  - No data available

- **n)** Water solubility
  - No data available

- **o)** Partition coefficient: n-octanol/water
  - log Pow: 0.9 at 23 °C (73 °F) - Bioaccumulation is not expected.

- **p)** Autoignition temperature
  - 404 °C (759 °F) at 1,000 - 1,018 hPa

- **q)** Decomposition temperature
  - No data available
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

r) Viscosity
93.8 mm²/s at 20 °C (68 °F) - OECD Test Guideline 114 - 22.7 mm²/s at 40 °C (104 °F) - OECD Test Guideline 114 -
s) Explosive properties
Not classified as explosive.
t) Oxidizing properties
none

9.2 Other safety information
Relative vapor density
5.5

SECTION 10: Stability and reactivity

10.1 Reactivity
Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
Violent reactions possible with:
- Oxidizing agents
- acids
- Acid anhydrides
- Acid chlorides
- chloroformates

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity
Oral: No data available
Acute toxicity estimate Oral - 100.1 mg/kg
(Expert judgment)

Inhalation: No data available
Dermal: No data available
LD50 Dermal - Rabbit - 68.7 mg/kg
Remarks: (ECHA)
No data available
Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation
Remarks: (ECHA)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative

Germ cell mutagenicity
Test Type: Ames test
Test system: S. typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Carcinogenicity
IARC: 2A - Group 2A: Probably carcinogenic to humans (Aniline)
NTP: No ingredient 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 on OSHA’s list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Causes damage to organs. - Blood, hematopoietic system

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
RTECS: KJ7175000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
After absorption:
Risk of methaemoglobin formation with headache, cardiac dysrhythmia, drop in blood pressure, dyspnoea and spasms, principal symptom: cyanosis (blue discolouration of the blood).

Further data:
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

**Toxicity to fish**
static test LC50 - Leuciscus idus (Golden orfe) - > 464 - < 681 mg/l - 96 h (DIN 38412)
LC50 - Leuciscus idus (Golden orfe) - 460 - 680 mg/l - 96 h

**Toxicity to daphnia and other aquatic invertebrates**
static test EC50 - Daphnia magna (Water flea) - 4.8 mg/l - 48 h (OECD Test Guideline 202)

**Toxicity to algae**
static test ErC50 - Raphidocelis subcapitata (freshwater green alga) - 254.6 mg/l - 72 h (OECD Test Guideline 201)

**Toxicity to bacteria**
static test EC50 - activated sludge - > 1,000 mg/l - 3 min (OECD Test Guideline 209)

12.2 Persistence and degradability

**Biodegradability**
aerobic - Exposure time 28 d
Result: > 70 - < 80 % - Not readily biodegradable.
(OECD Test Guideline 301A)
Remarks: The 10 day time window criterion is not fulfilled.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
Discharge into the environment must be avoided.
SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 2810  Class: 6.1  Packing group: II
Proper shipping name: Toxic, liquids, organic, n.o.s. (2-anilinoethanol)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 2810  Class: 6.1  Packing group: II  EMS-No: F-A, S-A
Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (2-anilinoethanol)
Marine pollutant: yes

IATA
UN number: 2810  Class: 6.1  Packing group: II
Proper shipping name: Toxic liquid, organic, n.o.s. (2-anilinoethanol)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Aniline</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>62-53-3</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>2-anilinoethanol</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>122-98-5</td>
<td>1993-04-24</td>
</tr>
<tr>
<td></td>
<td>62-53-3</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>2-anilinoethanol</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Aldrich - 156876
SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.10 Revision Date: 05/24/2023 Print Date: 08/12/2023