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

1.1 Product identifiers

Product name: [I]N,N[/I]-Diethylhydroxylamine

Product Number: 471593
Brand: Aldrich

REACH No.: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No.: 3710-84-7

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

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Chemie BV
Stationsplein 4
3331 LL ZWIJNDRECHT
NETHERLANDS

Telephone: +31 078 620-5411
Fax: +31 078 620-5421

1.4 Emergency telephone number

Emergency Phone #: +(31)-858880596 (CHEMTREC)
112 (Alarmnummer)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2), H319

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008
Pictogram

Signal word: Warning

Hazard statement(s)
H226 Flammable liquid and vapour.
H312 + H332 Harmful in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statement(s)
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P403 + P235 Store in a well-ventilated place. Keep cool.

Supplemental Hazard Statements
none

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances
Formula : C₄H₁₁NO
Molecular weight : 89.14 g/mol
CAS-No. : 3710-84-7
EC-No. : 223-055-4

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Diethylhydroxylamine</td>
<td>Flam. Liq. 3; Acute Tox. 4;</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>3710-84-7</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>223-055-4</td>
<td></td>
</tr>
<tr>
<td>Skin Irrit. 2; Eye Irrit. 2;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H226</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H332, H312, H315, H319</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
Consult a physician. Show this safety data sheet to the doctor in attendance.

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. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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
   Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
   Carbon oxides, Nitrogen oxides (NOx)

5.3 Advice for firefighters
   Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
   Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
   Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
   Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations.
   Vapours can accumulate in low areas.
   For personal protection see section 8.

6.2 Environmental precautions
   Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
   Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and
   place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
   For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
   Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
   Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic
   charge.
   For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
   Store in cool place. 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.
   hygroscopic
   Storage class (TRGS 510): 3: Flammable liquids

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

8.2 Exposure controls
   Appropriate engineering controls
   Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and
   at the end of workday.
   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).
Skin 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: clear, liquid
   Colour: light yellow

b) Odour
   No data available

c) Odour Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   Melting point/range: -26 - -25 °C - lit.

f) Initial boiling point and boiling range
   125 - 130 °C - lit.

g) Flash point
   45 °C - 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: 10 %(V)
   Lower explosion limit: 1,9 %(V)

k) Vapour pressure
   133 hPa at 81,5 °C

l) Vapour density
   3,08 - (Air = 1.0)

m) Relative density
   0,867 g/cm3 at 25 °C

n) Water solubility
   soluble

o) Partition coefficient: n-octanol/water
   log Pow: 0,43

p) Auto-ignition temperature
   No data available

q) Decomposition temperature
   > 120 °C -

r) Viscosity
   No data available
s) Explosive properties  No data available

t) Oxidizing properties  No data available

9.2 Other safety information

Relative vapour density  3.08 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, Strong acids, Copper, Zinc

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2.190 mg/kg
LC50 Inhalation - Rat - 4 h - 3140 ppm
LD50 Dermal - Rabbit - 1.300 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation
Skin - Rabbit
Result: Skin irritation - 24 h

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Human
leukocyte
Unscheduled DNA synthesis

Rat
Dominant lethal test

Carcinogenicity
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.

Reproductive toxicity
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: NC3500000

Incoordination., Mydriasis., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 110.5 mg/l - 48 h (N,N-Diethylhydroxylamine)

12.2 Persistence and degradability
Biodegradability Result: 17 % - Not readily biodegradable.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available (N,N-Diethylhydroxylamine)

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

14.2 UN proper shipping name
ADR/RID: FLAMMABLE LIQUID, N.O.S. (N,N-Diethylhydroxylamine)
IMDG: FLAMMABLE LIQUID, N.O.S. (N,N-Diethylhydroxylamine)
IATA: Flammable liquid, n.o.s. (N,N-Diethylhydroxylamine)

14.3 Transport hazard class(es)
ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packaging group
ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no
14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H226 Flammable liquid and vapour.
H312 Harmful in contact with skin.
H312 + H332 Harmful in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

Further information
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