SECTION 1: Identification

1.1. Identification

Product form: Substance
Trade name: Dimethylaminoethanol (DMAE)
CAS-No.: 108-01-0
Product code: 01458
Formula: C4H11NO
Synonyms: Deanol / Dimethylaminoethanol / N,N-Dimethylethanolamine / Dimethylethanolamine / Ethanol, 2-(dimethylamino)- / Ethanol, 2-dimethylamino- / Ethanolamine, N,N-dimethyl- / N,N-Dimethylamino-2-ethanol / 2-Dimethylaminoethanol / DIMETHYL MEA / Dimethylaminoethanol, 2- / N,N-Dimethylaminoethanol

1.2. Recommended use and restrictions on use

Recommended use: Manufacture of substances, Use as laboratory reagent, Scientific research and development

1.3. Supplier

Supplier: Polysciences Inc
400 Valley Road
Warrington, PA 18976 - United States
T (215)-343-6484 - F (215)-343-0214
info@polysciences.com - www.polysciences.com

1.4. Emergency telephone number

Emergency number: (215)-378-4526

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
Flammable liquids, Category 3: H226 - Flammable liquid and vapour
Acute toxicity (oral), Category 4: H302 - Harmful if swallowed
Acute toxicity (dermal), Category 4: H312 - Harmful in contact with skin
Acute toxicity (inhalation/vapour), Category 4: H332 - Harmful if inhaled
Skin corrosion/irritation, Category 1A: H314 - Causes severe skin burns and eye damage
Serious eye damage/eye irritation, Category 1: H318 - Causes serious eye damage

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labelling
Hazard pictograms (GHS-US):

- GHS02
- GHS05
- GHS07

Signal word (GHS-US): Danger
Hazard statements (GHS-US):
H226 - Flammable liquid and vapour
H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Precautionary statements (GHS-US):
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P233 - Keep container tightly closed
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P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P260 - Do not breathe fume, gas, mist, spray, vapours
P264 - Wash clothing, hands, forearms and face 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 eye protection, protective clothing, protective gloves, face protection
P301+P312 - If swallowed: Call a doctor, a POISON CENTER if you feel unwell
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P302+P352 - If on skin: Wash with plenty of Wash skin with mild soap and water
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a doctor, a POISON CENTER
P312 - Call a doctor, a POISON CENTER if you feel unwell
P330 - Rinse mouth
P362+P364 - Take off contaminated clothing and wash it before reuse
P363 - Wash contaminated clothing before reuse
P370+P378 - In case of fire: Use dry sand, dry extinguishing powder, alcohol resistant foam to extinguish
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Substance</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Dimethylaminoethanol (DMAE)</td>
<td>(CAS-No.) 108-01-0</td>
<td>&lt;= 100</td>
<td>Flam. Liq. 3, H226</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4 (Dermal), H312</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4 (Inhalation: vapour), H332</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1A, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Call a physician immediately.
First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell. Move the affected person away from the contaminated area and into the fresh air.
First-aid measures after skin contact: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Get immediate medical advice/attention. Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. Call a physician immediately.
First-aid measures after ingestion: Rinse mouth out with water. Do NOT induce vomiting. Get immediate medical advice/attention. Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact: Burns.
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Symptoms/effects after eye contact: Serious damage to eyes.
Symptoms/effects after ingestion: Burns.

4.3. Immediate medical attention and special treatment, if necessary
Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media
Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical
Fire hazard: Flammable liquid and vapour.
Reactivity: Flammable liquid and vapour.

5.3. Special protective equipment and precautions for fire-fighters
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures: Eliminate every possible source of ignition. Notify authorities if product enters sewers or public waters. Avoid contact with skin and eyes. Do not handle until all safety precautions have been read and understood. Clean up any spills as soon as possible, using an absorbent material to collect it.

6.1.1. For non-emergency personnel
Protective equipment: Wear recommended personal protective equipment.
Emergency procedures: Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust, fume, gas, mist, spray, vapours. Do not get in eyes, on skin, or on clothing. No open flames, no sparks, and no smoking.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Prevent liquid from entering sewers, watercourses, underground or low areas. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Do not get in eyes, on skin, or on clothing. Do not breathe dust, fume, gas, mist, spray, vapours.
Hygiene measures: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Ground/bond container and receiving equipment.
Storage conditions: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Wear respiratory protection

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless liquid.</td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>ammonia-like</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>11 - 12 (conc: 10 % (solution))</td>
</tr>
<tr>
<td>Melting point</td>
<td>-59 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>135 °C (at 758 mmHg)</td>
</tr>
<tr>
<td>Flash point</td>
<td>41 °C (open cup)</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>0.48</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>4 mm Hg (at 20 °C)</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.886 g/cm³ (at 20 °C)</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>-0.55 (at 23 °C)</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>295 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

No additional information available
SECTION 10: Stability and reactivity

10.1. Reactivity
Flammable liquid and vapour.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity
Oral: Harmful if swallowed. Dermal: Harmful in contact with skin. Inhalation: vapour: Harmful if inhaled.

Dimethylaminoethanol (DMAE) (108-01-0)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1803 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>1220 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>1641 ppm/4h</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>1803.000 mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>1220.000 mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE US (gases)</td>
<td>1641.000 ppmv/4h</td>
</tr>
<tr>
<td>ATE US (vapours)</td>
<td>11.000 mg/l/4h</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Causes severe skin burns and eye damage.

Serious eye damage/irritation
Causes serious eye damage.

Respiratory or skin sensitisation
Not classified

Germ cell mutagenicity
Not classified

Carcinogenicity
Not classified

Reproductive toxicity
Not classified

Specific target organ toxicity (single exposure)
Not classified

Specific target organ toxicity (repeated exposure)
Not classified

Aspiration hazard
Not classified

Symptoms/effects after skin contact
Burns.

Symptoms/effects after eye contact
Serious damage to eyes.

Symptoms/effects after ingestion
Burns.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general
Before neutralisation, the product may represent a danger to aquatic organisms.

Dimethylaminoethanol (DMAE) (108-01-0)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>81 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>98.77 mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available
Dimethylaminoethanol (DMAE)
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12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Dimethylaminoethanol (DMAE) (108-01-0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
</tr>
<tr>
<td>-0.55 (at 23 °C)</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods: Dispose of contents/container in accordance with licensed collector’s sorting instructions.

Additional information: Flammable vapours may accumulate in the container.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description: UN2051 2-Dimethylaminoethanol, 8 (3), II

UN-No.(DOT): UN2051

Proper Shipping Name (DOT): 2-Dimethylaminoethanol

Class (DOT): 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT): II - Medium Danger

Subsidiary risk (DOT): 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Hazard labels (DOT): 8 - Corrosive
                      3 - Flammable liquid

DOT Packaging Non Bulk (49 CFR 173.xxx): 202

DOT Packaging Bulk (49 CFR 173.xxx): 243


IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 °C (1.1 bar at 122 °F), or 130 kPa at 55 °C (1.3 bar at 131 °F) are authorized.

T7 - 4 178.274(d)(2) Normal............. 178.275(d)(3)

TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 °C (59 °F) and 50 °C (122 °F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx): 154

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 1 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 30 L

DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Emergency Response Guide (ERG) Number: 132

Other information: No supplementary information available.
Dimethylaminoethanol (DMAE)

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**Transportation of Dangerous Goods**

Not applicable

**Transport by sea**

Transport document description (IMDG) : UN 2051 2-DIMETHYLAMINOETHANOL, 8 (3), II (31°C o.c.)

UN-No. (IMDG) : 2051

Proper Shipping Name (IMDG) : 2-DIMETHYLAMINOETHANOL

Class (IMDG) : 8 - Corrosive substances

Packing group (IMDG) : II - substances presenting medium danger

Subsidiary risk (IMDG) : 3 - Flammable liquids

Limited quantities (IMDG) : 1 L

**Air transport**

Transport document description (IATA) : UN 2051 2-Dimethylaminoethanol, 8 (3) (3), II

UN-No. (IATA) : 2051

Proper Shipping Name (IATA) : 2-Dimethylaminoethanol

Class (IATA) : 8 - Corrosives

Packing group (IATA) : II - Medium Danger

Subsidiary risks (IATA) : 3 - Flammable liquids

**SECTION 15: Regulatory information**

15.1. US Federal regulations

**Dimethylaminoethanol (DMAE) (108-01-0)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

**CANADA**

**Dimethylaminoethanol (DMAE) (108-01-0)**

Listed on the Canadian DSL (Domestic Substances List)

**EU-Regulations**

**Dimethylaminoethanol (DMAE) (108-01-0)**

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**National regulations**

**Dimethylaminoethanol (DMAE) (108-01-0)**

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Japanese ISHL (Industrial Safety and Health Law)

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Listed on the Japanese ECL (Existing & New Chemical Substances)

Listed on the Korean ECL (Existing Chemicals List)

Listed on the Japanese ISHL (Industrial Safety and Health Law)

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

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Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Listed on Turkey inventory of chemical

Taiwan Chemical Substance Inventory

15.3. US State regulations

**Dimethylaminoethanol (DMAE) (108-01-0)**

State or local regulations : U.S. - Massachusetts - Right To Know List

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

**SECTION 16: Other information**

Revision date : 05/08/2017
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Full text of H-statements:

<table>
<thead>
<tr>
<th>H-Statement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled</td>
</tr>
</tbody>
</table>

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.
NFPA fire hazard : 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.
NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should therefore be construed as guaranteeing any specific property of the product.