1. Identification

Product identifier used on the label

Isophorone diamine

Recommended use of the chemical and restriction on use
Recommended use*: Chemical

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller’s published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller’s sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula: C(10) H(22)N(2)
Chemical family: cyclic, diamines, aliphatic
Synonyms: 3-Aminomethyl-3,5,5-trimethylcyclohexylamine

2. Hazards Identification


Classification of the product

Acute Tox. 4 (oral)  Acute toxicity
Acute Tox. 4 (dermal)  Acute toxicity
Skin Corr./Irrit. 1B  Skin corrosion/irritation
Eye Dam./Irrit. 1  Serious eye damage/eye irritation
Skin Sens. 1A  Skin sensitization
Aquatic Acute 3  Hazardous to the aquatic environment - acute
Aquatic Chronic 3  Hazardous to the aquatic environment - chronic
Label elements

Signal Word:
Danger

Hazard Statement:
H312  Harmful in contact with skin.  
H302  Harmful if swallowed.  
H317  May cause an allergic skin reaction.  
H314  Causes severe skin burns and eye damage.  
H402  Harmful to aquatic life.  
H412  Harmful to aquatic life with long lasting effects.

Precautionary Statements (Prevention):
P280  Wear protective gloves/protective clothing/eye protection/face protection.  
P260  Do not breathe dust or mist.  
P273  Avoid release to the environment.  
P272  Contaminated work clothing should not be allowed out of the workplace.  
P270  Do not eat, drink or smoke when using this product.  
P264  Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):
P310  Immediately call a POISON CENTER or doctor/physician.  
P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
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.  
P301 + P330 + P331  IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
P361 + P364  Take off immediately all contaminated clothing and wash it before reuse.

Precautionary Statements (Storage):
P405  Store locked up.

Precautionary Statements (Disposal):
P501  Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified
If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition / Information on Ingredients

4. First-Aid Measures

Description of first aid measures

General advice:
Immediately remove contaminated clothing. If danger of loss of consciousness, place patient in recovery position and transport accordingly. Apply artificial respiration if necessary. First aid personnel should pay attention to their own safety.

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:
Wash affected areas thoroughly with soap and water. Remove contaminated clothing. Immediate medical attention required.

If in eyes:
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:
Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote. Pulmonary edema prophylaxis. Medical monitoring for at least 24 hours.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media: water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture

Hazards during fire-fighting: No particular hazards known.
Advice for fire-fighters
Protective equipment for fire-fighting: Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

Environmental precautions
This product is not regulated by RCRA. This product is not regulated by CERCLA (‘Superfund’).

Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up
Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling
Containers should be opened carefully in well-ventilated areas to avoid static discharge.

Protection against fire and explosion:
No explosion proofing necessary.

Conditions for safe storage, including any incompatibilities
Segregate from acids and acid forming substances. Segregate from isocyanates. Segregate from epoxides.

Suitable materials for containers: Carbon steel (Iron), Stainless steel 1.4401, Stainless steel 1.4301 (V2), High density polyethylene (HDPE), glass, Low density polyethylene (LDPE)

Further information on storage conditions: Containers should be stored tightly sealed in a dry place. Keep tanks under inert gas. Keep away from sources of ignition - No smoking. Keep container tightly closed and in a cool place.

Storage stability:
Storage duration: 24 Months
From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

8. Exposure Controls/Personal Protection

No occupational exposure limits known.

Advice on system design:
Provide local exhaust ventilation to control vapours/mists.
Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.

Hand protection:
Chemical resistant protective gloves, Suitable materials, polyvinylchloride (Pylox)

Eye protection:
Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Eye wash fountains and safety showers must be easily accessible. Avoid inhalation of vapours/mists. Wear protective clothing as necessary to prevent contact.

9. Physical and Chemical Properties

Form: liquid
Odour: amine-like
Odour threshold: Not determined due to potential health hazard by inhalation.
Colour: colourless to yellow
pH value: 11.6
(8.5 g/l, 20 °C)
Freezing point: 10 °C
(760 mmHg)
Boiling point: 247 °C
(760 mmHg)
Flash point: 112 °C (open cup)

Flammability: Literature data.
Lower explosion limit: For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.
Upper explosion limit: For liquids not relevant for classification and labelling.
Autoignition: 380 °C (DIN 51794)
Vapour pressure: 0.0157 hPa (measured)
(20 °C)
Density: 0.92 g/cm3
(20 °C)
Relative density: 0.924
(20 °C)
Partitioning coefficient n-octanol/water (log Pow): 0.99 (Directive 92/69/EEC, A.8)
Self-ignition temperature: not self-igniting
Thermal decomposition: < 400 °C (DSC (DIN 51007))
No exothermic decomposition within the mentioned temperature range. No decomposition if used as directed. It is not a self-decompositionable substance.
Viscosity, dynamic: 18 mPa.s
(20 °C)
10. Stability and Reactivity

Reactivity

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
Based on its structural properties the product is not classified as oxidizing.

Formation of flammable gases:
Remarks: Forms no flammable gases in the presence of water.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is chemically stable.
Exothermic reaction. Reacts with acids.

Conditions to avoid
Avoid all sources of ignition: heat, sparks, open flame. See MSDS section 7 - Handling and storage.

Incompatible materials
strong oxidizing agents, acids, halogenated compounds
acids

Hazardous decomposition products
Decomposition products:
Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxides

Thermal decomposition:
< 400 °C (DSC (DIN 51007))
No exothermic decomposition within the mentioned temperature range. No decomposition if used as directed. It is not a self-decompositionable substance.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects
Acute toxicity
Assessment of acute toxicity: Of moderate toxicity after short-term skin contact. Of moderate toxicity after single ingestion.

Oral
Type of value: LD50
Species: rat (male)
Value: 1,030 mg/kg (similar to OECD guideline 401)

Inhalation
Type of value: LC50
Species: rat
Value: > 5.01 mg/l (OECD Guideline 403)
Exposure time: 4 h

Dermal
Type of value: LD50
Species: rat
Value: > 2,000 mg/kg (OECD Guideline 402)
The European Union (EU) has classified this substance as 'harmful'.

Assessment other acute effects
Assessment of STOT single:
The available information is not sufficient for evaluation.

Irritation / corrosion
Assessment of irritating effects: Corrosive! Damages skin and eyes.

Skin
Species: rabbit
Result: Corrosive.

Eye
Species: rabbit
Result: Risk of serious damage to eyes.
Method: OECD Guideline 405

Sensitization
Assessment of sensitization: Sensitization after skin contact possible.

Guinea pig maximization test
Species: guinea pig
Result: sensitizing
Method: OECD Guideline 406

Aspiration Hazard
No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: The substance may cause damage to the kidney after repeated ingestion of high doses, as shown in animal studies.

Genetic toxicity
Assessment of mutagenicity: No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The substance was not mutagenic in a test with mammals.
Carcinogenicity
Assessment of carcinogenicity: Study scientifically not justified.

Reproductive toxicity
Assessment of reproduction toxicity: Repeated oral uptake of the substance did not cause damage to the reproductive organs. Study scientifically not justified.

Teratogenicity
Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Symptoms of Exposure
The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Medical conditions aggravated by overexposure
Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

12. Ecological Information

Toxicity
Aquatic toxicity
Assessment of aquatic toxicity:
Acutely harmful for aquatic organisms.

Toxicity to fish
LC50 (96 h) 110 mg/l, Leuciscus idus (Directive 84/449/EEC, C.1, semistatic)
Nominal values (confirmed by concentration control analytics)

Aquatic invertebrates
EC50 (48 h) 23 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)
Nominal values (confirmed by concentration control analytics)

EC50 (48 h) 388 mg/l, Chaetogammarus marinus (semistatic)
The details of the toxic effect relate to the nominal concentration.

Aquatic plants
EC50 (72 h) > 50 mg/l (growth rate), Scenedesmus subspicatus (Directive 88/302/EEC, part C, p. 89)
Nominal concentration.

EC10 (72 h) 11.2 mg/l (growth rate), Scenedesmus subspicatus (Directive 88/302/EEC, part C, p. 89)
Nominal concentration.

Chronic toxicity to fish
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates
No observed effect concentration (21 d) 3 mg/l, Daphnia magna (OECD Guideline 202, part 2, semistatic)
Nominal values (confirmed by concentration control analytics)

Assessment of terrestrial toxicity
Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms
DIN 38412 Part 8 bacterium/EC10 (18 h): 1,120 mg/l
Nominal concentration.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Not readily biodegradable (by OECD criteria).

Elimination information
8 % DOC reduction (28 d) (Directive 92/69/EEC, C.4-A) (aerobic, predominantly domestic sewage)

Assessment of stability in water
In contact with water the substance will hydrolyse slowly.

Information on Stability in Water (Hydrolysis)
< 10 % (5 d) (50 °C, pH value 7), (OECD Guideline 111, pH 7)

Bioaccumulative potential

Bioaccumulation potential
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected. Literature data.

Mobility in soil

Assessment transport between environmental compartments
The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Additional information

Adsorbable organically-bound halogen (AOX):
This product contains no organically-bound halogen.

Other ecotoxicological advice:
Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

13. Disposal considerations

Waste disposal of substance:
Incinerate in a licensed facility. Do not discharge substance/product into sewer system.

Container disposal:
Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.
14. Transport Information

**Land transport**
- **USDOT**
  - Hazard class: 8
  - Packing group: III
  - ID number: UN 2289
  - Hazard label: 8
  - Proper shipping name: ISOPHORONEDIAMINE

**Sea transport**
- **IMDG**
  - Hazard class: 8
  - Packing group: III
  - ID number: UN 2289
  - Hazard label: 8
  - Marine pollutant: NO
  - Proper shipping name: ISOPHORONEDIAMINE

**Air transport**
- **IATA/ICAO**
  - Hazard class: 8
  - Packing group: III
  - ID number: UN 2289
  - Hazard label: 8
  - Proper shipping name: ISOPHORONEDIAMINE

15. Regulatory Information

**Federal Regulations**

**Registration status:** Chemical TSCA, US released / listed

**EPCRA 311/312 (Hazard categories):** Acute;

**State regulations**

<table>
<thead>
<tr>
<th>State RTK</th>
<th>CAS Number</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>NJ</td>
<td>2855-13-2</td>
<td>3-aminomethyl-3,5,5-trimethylcyclohexylamine</td>
</tr>
</tbody>
</table>

**NFPA Hazard codes:**
- Health: 3
- Fire: 1
- Reactivity: 0
- Special:

**HMIS III rating**
- Health: 3
- Flammability: 1
- Physical hazard: 0

**Assessment of the hazard classes according to UN GHS criteria (most recent version):**
- Aquatic Acute: 3 Hazardous to the aquatic environment - acute
- Aquatic Chronic: 3 Hazardous to the aquatic environment - chronic
Safety Data Sheet
Isophorone diamine

Revision date: 2016/03/15
Version: 3.0

Skin Corr./Irrit.  1B  Skin corrosion/irritation
Acute Tox.  4  (dermal)  Acute toxicity
Acute Tox.  4  (oral)  Acute toxicity
Eye Dam./Irrit.  1  Serious eye damage/eye irritation
Skin Sens.  1A  Skin sensitization

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2016/03/15

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