# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 03/11/2013 Version 1.0

## SECTION 1. Identification

### Product identifier

| | |
|---|---|
| Product number | 814223 |
| Product name | Imidazole for synthesis |

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

| | |
|---|---|
| Identified uses | Reagent for research and development<br>Chemical for synthesis |

### Details of the supplier of the safety data sheet

| | |
|---|---|
| Company | EMD Millipore Corporation \| 290 Concord Road, Billerica, MA 01821, United States of America \| SDS Phone Support: +1-978-715-1335 \| General Inquiries: +1-978-715-4321 \| Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)<br><br>e-mail: mm_sds@merckgroup.com |
| **Emergency telephone** | 800-424-9300 CHEMTREC (USA)<br>+1-703-527-3887 CHEMTREC (International)<br>24 Hours/day; 7 Days/week |

## SECTION 2. Hazards identification

### GHS Classification

Acute toxicity, Category 4, Oral, H302
Skin corrosion, Category 1B, H314
Reproductive toxicity, Category 2, H361d

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

### GHS-Labeling

*Hazard pictograms*



*Signal Word*
Danger

*Hazard Statements*
H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.
H361d Suspected of damaging the unborn child.

*Precautionary Statements*
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

**OSHA Hazards**
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Other hazards**
None known.

## SECTION 3. Composition/information on ingredients

| | |
|---|---|
| Formula | $C_3H_4N_2$ (Hill) |
| CAS-No. | 288-32-4 |
| Molar mass | 68.08 g/mol |

**Hazardous ingredients**
*Chemical Name ( Concentration)*
CAS-No.
*imidazole ( >= 90 % - <= 100 % )*
288-32-4

## SECTION 4. First aid measures

**Description of first-aid measures**

*General advice*
First aider needs to protect himself.

*Inhalation*
After inhalation: fresh air. Call in physician.

*Skin contact*
After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

*Eye contact*
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

*Ingestion*
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**
Irritation and corrosion, Cough, Shortness of breath

Risk of blindness!

**Indication of any immediate medical attention and special treatment needed**
No information available.

## SECTION 5. Fire-fighting measures

**Extinguishing media**

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

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

**Special hazards arising from the substance or mixture**
Combustible.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapors possible in the event of fire.
Fire may cause evolution of:
nitrous gases, nitrogen oxides

**Advice for firefighters**

*Special protective equipment for fire-fighters*
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*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

**Personal precautions, protective equipment and emergency procedures**
Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

**Environmental precautions**
Do not empty into drains.

**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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

## SECTION 7. Handling and storage

**Precautions for safe handling**
Observe label precautions.

**Conditions for safe storage, including any incompatibilities**
Tightly closed and away from sources of ignition and heat. Observe national regulations. Dry.

Store at +15°C to +25°C (+59°F to +77°F).

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

Contains no substances with occupational exposure limit values.

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

*Eye/face protection*

Tightly fitting safety goggles

*Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

*Other protective equipment:*

protective clothing

*Respiratory protection*

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## SECTION 9. Physical and chemical properties

| | |
|---|---|
| Physical state | solid |
| Color | light yellow |
| Odor | amine-like |
| Odor Threshold | No information available. |
| pH | 10.5<br>at 67 g/l<br>68 °F ( 20 °C) |
| Melting point | 89 - 90 °C |
| Boiling point/boiling range | 493 °F ( 256 °C)<br>at 1,013 hPa |

| | |
|---|---|
| Flash point | 293 °F ( 145 °C)<br>Method: DIN 51758 |
| Evaporation rate | No information available. |
| Flammability (solid, gas) | No information available. |
| Lower explosion limit | No information available. |
| Upper explosion limit | No information available. |
| Vapor pressure | 0.003 hPa<br>at 68 °F ( 20 °C) |
| Relative vapor density | No information available. |
| Relative density | 1.030 g/cm³ |
| Water solubility | 633 g/l<br>at 68 °F ( 20 °C) |
| Partition coefficient: n-octanol/water | log Pow: -0.02<br>OECD Test Guideline 107<br>Bioaccumulation is not expected (log Pow <1). |
| Autoignition temperature | No information available. |
| Decomposition temperature | No information available. |
| Viscosity, dynamic | No information available. |
| Explosive properties | Not classified as explosive. |
| Ignition temperature | 896 °F ( 480 °C)<br>Method: DIN 51794 |
| Bulk density | 500 - 600 kg/m³ |

## SECTION 10. Stability and reactivity

### Reactivity

Forms explosive mixtures with air on intense heating.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### Chemical stability

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

### Possibility of hazardous reactions

Violent reactions possible with:

Strong oxidizing agents, Acid chlorides, Acid anhydrides, acids

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitosamines!

**Conditions to avoid**

Strong heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

**Incompatible materials**

no information available

**Hazardous decomposition products**

in the event of fire: See section 5.

## SECTION 11. Toxicological information

**Information on toxicological effects**

*Likely route of exposure*
Eye contact, Skin contact, Ingestion

*Target Organs*
Lungs
Gastro-intestinal system
head
Respiratory organs

*Acute oral toxicity*
LD50 rat: 970 mg/kg (IUCLID)

absorption
Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

*Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Lung edema

Corrosive to respiratory system

*Skin irritation*
rabbit
Result: Causes burns.
(IUCLID)

Causes burns.

*Eye irritation*
rabbit
Result: Severe irritations
(IUCLID)

Causes serious eye damage. Risk of blindness!

*Genotoxicity in vivo*
Mutagenicity (mammal cell test): micronucleus.
Result: negative
Method: OECD Test Guideline 474

*Genotoxicity in vitro*
Ames test
Result: negative
Method: OECD Test Guideline 471

*CMR effects*
Teratogenicity:
Suspected of damaging the unborn child.

*Specific target organ systemic toxicity - single exposure*
The substance or mixture is not classified as specific target organ toxicant, single exposure.

*Specific target organ systemic toxicity - repeated exposure*
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*
Regarding the available data the classification criteria are not fulfilled.

**Carcinogenicity**

| | |
|---|---|
| IARC | No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| OSHA | No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. |
| 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. |
| ACGIH | No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. |

**Further information**
After absorption:
We have no description of any toxic symptoms.
Other information
Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.
Further data:
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

## SECTION 12. Ecological information

### Ecotoxicity

*Toxicity to fish*

LC50 Leuciscus idus (Golden orfe): 100 - 500 mg/l; 48 h (External MSDS)

*Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 341.5 mg/l; 48 h
OECD Test Guideline 202

*Toxicity to algae*

IC50 Desmodesmus subspicatus (green algae): 130 mg/l; 72 h (IUCLID)

*Toxicity to bacteria*

EC50 Photobacterium phosphoreum: 231 mg/l; 30 min (IUCLID)

EC50 Pseudomonas putida: 1,200 mg/l; 17 h (IUCLID)

### Persistence and degradability

*Biodegradability*

83 %; 8 d
OECD Test Guideline 302B
Easily eliminable.

### Bioaccumulative potential

*Partition coefficient: n-octanol/water*

log Pow: -0.02
OECD Test Guideline 107
Bioaccumulation is not expected (log Pow <1).

### Mobility in soil

No information available.

### Other adverse effects

*Additional ecological information*

When discharged properly, no impairments in the function of adapted biological wastewater treatment plants are to be expected.

Further information on ecology

Depending on the concentration, phosphorus and/or nitrogen compounds may contribute to the eutrophication of drinking- water supplies.

Discharge into the environment must be avoided.

## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

## SECTION 14. Transport information

### Land transport (DOT)

| | |
|---|---|
| **UN number** | UN 3263 |
| **Proper shipping name** | CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. ( IMIDAZOLE) |
| **Class** | 8 |
| **Packing group** | III |
| **Environmentally hazardous** | -- |

### Air transport (IATA)

| | |
|---|---|
| **UN number** | UN 3263 |
| **Proper shipping name** | CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. ( IMIDAZOLE) |
| **Class** | 8 |
| **Packing group** | III |
| **Environmentally hazardous** | -- |
| **Special precautions for user** | no |

### Sea transport (IMDG)

| | |
|---|---|
| **UN number** | UN 3263 |
| **Proper shipping name** | CORROSIVE SOLID, BASIC, ORGANIC, N.O.S. ( IMIDAZOLE) |
| **Class** | 8 |
| **Packing group** | III |
| **Environmentally hazardous** | -- |
| **Special precautions for user** | yes |
| EmS | F-A S-B |

## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Harmful if swallowed.
Corrosive to skin
Corrosive by inhalation.
Teratogen
Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

#### SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard

#### SARA 313

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 302**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

**DEA List I**

Not listed

**DEA List II**

Not listed

**Massachusetts Right To Know**

Remarks
No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know**

*Ingredients*
imidazole

**New Jersey Right To Know**

*Ingredients*
imidazole

**Notification status**

| | |
|---|---|
| TSCA: | On TSCA Inventory |
| DSL: | All components of this product are on the Canadian DSL. |

## SECTION 16. Other information

**Training advice**

Provide adequate information, instruction and training for operators.

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

| | |
|---|---|
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |
| H361d | Suspected of damaging the unborn child. |

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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