# Material Safety Data Sheet

Revision Date: 01.10.2020

# DIETHYLENE GLYCOL

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

### 1.1 Product identifier

- Trade name : DIETHYLENE GLYCOL
- Synonyms : DEG, Ethylene Glycol, 1,2-dihydroxyethane, 1,2-ethanediol
- CAS number : 111-46-6

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

**Uses of the Substance / Mixture**

- Chemical industry
- Manufacturing polyester polymers
- Anti-freeze production

### 1.3. Company/Undertaking Identification

Address : **NOVICHEM CO.**
**No.30, Magnolia Str, Qaem Maqam Farahani Ave.**
**Tehran 15886/13941 IRAN**

### 1.4. Emergency and contact telephone numbers

**Contact telephone number : + 98-21-88329799 (Hunting)**
**roduct information):**

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

| | |
|---|---|
| Acute toxicity, Category 4, Oral | H302: Harmful if swallowed. |
| Specific target organ toxicity - repeated exposure, Category 2, Kidney | H373: May cause damage to organs through prolonged or repeated exposure. |

### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :

Signal word : Warning

| | | | |
|---|---|---|---|
| **Hazard statements** | : | H302<br>H373 | PHYSICAL HAZARDS:<br>Not classified as a physical hazard under GHS criteria. HEALTH HAZARDS: H302 Harmful if swallowed. ENVIRONMENTAL HAZARDS:<br>Not classified as an environmental hazard under GHS criteria. |
| **Precautionary statements** | : | **Prevention:** | |
| | | P260 | Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. |
| | | P264<br>P270 | Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. |
| | | **Response:** | |
| | | P301 + P312 | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. |
| | | P330<br>P314 | Get medical advice/ attention if you feel unwell. |
| | | **Storage:** | No precautionary phrases. |
| | | **Disposal:**<br>P501 | Dispose of contents/ container to an approved waste disposal plant. |

## SECTION 3: Composition/information on ingredients

### 3.1 Information on Components and Impurities

**Hazardous components**

| Chemical name | CAS-No.<br>EC-No. | Concentration (% w/w) |
|---|---|---|
| Diethylene glycol | 111-46-6<br>203-872-2 | 98 - 100 |
| Monoethylene glycol | 107-21-1<br>203-473-3 | 0.05 Max. |

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

**In case of inhalation**

- Move to fresh air.
- Oxygen or artificial respiration if needed.
- Victim to lie down in the recovery position, cover and keep him warm.
- Call a physician immediately.

**In case of skin contact**

- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Call a physician or poison control center immediately.
- Wash contaminated clothing before re-use.

**In case of eye contact**

- Call a physician or poison control center immediately.
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Take victim immediately to hospital.

**In case of ingestion**

- Call a physician or poison control center immediately.
- Take victim immediately to hospital.
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.

### 4.2 Most important symptoms and effects, both acute and delayed

**In case of inhalation**

**Symptoms**
- At high concentrations:
- slight irritation

**Effects**
- No hazards to be specially mentioned.

**In case of skin contact**

**Symptoms**
- Redness
- Swelling of tissue
- Burn

**Effects**
- Corrosive

**In case of eye contact**

**Symptoms**
- Redness
- Lachrymation
- Swelling of tissue
- Burn

**Effects**
- May cause irreversible eye damage.
- May cause blindness.

**In case of ingestion**

**Symptoms**

- Nausea
- Abdominal pain
- Bloody vomiting
- Diarrhea
- Suffocation
- Cough
- Severe shortness of breath

**Effects**

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

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

| | | |
|---|---|---|
| Suitable extinguishing media | : | Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. |
| Unsuitable extinguishing media | : | Do not use water in a jet. |

### 5.2 Special hazards arising from the substance or mixture

| | | |
|---|---|---|
| Specific hazards during firefighting | : | Material will not burn unless preheated. Carbon monoxide may be evolved if incomplete combustion occurs. Containers exposed to intense heat from fires should be cooled with large quantities of water. |

### 5.3 Advice for firefighters

| | | |
|---|---|---|
| Special protective equipment for firefighters | : | Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469). |
| Specific extinguishing methods | : | Standard procedure for chemical fires. |
| Further information | : | Evacuate the area of all non-essential personnel.<br>Keep adjacent containers cool by spraying with water. |

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

**Environmental precautions** : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

**Methods and materials for containment and cleaning up** : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

## SECTION 7: Handling and storage

**Advice on protection against fire and explosion** : Normal measures for preventive fire protection.

**Advice on safe handling** : Do not breathe vapours/dust.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

**Conditions for safe storage** : Keep container tightly closed in a dry and well-ventilated place.
Electrical installations / working materials must comply with the technological safety standards.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Components with workplace occupational exposure limits**

**Consult local authorities for acceptable exposure limits.**

### 8.2 Exposure controls

**Control measures**

**Engineering measures**
- Provide appropriate exhaust ventilation at places where dust is formed.
- Apply technical measures to comply with the occupational exposure limits.

**Individual protection measures**

**Respiratory protection**
- In case of insufficient ventilation, wear suitable respiratory equipment.
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Recommended Filter type: P3 filter
- In case of decomposition (see section 10), face mask with combined type B-P3 cartridge.

**Hand protection**
- chemical resistant gloves

***Suitable material***
- PVC
- Neoprene
- Natural Rubber

**Eye protection**
- Goggles

**Skin and body protection**
- Dust impervious protective suit
- Apron
- Boots
- PVC
- Neoprene

**Hygiene measures**

- Eye wash bottles or eye wash stations in compliance with applicable standards.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | |
|---|---|
| Appearance | : Liquid |
| Colour | : Clear, Colorless |
| pH | : Not applicable |
| Freezing Point (Melting point/freezing point) | : -10 - -11°C |
| Boiling Point (Boiling point/boiling range) | : 244 - 250 °C |
| Flash point | : 140 - 149 °C<br>Method: closed cup |
| Evaporation rate | : < 0,01 (Butyl Acetate = 1) |
| Upper explosion limit | : 10.8 %(V) |
| Lower explosion limit | : 1.6 %(V) |
| Vapour pressure Relative | : < 1,3 Pa (20 °C) |
| vapour density | : 3,7 |
| Specific GR (20/20 °C) | : 1.1175 - 1.1195 g/cm3 (20 °C) |
| Water solubility | : Fully soluble |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability

- Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

- No hazards to be specially mentioned.

### 10.4 Conditions to avoid

- Keep away from heat, flame, sparks and other ignition

### 10.5 Incompatible materials

- Strong bases
- Strong oxidizing agents
- Strong acids
- Aldehydes
- Aluminium
- Plastics
- Reducing agents Peroxides

### 10.6 Hazardous decomposition products

- Aldehydes
- Ketones
- Organic acids
- Carbon oxides

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Acute toxicity**

**Product:**

**Acute oral toxicity** : Acute toxicity estimate: 493.91 mg/kg

**Components:**

**107-21-1:**

**Acute oral toxicity** : Assessment: The component/mixture is moderately toxic after single ingestion.

**111-46-6:**

**Acute oral toxicity** : LD50 (Human): Calculated 1,120 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

**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.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

| Material | GHS/CLP Carcinogenicity Classification |
|---|---|
| Diethylene glycol | No carcinogenicity classification. |
| Ethanediol | No carcinogenicity classification. |

## SECTION 12: Ecological information

### 12.1 Toxicity

Basis for assessment : Information given is based on product testing.

**Components:**
**Diethylene glycol :**

Toxicity to fish (Acute toxicity) : LC50 (Pimephales promelas (fathead minnow)): 75.200 mg/l
Exposure time: 96 h
Method: Literature data. Remarks:
Practically non toxic: LL/EL/IL50 >
100 mg/l

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods**

Contaminated packaging : Empty remaining contents.
Dispose of as unused product. Do not re-use empty containers.

## SECTION 14: Transport information

### 14.1 UN number

**ADR** : Not regulated as a dangerous good
**IMDG** : Not regulated as a dangerous good
**IATA** : Not regulated as a dangerous good

### 14.2 Proper shipping name

**ADR** : Not regulated as a dangerous good
**IMDG** : Not regulated as a dangerous good
**IATA** : Not regulated as a dangerous good

### 14.3 Transport hazard class

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution category Ship : Z
type : 3
Product name : Diethylene glycol

**Additional Information** : This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen enriched atmospheres displaces available oxygen which may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

## SECTION 15: Regulatory information

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

| | | |
|---|---|---|
| Other regulations | : | The regulatory information is not intended to be comprehensive. Other regulations may apply to this material. |

**The components of this product are reported in the following inventories:**

| | | |
|---|---|---|
| TSCA | : | On TSCA Inventory |
| DSL | : | All components of this product are on the Canadian DSL |
| AICS | : | On the inventory, or in compliance with the inventory |
| NZIoC | : | On the inventory, or in compliance with the inventory |
| ENCS | : | On the inventory, or in compliance with the inventory |
| KECI | : | On the inventory, or in compliance with the inventory |
| PHIL | : | On the inventory, or in compliance with the inventory |
| IECSC | : | On the inventory, or in compliance with the inventory |

## SECTION 16: Other information

Information contained herein is provided in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.