

## SAFETY DATA SHEET

### N, N-DIMETHYL FORMAMIDE

| SECTION I: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION   |  |
|--|--|
| <b>Product Name:</b> N,N-DMETHYLFORMAMIDE<br><b>Synonym:</b> Dimethylformamide ,N -Formyl dimethylamine N, N-Dimethylmethaneamide, Formic Acid Dimethylamide<br><b>UN No:</b> 2265<br><b>Chemical Formula:</b> C <sub>3</sub> H <sub>7</sub> NO<br><b>CAS#:</b> 68-12-2<br><b>EINECS Number:</b> 200-679-5<br><b>Hazchem Code:</b> 2P<br><b>Use:</b> Catalyst, electronic/ explosive/Resin Industry, paper chemical, Additive & Animal Nutrient                  | <b>Contact Information:</b><br>The Factory of Methanol Chemicals Company (CHEMANOL)<br><b>P.O. Box:</b> 2101<br>Jubail Industrial City, 31951<br>Kingdom of Saudi Arabia.<br><b>Website:</b> www.chemanol.com.<br><b>Tel. No:</b> 00966-13-343-8630.<br><b>Emergency Contact No:</b> 00966-13-343-8999 |
| SECTION II: HAZARDS IDENTIFICATION   |  |
| <b>EMERGENCY OVERVIEW</b><br>Material is flammable and toxic. Flammable in presence of open flames and sparks, of heat under emergency Conditions. Harmful by inhalation and in contact with skin or swallowed; irritating to eye.   |  |
| <b>POTENTIAL HEALTH EFFECTS</b><br><b>Eye:</b> Irritating to eye.<br><b>Skin:</b> Harmful in contact with skin. Readily absorbed through skin. Causes irritation.<br><b>Ingestion:</b> Harmful if swallowed. Causes stomach pains, vomiting, and diarrhea.<br><b>Inhalation:</b> Harmful if inhaled. Irritating to mucous membranes and upper respiratory tract.<br>Resulting effects from the substance could be delayed from several hours up to several days. |  |
| <b>Classification in accordance with Regulation (EC) No. 1272 / 2008</b><br><b>Acute Toxicity 4*;</b> H312<br><b>Acute Toxicity 4*;</b> H332<br><b>Eye irritation 2;</b> H319  |  |

**Flam. liquid 3; H 226**

**Repr. 1B; H360D\*\*\***

**Classification in accordance with Regulation 67/548/EEC or 1999/45/EC**

Repr. Cat. 2; R61, - Xn; R20/21 - Xi; R36

**Risk Phrases:**

**R20/21:** Harmful by inhalation and in contact with skin.

**R36:** Irritating to eyes.

**R61:** May cause harm to the unborn child.

**Safety Phrases:**

**S45-:** In case of accident or if you feel unwell, seek medical advice immediately  
(Show the label where possible).

**S53:** Avoid exposure – obtain special instructions before use.

**Globally Harmonized System (GHS)**

**GHS- Labeling:**  
**Hazard Pictogram:**



**Signal Word Danger**

**Hazard Statements:**

**H360D:** May damage the unborn child

**H226:** Flammable liquid and vapor

**H332:** Harmful if inhaled.

**H312:** Harmful in contact with skin

**H319:** Causes serious eye irritation.

**Precautionary Statements**

**P201:** Obtain special instructions before use.

**P210:** Keep away from heat/sparks/open flames/hot surfaces-No smoking

**P261** Avoid breathing dust/fume/gas/mist/vapors/spray

- P280** Wear protective gloves/protective clothing/eye protection/face protection
- P303+P361+P353:** IF ON SKIN (or hair): Remove /Take off immediately all contaminated Clothing. Rinse skin Water/shower.
- P304+P340: IF INHALED:** Remove victim to fresh air and keep at rest in a position 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.
- P308+P313: IF exposed or concerned:** Get Medical advice / Attention.
- P312:** Call a POISON CENTER or doctor/physician if you feel unwell.
- P363:** Wash contaminated clothing before reuse.
- P370+P378:** In case of fire use Water spray/foam/DCP for extinction
- 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.

### SECTION III: COMPOSITION AND INFORMATION ON INGREDIENTS

#### Composition:

| Name                  | CAS#    | % by weight |
|-----------------------|---------|-------------|
| N,N-Dimethylformamide | 68-12-2 | 100%        |

### SECTION IV: FIRST AID MEASURES

**Eyes:** Flush the eye continuously with running water. Continue flushing For at least 15 minutes. Seek medical attention.

**Skin:** Remove contaminated cloths and shoes. Flush skin and hair with running water. Seek medical attention in event of irritation.

**Ingestion:** Rinse mouth with water. Give water to drink. If abdominal discomfort occurs, seek medical attention.

**Inhalation:** Remove victim from the area of exposure to fresh Air and rest. If not breathing give artificial respiration or seek medical attention.

## SECTION V: FIRE-FIGHTING MEASURES

**General Information:** Flammable in presence of open flames and sparks, of heat. Decomposes on heating emitting toxic fumes.

**Auto ignition Temperature:** 445°C

**Flash Point:** 57.5°C

**Flammable Limits, Lower:** 2.2 %

**Flammable Limits, Upper:** 15.2 %

**NFPA Rating (estimated):** Health: 2; Flammable: 2; Reactivity: 0

**Extinguishing Media:** Carbon dioxide, Alcohol resistant Foam, dry chemical powder or water spray.

**Firefighting instructions:** Flammable liquid, soluble or dispersed in water.

**SMALL FIRE:** Use dry chemical powder.

**LARGE FIRE:** Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, auto ignition or explosion. Wear Self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

## SECTION VI: ACCIDENTAL RELEASE MEASURES

**General Information:** Ensure adequate ventilation Use complete protective clothing including self-contained breathing apparatus. Take precautionary measures against static discharges.

**Spills/Leaks:** Evacuate area. Ventilate area and remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place.

## SECTION VII: HANDLING AND STORAGE

**Storage containers:** Available in HM/HDPE 200 Kg or MS drums 195 Kg, ISO Tankers or Road tankers. Handling: Keep container in a cool, well-ventilated areas away from sources of heat, flame or sparks and direct sunlight. Avoid smoking in storage or working areas. Wear approved respirator, chemical resistant gloves, safety goggles, other protective clothing. Hygroscopic avoid contact with copper, brass.

**Storage:** Under nitrogen atmosphere. Keep container in a cool, well-ventilated area. Keep away from any ignition sources. Ground all equipment containing material. Keep away from acids and oxidizing agents and halogens. Protect from direct sunlight.

## SECTION VIII: EXPOSURE CONTROLS / PERSONAL PROTECTION

**ENGINEERING CONTROLS:** Use in a well-ventilated area. Use local exhaust ventilation to remove air borne emissions below the applicable exposure limits and guidelines.

**EXPOSURE LIMITS: TLV-TWA:** 10 ppm (30 mg/m<sup>3</sup>) [skin] (ACGIH/NIOSH/OSHA), IDLH: 500 ppm (NIOSH)

### PERSONAL PROTECTIVE EQUIPMENT:

**Eyes:** Use approved Chemical splash protective goggles.

**Skin:** Use approved chemical protective clothing, shoes and hand gloves.

**Respirators:** Use approved respirators. Selection of the Class and Type of respirator will depend upon the level of concentration of contaminant.

## SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

**Physical state and appearance:** Colorless liquid

**Odor:** Ammonical

**Color:** Colorless

**pH of solution:** Not available.

**BoilingPoint:** 152-153 °C

**Melting point:** -61 °C

**Viscosity:** 0.92 – 0.9248 mPas (@ 20 °C)

**Relative Density(water):** 0.95

**Vapor Density (Air=1):** 2.5 (Heavier than air)

**Vapor Pressure:** 3 mm hg / Around 0.3 kPa (@ 20 °C)

**Relative Density of vapor air mixture at 20 °C (Air=1):** 1.0

**Solubility:** miscible in water, Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone. Miscible organic solvents. Soluble in benzene, and chloroform.

**Critical Temperature:** 374°C

**Octanol/water partition coefficient as log power:** - 0.85 (@ 25° C)

## SECTION X: STABILITY AND REACTIVITY

**Chemical Stability:** Stable.

**Conditions to Avoid:** Keep away from strong acids oxidizing materials, heat and naked flame.

**Incompatibilities with Other Materials:** Reactive with oxidizing agents, acids Can react vigorously with oxidizing agents, halogenated hydrocarbons, and inorganic nitrates. Incompatible with carbon tetrachloride, alkyl aluminums, sodium tetrahydroborate, nitrates, chromic acid, diisocyanatomethane, triethylaluminum, sodium hydride, lithium azide, metallic sodium, bromine, magnesium nitrate, potassium permanganate, nitric acid, chromium trioxide, borohydrides, phosphorus trioxide, diborane, octafluoroisobutyrate, sodium nitrite, perchloryl fluoride, potassium methyl 4,4'-dinitrobutyrate. Reaction with inorganic acid chlorides, such as phosphorous oxychloride and thionyl chloride, may form dimethyl carbamoyl, a suspect carcinogen.

**Hazardous Decomposition Products:** May release dimethylamine and carbon monoxide if heated above 350°C (662° F).

**Special Remarks on Corrosivity:** Pure dimethylformamide is essentially non-corrosive to metals.

## SECTION XI: TOXICOLOGICAL INFORMATION

**RTECS:** LQ2100000

**Routes of Entry:** Eye/Skin contact. Inhalation. Ingestion.

**Toxic Effects:** ACUTE HEALTH EFFECTS

**Skin:** Causes skin irritation with itching, burning, redness, swelling, or rash. It may be absorbed through the skin in toxic amounts and cause systemic effects similar to that of ingestion.

**Eyes:** Causes eye irritation (possibly severe) with tearing pain or blurred vision.

**Inhalation:** May cause respiratory tract irritation. Short-term overexposure by inhalation may affect behavior/central nervous system (convulsions, muscle weakness and other symptoms similar to that of acute ingestion), respiration (dyspnea).

**Ingestion:** It can cause gastrointestinal tract irritation with heartburn, abdominal pain, nausea, vomiting or Diarrhea. It may also affect the cardiovascular system (hypertension, tachycardia, ECG abnormalities), blood (elevated white blood cell counts), and liver damage (hepatomegaly, jaundice, altered liver enzymes, fatty liver

#### **CHRONIC HEALTH EFFECTS:**

Principal routes of exposure are by skin and eye contact and by inhalation of Vapors.

**SKIN:** Harmful if absorbed through skin causes skin irritation.

**EYE:** Irritating to eyes.

**INHALATION:** Harmful by inhalation. Material may be irritating to mucous membranes and upper respiratory tract.

**INGESTION:** Ingestion can cause stomach pains, vomiting, and diarrhea.

Intolerance for alcohol can occur up to 4 days after dimethyl formamide exposure. It is considered to be a potent liver toxin.

#### **Toxicity to Animals:**

**Acute oral toxicity (LD50):** 2800 mg/kg [Rat],

**Symptoms:** Gastro intestinal disturbance. (IUCLID)

**Acute dermal toxicity (LD50):** 1500 mg/kg [Rabbit]

**Symptoms:** Absorption, No irritation (IUCLID)

**Acute toxicity of the vapor (LC50):** 9-15 mg/l, 4 hours [Rat].

**Symptoms:** Absorption (IUCLID)

**LCL [Rat] - Route:** Inhalation; Dose: 5000 ppm/6H.

#### **Toxicity to Human.**

#### **Chronic Effects on Humans:**

**Carcinogenicity:** - Not classified as carcinogen to human.

**ACGIH:** A4 – Not classifiable as Human Carcinogen

**NTP:** Included in NTP. No additional testing for carcinogenicity.

**IARC:** Group 3 Not classified as carcinogen to human by IARC B Volume 47, 71 1999.

**Neurotoxicity:** No information available

**Mutagenicity:** No information available.

**Teratogenicity:** May cause harm to the unborn child. Pregnant women must not be exposed to the product.

**Epidemiology:** No information available.

**Reproductive effects:** May cause adverse reproductive effects (paternal and maternal) and birth defects.

**CMR Effect:**

**Toxic to reproduction:** category 2. May cause adverse reproductive effects paternal and maternal and birth defects

## SECTION XII: ECOLOGICAL INFORMATION

**Eco toxicity:**

**Toxicity to Fish (LC 50) in mg/l:** 7,100 (Lepomis macrochirus)

**Toxicity to algae (Green algae):** 10 mg/l, (IUCLID, Maximum permissible toxic concentration)

**Toxicity to bacteria EC50 (Photo bacterium phosphorus):** 2000 mg/l, 5 min (Lit.)

**Persistence and Degradability**

Stability in water Ca. 50d

**Reaction with Hydroxyl radicals.**

**Biodegradability:** Readily Biodegradable 100 % Exposure time 21 d, Method OECD 301E

**Biological Oxygen Demand (BOD):**

BOD 900 mg/g (5 D) (Lit.)

Theoretical Oxygen Demand (ThOD): 1.863 mg/g (Lit).

**Additional information:** Do not allow to enter water, wastewater, or soil.



### SECTION XIII: DISPOSAL CONSIDERATIONS

Waste must be disposed of in accordance with local environmental Control regulations

### SECTION XIV: TRANSPORT INFORMATION

| Sr No: |               | Rail road & road<br>ADR,RID | Transport by air<br>IATA-DGR | Transport by Sea<br>IMDG-Code |
|--------|---------------|-----------------------------|------------------------------|-------------------------------|
| 1      | Product Name  | N,N-Dimethylformamide       | N,N-Dimethylformamide        | N,N-Dimethylformamide         |
| 2      | Class         | 3                           | 3                            | 3                             |
| 3      | UN Number     | UN 2265                     | UN 2265                      | UN 2265                       |
| 4      | Packing group | III                         | III                          | III                           |
| 5      | Code number   | ADRHIN 30                   |                              | EmS Code No: F-E,S-D          |

**Marine Pollutant:** No

**ADR:** European Agreement concerning Transport of Dangerous Good by Road.

**RID:** Regulations concerning International carriage of Dangerous Goods by Rail.

**HIN:** Hazard Identification Number.

**IATA-DGR:** International Air Transport Authority- Dangerous Goods Regulation.

**IMDG-Code:** International Maritime Dangerous Goods code.

## SECTION XV: REGULATORY INFORMATION

HMIS:

HealthHazard:2

Fire Hazard:2

Reactivity:0

Personal Protection: H

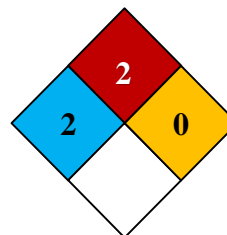
Health:3

Flammability:4

Reactivity: 0

Specific Hazard:

|                     |   |
|---------------------|---|
| Health Hazard       | 2 |
| Fire Hazard         | 2 |
| Physical Hazard     | 0 |
| Personal Protection | H |



### Protective Equipment:

Chemical Gloves

Chemical splash goggles.

Approved Vapor respirator

Global Chemical Inventory status

| Sr. No | Product name and Components | CAS no. | DSL (Canada) | TSCA Sec 8 | TSCA 12b | EINECS    | AICS (Australia) | ENCS (Japan) | ECL   | IECSC Toxic | PICCS | NZIoC |
|--------|-----------------------------|---------|--------------|------------|----------|-----------|------------------|--------------|-------|-------------|-------|-------|
| 1      | N,N-Dimethylformamide       | 68-12-2 | listed       | listed     | No       | 200-679-5 | Yes              | Yes          | 2-140 | No          | Yes   | Yes   |

## SECTION XVI: OTHER INFORMATION

Information contact: Quality Control and Product Development Department

For any enquiry/comment regarding this Material Safety Data Sheet,

Kindly contact: Contact@Chemanol.com

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