**N,N-Dimethylformamide**

**Structure:** $C_3H_7NO$

**Synonyms**
- Dimethylamid Kyseliny Mravenci (Czech)
- Dimethylformamid (German)
- Dimethyl Formamide
- N,N-Dimethyl Formamide
- Dimethylformamide
- N,N-Dimethylmethanamide
- Dimetilformamid (Italian)
- Dimetylformamidu (Czech)
- DMF
- DMFA
- Dwumetyloformamid (Polish)
- N-Formyldimethylamine

**Physical Data**
- **Appearance:** liquid
- **Boiling Point:** 153°C
- **Melting Point:** -61°C
- **Flashpoint:** 136°F (57.7°C)
- **Explosion limits in air:** upper: 15.2% lower: 2.2%
- **Vapour Pressure:** 2.7 MMHG @ 20°C
- **Specific Gravity:** 0.944
- **Vapour Density:** 2.5 G/L
- **Swiss Poison Class:** 3

**Hazardous Decomposition**
- Carbon monoxide
- Carbon dioxide
- Nitrogen oxides

**Incompatibles**
- Strong oxidizing agents
Protective Equipment

Eyes

- Chemical safety goggles.

Skin

- Compatible chemical-resistant gloves.

Respiratory

- NIOSH/MSHA-approved respirator.

Special Precautions

- Handling:
  1. Do not breathe vapour.
  2. Do not get in eyes, on skin, on clothing.
  3. Avoid prolonged or repeated exposure.
  4. Wash thoroughly after handling. Wash contaminated clothes before reuse.
  5. Discard contaminated shoes.

- Storage:
  1. Keep tightly closed.
  2. Keep away from heat and open flame.
  3. Store in a cool, dry place.

- Ventilation:
  1. Use only in a chemical fume hood.

- Engineering Controls:
  1. Safety shower and eye bath.

Toxicity

Toxicity Data

- ORL-RAT LD50: 2800 MG/KG
- IPR-RAT LD50: 1400 MG/KG
- SCU-RAT LD50: 3800 MG/KG
• IVN-RAT LD50: 2 GM/KG
• UNR-RAT LD50: >3 GM/KG
• ORL-MUS LD50: 2900 MG/KG
• IHL-MUS LC50: 9400 MG/M3/2H
• IPR-MUS LD50: 650 MG/KG
• SCU-MUS LD50: 4500 MG/KG
• IVN-MUS LD50: 2500 MG/KG
• IMS-MUS LD50: 3900 MG/KG
• IVN-DOG LD50: 470 MG/KG
• IPR-CAT LD50: 500 MG/KG
• ORL-RBT LD50: 5 GM/KG
• SKN-RBT LD50: 4720 MG/KG
• IPR-RBT LD50: 1 GM/KG
• IVN-RBT LD50: 1800 MG/KG
• IVN-GPG LD50: 1050 MG/KG

Target Organs

• Liver
• Kidneys
• Central Nervous System
• Cardiovascular System
• Blood

Health

Effects:

• **Inhalation**: May be harmful by inhalation and in contact with skin.

• **Eyes/Skin**: Irritating to eyes and skin. Readily absorbed through skin.

First Aid:

• **Inhalation**: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

• **Eyes**: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

• **Skin**: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

• **Ingestion**: If swallowed, wash out mouth with water, provided person is conscious. Call a physician immediately.
PEL/ TLV

PEL

- OSHA PEL (GEN INDU): 8H TWA 10 PPM (30 MG/M³) (SKIN)
- OSHA PEL (CONSTRUC): 8H TWA 10 PPM (30 MG/M³) (SKIN)
- OSHA PEL (SHIPYARD): 8H TWA 10 PPM (30 MG/M³) (SKIN)
- OSHA PEL (FED CONT): 8H TWA 10 PPM (30 MG/M³) (SKIN)
- NIOSH REL TO DIMETHYLFORMAMIDE-AIR: 10H TWA 10 PPM (SK)

TLV

- Data not provided by manufacturer.

Fire Hazard Data

- **Extinguishing Media:** Carbon dioxide, Dry chemical powder or appropriate foam.

- **Special Fire-Fighting Procedures:** Wear self contained breathing apparatus, rubber boots, and heavy rubber gloves.

- **Unusual Hazards:** Emits toxic fumes under fire conditions.

Disposal

**Spill Procedures:**

- Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.
- Wear disposable coveralls and discard them after use.
- Cover with dry lime or soda ash, pick up, keep in a closed container and hold for waste disposal.
- Ventilate area and wash spill site after material pickup is complete.
- Evacuate area.

**Disposal:**

- Dispose as a chemical waste.