1. IDENTIFICATION

Product code: D1030
Product Name: N,N-DIMETHYLFORMAMIDE, REAGENT, ACS

Other means of identification
Synonyms:
DMF
DMFA
Dimethyl formamide
Dimethylformamide
DN,N-Dimethyl formamide
N,N-Dimethylmethanamide
N-Formyldimethylamine
Dimetilformamida (Spanish)
Diméthylformamide (French)

CAS #: 68-12-2
RTECS #: LQ2100000
CI#: Not available

Recommended use of the chemical and restrictions on use
Recommended use: Solvent.
Uses advised against: No information available

Supplier:
Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com

Emergency telephone number
Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

| Acute toxicity - Oral                  | Category 4 |
| Acute toxicity - Inhalation (Gases)   | Category 3 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 4 |
| Serious eye damage/eye irritation      | Category 2 |
Reproductive toxicity Category 1B
Specific target organ toxicity (repeated exposure) Category 1
Flammable liquids Category 3

Label elements

Danger

Hazard statements
Harmful if swallowed
Toxic if inhaled
Causes serious eye irritation
May damage fertility or the unborn child
Causes damage to organs through prolonged or repeated exposure
Flammable liquid and vapor

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
May be harmful in contact with skin
Causes mild skin irritation

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/...equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool

Product code: D1030
Product name: N,N-DIMETHYLFORMAMIDE, REAGENT, ACS
Precautionary Statements - Response
**IF exposed or concerned:** Get medical advice/attention

In case of fire: Use CO₂, dry chemical, or foam to extinguish.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Call a POISON CENTER or doctor/physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

Rinse mouth.

Precautionary Statements - Storage
Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>68-12-2</td>
<td>100</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**First aid measures**

**General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222

**Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention. If skin irritation persists, call a physician.

**Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention.

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

**Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

**Most important symptoms and effects, both acute and delayed**

**Symptoms**
Causes serious eye irritation. Causes conjunctival irritation. Mild skin irritation. Lacrimation. Dyspnea (Difficulty breathing and shortness of breath). Ingestion may cause vomiting and nausea. Abdominal pain. May cause methemoglobinemia and cyanosis. Central nervous system effects. May cause cardiovascular effects. May cause loss of appetite. It may affect the kidneys. May affect the liver.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician:** Treat symptomatically.

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

### 5. FIRE-FIGHTING MEASURES

**Product code:** D1030

**Product name:** N,N-DIMETHYLFORMAMIDE, REAGENT, ACS
5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Carbon dioxide (CO2), Dry chemical, Alcohol-resistant foam, Water spray.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous Combustion Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides, Dimethylamine

Specific hazards: Flammable May be ignited by heat, sparks or flames Vapor may travel considerable distance to source of ignition and flash back Vapors may form explosive mixtures with air Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks) Container explosion may occur under fire conditions or when heated

Special Protective Actions for Firefighters

Specific Methods: Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out. Dike fire-control water for later disposal; do not scatter the material.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

Product code: D1030 Product name: N,N-DIMETHYLFORMAMIDE, REAGENT, ACS
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth)

Methods for cleaning up Use appropriate tools to put the spilled solid in a suitable waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions: Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions: Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.


8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Product code: D1030

Product name: N,N-DIMETHYLFORMAMIDE, REAGENT, ACS
<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide 68-12-2</td>
<td>10 ppm TWA</td>
<td>10 ppm TWA</td>
<td>10 ppm TWA</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>30 mg/m³ TWA</td>
<td>30 mg/m³ TWA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Canada**

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide 68-12-2</td>
<td>10 ppm TWA</td>
<td>10 ppm TWA</td>
<td>10 ppm TWA</td>
<td>10 ppm TWA EV</td>
</tr>
<tr>
<td></td>
<td>30 mg/m³ TWA</td>
<td></td>
<td></td>
<td>30 mg/m³ TWA EV</td>
</tr>
</tbody>
</table>

**Australia and Mexico**

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide 68-12-2</td>
<td>10 ppm TWA</td>
<td>10 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>30 mg/m³ TWA</td>
<td>30 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 ppm STEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 mg/m³ STEL</td>
</tr>
</tbody>
</table>

**Appropriate engineering controls**

**Engineering measures to reduce exposure:**

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

**Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

**Eye protection:** Goggles

**Skin and body protection:** Chemical resistant apron. Long sleeved clothing. Gloves.

**Respiratory protection:** Respiratory protection is not necessary for normal handling. Good room ventilation or use of local exhaust (fume hood) is sufficient. Use a vapor respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentrations of mist or vapor, inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

**9. PHYSICAL AND CHEMICAL PROPERTIES**
### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>No information available</td>
<td>Colorless. Light yellow.</td>
</tr>
</tbody>
</table>

**Odor:** Amine-like. Fishy.  
**Taste:** No information available  
**Formula:** C₃H₇N-O or HCON(CH₃)₂

<table>
<thead>
<tr>
<th>Molecular/Formula weight:</th>
<th>Flammability:</th>
<th>Flash point (°C):</th>
</tr>
</thead>
<tbody>
<tr>
<td>73.09</td>
<td>No information available</td>
<td>57.778</td>
</tr>
</tbody>
</table>

**Flashpoint (°C/F):**  
57.778 °C/136 °F  
67 °C/152.6 °F

<table>
<thead>
<tr>
<th>Lower Explosion Limit (%):</th>
<th>Upper Explosion Limit (%):</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2%</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Melting point/range(°C/°F):</th>
<th>Decomposition temperature(°C/°F):</th>
<th>Flash Point Tested according to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>-61 °C/-77.8 °F</td>
<td>No information available</td>
<td>Closed cup</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flash Point Tested according to:</th>
<th>Flash Point Tested according to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed cup</td>
<td>Open cup</td>
</tr>
</tbody>
</table>

**Bulk density:** No information available  
**Density (g/cm³):** 0.9445-0.95 @ 25 °C  
**Specific gravity:** 0.949

**Vapor pressure @ 20°C (kPa):** 0.3466  
**Evaporation rate:** No information available  
**Vapor density:** 2.51

**VOC content (g/L):** No information available  
**Odor threshold (ppm):** 100

**Viscosity:** No information available  
**Miscibility:** Miscible with water  
M miscible with many organic solvents  
**Solubility:** Soluble in Ether  
Soluble in Chloroform  
Soluble in Benzene  
Soluble in hot alcohol  
Soluble in Acetone

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>No information available</td>
<td>Colorless. Light yellow.</td>
</tr>
</tbody>
</table>

**Evaporation rate:** No information available

<table>
<thead>
<tr>
<th>Mol wt:</th>
<th>Formula:</th>
</tr>
</thead>
<tbody>
<tr>
<td>73.09</td>
<td>C₃H₇N-O or HCON(CH₃)₂</td>
</tr>
</tbody>
</table>

**Vapor pressure @ 20°C (kPa):** 0.3466  
**Product code:** D1030

### 10. STABILITY AND REACTIVITY

**Reactivity**  
Dimethylformamide forms explosive reactions with: Bromine, Potassium permanganate, Lithium azide, Triethylaluminum and heat, and Uranium perchlorate  
Reacts vigorously with oxidizing agents  
Reactive with reducing agents  
Reactive with acids

**Chemical stability**  
**Stability:** Stable under recommended storage conditions  
**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur  
**Conditions to avoid:** Heat. Ignition sources. Incompatible materials.

**Incompatible Materials:**  

**Product code:** D1030  
**Product name:** N,N-DIMETHYLFORMAMIDE, REAGENT, ACS

Other Information
Corrosivity: No information available

Special Remarks on Corrosivity: Pure Dimethylformamide is essentially noncorrosive to metals. However, copper, tin and their alloys should be avoided

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Skin. Inhalation.

Acute Toxicity

Component Information

N,N-Dimethylformamide - 68-12-2
LD50/oral/rat = 2800 mg/kg Oral LD50 Rat (LOLI)
2000 mg/kg (RTECS)
4000 mg/kg (RTECS)
LD50/oral/mouse = 2900 mg/kg (RTECS)
3750 mg/kg (RTECS)
LD50/dermal/rabbit = 4720 mg/kg (RTECS)
LD50/dermal/rat = > 3.2 g/kg Dermal LD50 Rat (RTECS)
1100 mg/kg (LOLI)
LC50/inhalation/rat = 3421 ppm 1 h (RTECS)
1948 ppm 4 h (RTECS)
LC50/inhalation/mouse = 9.4 g/m³ 2 h (RTECS)
Other LD50 or LC50 information = 5000 mg/kg Oral LD50 Rabbit (LOLI)

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 2000mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = 2900mg/kg

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = 4720mg/kg

LD50/dermal/rat
VALUE -Acute Tox Dermal = 1100mg/kg

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = 1948ppm (4-hr)
VALUE-Dust/Mist = No information available
LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = 9400 mg/m²/hr

**Symptoms**

**Skin Contact:**
May cause skin irritation. Mild skin irritation. It can be absorbed through the skin. May be harmful in contact with skin. It may facilitate the absorption of other dissolved substances. Absorption through the skin may cause systemic effects similar to those of inhalation or ingestion.

**Eye Contact:**
Causes eye irritation. Severe eye irritation. Causes conjunctivitis. Lachrymator (substance which increases the flow of tears).

**Inhalation**
Toxic by inhalation. May cause irritation of respiratory tract. Symptoms may include coughing and wheezing. Can cause dyspnea (shortness of breath and difficulty breathing). Causes lacrimation. May cause conjunctival irritation. May cause loss of appetite. May cause nausea, vomiting. May cause abdominal pain. May cause diarrhea or constipation. May cause cyanosis. May cause methemoglobinemia (the formation of methemoglobin in the blood which causes deficient oxygenation of the blood due to decreased available hemoglobin). Methemoglobinemia can lead to cyanosis (bluish skin and lips due to deficient oxygenation of the blood). May cause carboxyhemoglobinemia (the binding of hemoglobin to carbon monoxide in place of oxygen - also known as carbon monoxide poisoning). May affect the brain. It may affect behavior/central nervous system (convulsions/seizures). May affect behaviorcentral nervous system (somnolence). May affect behaviorcentral nervous system (central nervous system depression, headache, confusion, fatigue, irritability, muscle weakness, coma). It may affect the cardiovascular system (bradycardia, hypotension). May affect the kidneys. It may affect the liver (hepatotoxin - enlarged liver, elevated liver enzymes, jaundice). It may affect the blood (changes in serum composition). Exposure to dimethylformamide can cause ethanol intolerance. When occupationally exposed workers also ingest ethanol, it can cause flushing of the face and neck, abnormal taste (dysgeusia), and palpitations.

**Ingestion**
Harmful if swallowed. Ingestion may cause nausea, vomiting. May cause abdominal pain. May cause loss of appetite. May affect liver. May affect urinary system (kidneys). It may affect the blood (leukocytosis). May affect behaviorcentral nervous system (somnolence, ataxia, tetany, general anesthetic, muscle weakness). May affect the cardiovascular system (hypertension).

**Aspiration hazard**
No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity**
Prolonged or repeated ingestion may affect metabolism (cause anorexia, weight loss). Prolonged or repeated ingestion may affect the liver, and kidneys. Prolonged or repeated inhalation may affect the cardiovascular system (degenerative changes in the myocardium). Prolonged or repeated inhalation may cause central nervous system effects. Prolonged or repeated inhalation may cause loss of appetite. Prolonged or repeated inhalation may affect metabolism (weight loss). Prolonged or repeated inhalation may affect the brain. Prolonged or repeated inhalation may affect the kidneys. Prolonged or repeated inhalation may affect the liver. Prolonged or repeated skin absorption may affect the liver and kidneys. Prolonged or repeated exposure may affect the autonomic nervous system. Chronic intensive skin contact may cause dermatitis. Prolonged or repeated inhalation or ingestion may affect the blood (decrease in platelets and longer blood coagulation times, leukopenia, lymphocytosis, anemia, polycythemia).

**Product code:** D1030  
**Product name:** N,N-DIMETHYLFORMAMIDE, REAGENT, ACS
Sensitization: No information available

Mutagenic Effects: May affect genetic material
- Mutagenic effects in mammalian somatic cells
- Experiments with animal lymphocytes have shown mutagenic effects
- Mutations in microorganisms
- Experiments with bacteria have shown mutagenic effects

Carcinogenic effects: May cause cancer based on animal test data. Not classifiable as a human carcinogen. Not classifiable as to its carcinogenicity to humans.

<table>
<thead>
<tr>
<th>Components</th>
<th>IARC</th>
<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>Group 3</td>
<td>A4 Not Classifiable as a Human Carcinogen</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Reproductive toxicity May damage fertility or the unborn child

Reproductive Effects: May cause adverse reproductive effects
- May impair fertility
- Experiments have shown reproductive toxicity effects on laboratory animals

Developmental Effects: May cause harm to the unborn child

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available
STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

N,N-Dimethylformamide - 68-12-2

Freshwater Algae Data: 500 mg/L EC50 Desmodesmus subspicatus 96 h
Freshwater Fish Species Data: 10410 mg/L LC50 Pimephales promelas 96 h flow-through 1
6300 mg/L LC50 Lepomis macrochirus 96 h 1
9800 mg/L LC50 Oncorhynchus mykiss 96 h flow-through 1

Water Flea Data: 6800 - 13900 mg/L EC50 Daphnia magna 48 h
7500 mg/L EC50 Daphnia magna 48 h
8485 mg/L EC50 Daphnia magna 48 h

Persistence and degradability: No information available
Bioaccumulative potential: No information available
Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
UN-No: UN2265
Proper Shipping Name: N,N-Dimethylformamide
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: III
ERG No: 129
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Special Provisions: No Information available
Symbol(s): R3

TDG (Canada)
UN-No: UN2265
Proper Shipping Name: N,N-Dimethylformamide
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: III
Marine Pollutant: No Information available

ADR
UN-No: UN2265
Proper Shipping Name: N,N-Dimethylformamide
Hazard Class: 3
Packing Group: III
Subsidiary Risk: No information available

IMO / IMDG
UN-No: UN2265
Proper Shipping Name: N,N-Dimethylformamide
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: III

Product code: D1030
Product name: N,N-DIMETHYLFORMAMIDE, REAGENT, ACS
14. TRANSPORT INFORMATION

Marine Pollutant: No information available
EMS: F-E

RID
UN-No: UN2265
Proper Shipping Name: N,N-Dimethylformamide
Hazard Class: 3
Subsidiary Risk: 3
Packing Group: III

ICAO
UN-No: UN2265
Proper Shipping Name: N,N-Dimethylformamide
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: III

IATA
UN-No: UN2265
Proper Shipping Name: N,N-Dimethylformamide
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: III
ERG Code: 3L
Special Provisions: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS (2)-680</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>Present</td>
<td>Present KEE-11411</td>
<td>Present</td>
<td>Present (2)-680</td>
<td>Present</td>
<td>Present</td>
<td>Present 200-679-5</td>
</tr>
</tbody>
</table>

U.S. Regulations

N,N-Dimethylformamide
- Massachusetts RTK: Present
- New Jersey RTK Hazardous Substance List: 0759
- New Jersey (EHS) List: 0759 500 lb TPQ
- New Jersey - Discharge Prevention - List of Hazardous Substances: Present
- Pennsylvania RTK: Present
- Minnesota - Hazardous Substance List: Present
- New York Release Reporting - List of Hazardous Substances:
  - 1 lb Q
  - Louisiana Reportable Quantity List for Pollutants: 100 lb final RQ
  - 45.4 kg final RQ
- California Directors List of Hazardous Substances: Present


Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Product code: D1030
Product name: N,N-DIMETHYLFORMAMIDE, REAGENT, ACS
Components | Carcinogen | Developmental Toxicity | Male Reproductive Toxicity | Female Reproductive Toxicity:
--- | --- | --- | --- | ---
N,N-Dimethylformamide | Not Listed | Not Listed | Not Listed | Not Listed

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>100 lb final RQ 45.4 kg final RQ</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>1.0 % de minimis concentration</td>
</tr>
</tbody>
</table>

U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>Not Applicable</td>
<td>04/13/1989 12/19/1995</td>
</tr>
</tbody>
</table>

Canada

WHMIS hazard class:
B3 Combustible liquid
D1B Toxic materials
D2B Toxic materials
D2A Very toxic materials

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

<table>
<thead>
<tr>
<th>Components</th>
<th>WHMIS Ingredient Disclosure List -</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>1 %</td>
</tr>
</tbody>
</table>

Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

EU Classification

R-phrase(s)
R36 - Irritating to eyes.
R61 - May cause harm to the unborn child.
R20/21 - Harmful by inhalation and in contact with skin.
**S -phrase(s)**
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.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>Xn; R20/21</td>
<td>No information</td>
<td>S53 S45</td>
</tr>
<tr>
<td></td>
<td>Xi; R36</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repr.Cat.2; R61</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**
Xn - Harmful.
Xi - Irritant.

**16. OTHER INFORMATION**

<table>
<thead>
<tr>
<th>Preparation Date:</th>
<th>12/15/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision Date:</td>
<td>5/25/2016</td>
</tr>
<tr>
<td>Prepared by:</td>
<td>Sonia Owen</td>
</tr>
</tbody>
</table>

**Disclaimer:**
All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**

**Product code:** D1030  
**Product name:** N,N-DIMETHYLFORMAMIDE, REAGENT, ACS