

## SAFETY DATA SHEET

Preparation Date: 7/16/2015

Revision Date: 7/16/2015

Revision Number: G1

### 1. IDENTIFICATION

**Product identifier**

**Product code:** D2358  
**Product Name:** N,N-DIETHYLFORMAMIDE

**Other means of identification**

**Synonyms:** Formamide, N,N-diethyl-  
 Diethyl Formamide  
 N-Formyldiethylamine

**CAS #:** 617-84-5  
**RTECS #** LQ1925000  
**CI#:** Not available

**Recommended use of the chemical and restrictions on use**

**Recommended use:** Solvent. Laboratory chemicals. Manufacture of substances. Research and Development.

**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

**Classification**

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

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3
Flammable liquids	Category 3

**Label elements**

## Warning

### Hazard statements

Causes skin irritation  
Causes serious eye irritation  
May cause respiratory irritation  
Flammable liquid and vapor



### Hazards not otherwise classified (HNOC)

Not Applicable

### Other hazards

Not available

### Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area  
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  
Wear protective gloves  
Wear eye/face protection

### Precautionary Statements - Response

*Specific treatment (see .? on this label)*

In case of fire: Use CO<sub>2</sub>, 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 skin irritation occurs: Get medical advice/attention

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

Wash contaminated clothing before reuse

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

### Precautionary Statements - Storage

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

### Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
N,N-Diethylformamide 617-84-5	617-84-5	100	*

### 4. FIRST AID MEASURES

#### First aid measures

##### **General Advice:**

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126)

##### **Skin Contact:**

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

##### **Eye Contact:**

Flush eyes with water for 15 minutes. Get medical attention. If symptoms persist, call a physician.

##### **Inhalation:**

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

##### **Ingestion:**

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

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

##### **Symptoms**

Causes serious eye irritation. Causes skin irritation. Irritating to respiratory system. May cause digestive (gastrointestinal) tract irritation. It may affect the kidneys. May affect the liver. Central nervous system effects.

#### 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

#### Extinguishing Media

##### **Suitable Extinguishing Media:**

Dry chemical. Carbon dioxide (CO<sub>2</sub>). Water spray, mist, or foam. . If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

##### **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:**

No information available.

##### **Specific hazards:**

Flammable  
May be combustible at high temperatures  
Fire may produce irritating and/or toxic gases

#### 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. Cool closed containers with flooding quantities of water until fire is out.

**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

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions:**

Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Wear personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. 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.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. Prevent product from entering drains.

### 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). Dike far ahead of liquid spill for later disposal.

**Methods for cleaning up**

Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. 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. Keep away from open flames, hot surfaces and sources of ignition. Keep away from incompatible materials. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Remove all sources of ignition.

**Safe Handling Advice**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not smoke. Do not breathe vapors or spray mist. Use only in well-ventilated areas. Keep away from open flames, hot surfaces and sources of ignition. 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. Store away from incompatible materials. Store in a segregated and approved area.

**Incompatible Materials:**

Oxidizing agents. Combustible materials.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters****National occupational exposure limits**

### United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
N,N-Diethylformamide 617-84-5	None	None	None	None

### Canada

Components	Alberta	British Columbia	Ontario	Quebec
N,N-Diethylformamide 617-84-5	None	None	None	None

### Australia and Mexico

Components	Australia	Mexico
N,N-Diethylformamide 617-84-5	None	None

### Appropriate engineering controls

#### Engineering measures to reduce exposure:

Ensure adequate ventilation, especially in confined areas. 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:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Be sure to use an approved/certified respirator or equivalent..

**Hygiene measures:** Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>Physical state:</b> Liquid	<b>Appearance:</b> No information available	<b>Color:</b> Brownish-yellow.
<b>Odor:</b> No information available	<b>Taste</b> No information available	<b>Molecular/Formula weight:</b> 101.15g/mol
<b>Formula:</b> C5H11NO	<b>Flammability:</b> No information available	<b>Flash point (°C):</b> No data available
<b>Flashpoint (°C/°F):</b> 60°C/140°F	<b>Flash Point Tested according to:</b> Closed cup	<b>Autoignition Temperature (°C/°F):</b> No information available
<b>Lower Explosion Limit (%):</b> No information available	<b>Upper Explosion Limit (%):</b> No information available	<b>pH:</b> No information available
<b>Melting point/range(°C/°F):</b> No information available	<b>Boiling point/range(°C/°F):</b> 176-177°C/349-351°F	<b>Decomposition temperature(°C/°F):</b> No information available
<b>Bulk density:</b> No information available	<b>Density (g/cm3):</b> 0.908	<b>Specific gravity:</b> No information available
<b>Vapor pressure @ 20°C (kPa):</b> No information available	<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> No information available
<b>VOC content (g/L):</b> No information available	<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> log Pow 0.05
<b>Viscosity:</b> No information available	<b>Miscibility:</b> Miscible with water	<b>Solubility:</b> Soluble in Ethanol Soluble in Ether Soluble in Water

## 10. STABILITY AND REACTIVITY

### Reactivity

No information available

### Chemical stability

**Stability:** Stable under recommended storage conditions

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Heat, flames and sparks.. Incompatible materials. Ignition sources.

**Incompatible Materials:** Oxidizing agents. Combustible materials.

**Hazardous decomposition products:** Carbon oxides. Nitrogen oxides (NOx).

### Other Information

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Product code:** D2358

**Product name:** N,N-DIETHYLFORMAMIDE

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**Principal Routes of Exposure:**  
Eyes. Ingestion. Inhalation. Skin.

**Acute Toxicity**

**Component Information**

*N,N-Diethylformamide - 617-84-5*

- LD50/oral/rat** = No information available
- LD50/oral/mouse** = No information available
- LD50/dermal/rat** = No information available
- LD50/dermal/rabbit** = No information available
- LC50/inhalation/rat** = No information available
- LC50/inhalation/mouse** = No information available
- Other LD50 or LC50 information** = 1740mg/kg LD50 ipr rat

**Product Information**

**LD50/oral/rat =**  
**VALUE- Acute Tox Oral** = No information available

**LD50/oral/mouse =**  
**Value - Acute Tox Oral** = No information available

**LD50/dermal/rabbit**  
**VALUE-Acute Tox Dermal** = No information available

**LD50/dermal/rat**  
**VALUE -Acute Tox Dermal** = No information available

**LC50/inhalation/rat**  
**VALUE-Vapor** = No information available  
**VALUE-Gas** = No information available  
**VALUE-Dust/Mist** = No information available

**LC50/Inhalation/mouse**  
**VALUE-Vapor** = No information available  
**VALUE - Gas** = No information available

**VALUE - Dust/Mist** = No information available

**Symptoms**

**Skin Contact:** Causes skin irritation.

**Eye Contact:** Causes serious eye irritation.

**Inhalation** Irritating to respiratory system. Symptoms may include coughing and wheezing. May cause headache, nausea, vomiting. Inhalation of vapors may cause drowsiness and dizziness.

**Ingestion** May cause digestive/gastrointestinal tract irritation. May cause central nervous system effects (affect behavior). May affect liver .

**Aspiration hazard** No information available

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

**Chronic Toxicity** Chronic exposure may affect the liver and kidneys.

**Sensitization:** No information available

**Mutagenic Effects:** No information available

**Carcinogenic effects:** Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
N,N-Diethylformamide	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

**Reproductive toxicity** No data is available

**Reproductive Effects:** No information available

**Developmental Effects:** No information available

**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** Respiratory system.

**STOT - repeated exposure** No information available

**Target Organs:** No information available

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.

**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. Dispose of in accordance with federal, state and local regulations Do not re-use empty containers Dispose of as unused product.

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
N,N-Diethylformamide	None	None	None	None



## 14. TRANSPORT INFORMATION

### DOT

**UN-No:** UN1993  
**Proper Shipping Name:** Flammable liquids, n.o.s.  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** I  
**ERG No:** 128  
**Marine Pollutant:** No data available  
**DOT RQ (lbs):** No information available  
**Symbol(s):** G

### TDG (Canada)

**UN-No:** UN1993  
**Proper Shipping Name:** Flammable liquid, n.o.s.  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** I  
**Description:** No information available

### ADR

**UN-No:** UN1993  
**Proper Shipping Name:** Flammable liquid, n.o.s.  
**Hazard Class:** 3  
**Packing Group:** I  
**Subsidiary Risk:** No information available  
**Classification Code:** No information available  
**Description:** No information available  
**CEFIC Tremcard No:** No information available

### IMO / IMDG

**UN-No:** UN1993  
**Proper Shipping Name:** Flammable liquid, n.o.s.  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** I  
**Description:** No information available  
**IMDG Page:** No information available  
**Marine Pollutant:** No information available  
**EMS:** F-E  
**MFAG:** No information available  
**Maximum Quantity:** No information available

### RID

**UN-No:** UN1993  
**Proper Shipping Name:** Flammable liquid, n.o.s.  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** I  
**Classification Code:** No information available  
**Description:** No information available

### ICAO

**UN-No:** UN1993  
**Proper Shipping Name:** Flammable liquid, n.o.s.

**14. TRANSPORT INFORMATION**

**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** I  
**Description:** No information available

**IATA**

**UN-No:** UN1993  
**Proper Shipping Name:** Flammable liquid, n.o.s.  
**Hazard Class:** 3  
**Subsidiary Risk:** No information available  
**Packing Group:** I  
**ERG Code:** 3H  
**Description:** No information available

**15. REGULATORY INFORMATION****International Inventories**

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>N,N-Diethylformamide</i>	Present	Not present	Present	Present (2)-3847	Present	Present	Present 210-533-2

**U.S. Regulations****California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.****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)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>N,N-Diethylformamide</i>	Not Listed	Not Listed	Not Listed	Not Listed

**CERCLA/SARA**

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
<i>N,N-Diethylformamide</i>	None	None	None	None	None

**U.S. TSCA**

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
<i>N,N-Diethylformamide</i>	Not Applicable	Not Applicable

**Canada****WHMIS hazard class:**

B3 Combustible liquid

**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.

**Inventory**

Components	Canada (DSL)	Canada (NDSL)
N,N-Diethylformamide	Not Listed	Present

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
N,N-Diethylformamide	Not listed	Not listed

**EU Classification****R-phrase(s)**

R36/37/38 - Irritating to eyes, respiratory system and skin.

**S -phrase(s)**

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37 - Wear suitable gloves.

Components	Classification	Concentration Limits:	Safety Phrases
N,N-Diethylformamide		No information	

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

**Indication of danger:**

Xi - Irritant.

Xi

**16. OTHER INFORMATION**

## 16. OTHER INFORMATION

**Preparation Date:** 7/16/2015  
**Revision Date:** 7/16/2015  
**Prepared by:** Sonia Owen

**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**