

Material Safety Data Sheet

N,N-Dimethylformamide

ACC# 07860

Section 1 - Chemical Product and Company Identification

MSDS Name: N,N-Dimethylformamide

Catalog Numbers: AC116220000, AC116220025, AC116220050, AC116220250, AC167790000, AC167790010, AC167790025, AC167795000, AC210580000, AC210580010, AC210580025, AC210580250, AC210585000, AC279600000, AC279600010, AC279600025, AC326870000, AC326870010, AC326870025, AC326871000, AC326872500, AC327170000, AC327175000, AC348430000, AC348430010, AC348430025, AC348431000, AC348435000, AC354830000, AC354830010, AC354830025, AC354830100, AC408310000, AC408320000, AC423640000, AC423640250, AC423645000, AC61032019, AC61032019, AC61032050, AC61032050, AC61032115, AC61032115, AC61032200, AC61032200, AC610530190, AC610530500, AC610531150, AC610532000, AC610730190, AC610730500, AC610731150, AC610732000, 11622-0010, 27960-0040, 40831-1000, 40832-5000, 42364-0010, 61032-0010, 61032-1000, 61094-1000, BP1160-4, BP1160-500, BP1160N219, BP1160POP-200, BP1160POP-50, BP1160POP20, BP1160RS-200, BP1160RS115, BP1160RS19, BP1160RS28, BP1160RS50, BP1160SS-50, D119-1, D119-20, D119-200, D119-4, D119-500, D11920LC, D119FB-200, D119FB115, D119FB19, D119FB50, D119J4, D119POP19, D119RB115, D119RB19, D119RB200, D119RB50, D119RS-200, D119RS115, D119RS28, D119RS50, D119S-4, D119SS115, D119SS200, D119SS28, D119SS50, D131-1, D131-4, D131POP-50, D131RS-19, D131RS-200, D132-1, D132RS-19, D132RS-50, NC9542368, NC9734650, PS03494, S79999SPEC

Synonyms: N,N-Dimethylmethanamide; DMF; Dimethylformamide.**Company Identification:**

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
68-12-2	N,N-Dimethylformamide	99+	200-679-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: APHA: 20 max liquid. Flash Point: 58 deg C.

Warning! Flammable liquid and vapor. May cause harm to the unborn child. Harmful if absorbed

through skin or if inhaled. Lachrymator (substance which increases the flow of tears). Causes eye and skin irritation. May cause respiratory tract irritation. May cause liver and kidney damage. May cause central nervous system effects.

Target Organs: Blood, kidneys, central nervous system, liver, spleen, respiratory system, gastrointestinal system, eyes, skin.

Potential Health Effects

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

Skin: Causes skin irritation. Harmful if absorbed through the skin. Substance is rapidly absorbed through the skin.

Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. May be harmful if swallowed.

Inhalation: Harmful if inhaled. May cause respiratory tract irritation. May cause central nervous system effects.

Chronic: Prolonged or repeated skin contact may cause dermatitis. Repeated exposure may cause damage to the spleen. Adverse reproductive effects have been reported in animals. Laboratory experiments have resulted in mutagenic effects. Chronic exposure may cause blood effects. Possible risk of harm to the unborn child.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Immediately flush eyes with plenty of water for at least 15 minutes.

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. Get medical aid immediately. Call a poison control center.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire. Flammable liquid and vapor.

Extinguishing Media: Use water spray to cool fire-exposed containers. Use foam, dry chemical, or carbon dioxide.

Flash Point: 58 deg C (136.40 deg F)

Autoignition Temperature: 445 deg C (833.00 deg F)

Explosion Limits, Lower: 2.2 vol %

Upper: 16 vol %

NFPA Rating: (estimated) Health: 2; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
N,N-Dimethylformamide	10 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous route	10 ppm TWA; 30 mg/m ³ TWA 500 ppm IDLH	10 ppm TWA; 30 mg/m ³ TWA

OSHA Vacated PELs: N,N-Dimethylformamide: 10 ppm TWA; 30 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear, colorless - APHA: 20 max

Odor: amine-like

pH: 6 - 8 @ 20% aq.sol.

Vapor Pressure: 4.9 mbar @ 20 C

Vapor Density: 2.5 (air=1)
Evaporation Rate:0.17 (butylacetate=1)
Viscosity: 0.8 mPas @ 20 C
Boiling Point: 153 deg C
Freezing/Melting Point:-61 deg C
Decomposition Temperature:Not available.
Solubility: Soluble.
Specific Gravity/Density:0.94
Molecular Formula:C3H7NO
Molecular Weight:73.09

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat.

Incompatibilities with Other Materials: Reducing agents, acids, alkali metals, halogenated agents, nitrates, metal oxides, chloroformates.

Hazardous Decomposition Products: Carbon monoxide, oxides of nitrogen, oxides of nitrogen, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 68-12-2: LQ2100000

LD50/LC50:

CAS# 68-12-2:

Inhalation, mouse: LC50 = 9400 mg/m³/2H;

Inhalation, rat: LC50 = 3421 ppm/1H;

Inhalation, rat: LC50 = 3421 ppm/3H;

Inhalation, rat: LC50 = 1948 ppm/4H;

Oral, mouse: LD50 = 2900 mg/kg;

Oral, rabbit: LD50 = 5 gm/kg;

Oral, rat: LD50 = 2800 mg/kg;

Skin, rabbit: LD50 = 4720 mg/kg;

Skin, rat: LD50 = >3.2 gm/kg;

Carcinogenicity:

CAS# 68-12-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found IARC Group 3: Limited or insufficient evidence for carcinogenicity in both animals and humans.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Mutagenicity: Mutagenic effects have occurred in humans.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	N,N-DIMETHYLFORMAMIDE	N,N-DIMETHYLFORMAMIDE
Hazard Class:	3	3
UN Number:	UN2265	UN2265
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 68-12-2 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 68-12-2: Effective 4/13/89, Sunset 12/19/95

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 68-12-2: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 68-12-2: immediate, fire.

Section 313

This material contains N,N-Dimethylformamide (CAS# 68-12-2, 99+%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

Clean Air Act:

CAS# 68-12-2 is listed as a hazardous air pollutant (HAP).
 This material does not contain any Class 1 Ozone depleters.
 This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.
 None of the chemicals in this product are listed as Priority Pollutants under the CWA.
 None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 68-12-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T

Risk Phrases:

R 20/21 Harmful by inhalation and in contact with skin.
 R 36 Irritating to eyes.
 R 61 May cause harm to the unborn child.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
 S 53 Avoid exposure - obtain special instructions before use.

WGK (Water Danger/Protection)

CAS# 68-12-2: 1

Canada - DSL/NDSL

CAS# 68-12-2 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, D2A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 68-12-2 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 5/25/1999

Revision #9 Date: 7/30/2008

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.