

MATERIAL SAFETY DATA SHEET

N,N-Dimethylformamide

SECTION 1 . Product and Company Identification

Product Name and Synonym: N,N-Dimethylformamide
Product Code: D4850
Material Uses:
Manufacturer: Science Stuff
1104 Newport Ave
Austin, TX 78753
(512) 837-6020
Entry Date : 6/3/2013
Print Date: 6/3/2013
24 Hour Emergency Assistance : Chemtrec 800-424-9300
Canutec 613-996-6666

Health:	3			
Flammability:	2			
Reactivity:	0			
Hazard Rating:				
Least	Slight	Moderate	High	Extreme
0	1	2	3	4
NA=Not Applicable		NE=Not Established		

SECTION 2 HAZARD IDENTIFICATION

Keep away from heat and ignition sources. Harmful if swallowed. Avoid breathing vapors. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.

Physical state: Liquid.

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview:

WARNING!

CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

HAMFUL IF INHALED OR ABSORBED THROUGH THE SKIN OR SWALLOWED

CAUSES DAMAGE TO THE FOLLOWING ORGANS:

KIDNEYS, LIVER,
CARDIOVASCULAR SYSTEM,
RESPIRATORY TRACT, SKIN, EYES
VAPOR MAY CAUSE FLASH FIRE.
FLAMMABLE LIQUID AND VAPOR.

Keep away from heat, sparks and flame.

Do not breath vapor or mist. Do not ingest. Do

not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry:

Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:

Eyes: Irritating to eyes.

Skin: Toxic in contact with skin. Irritating to skin.

Inhalation: Toxic by inhalation. Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion: Toxic if swallowed.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity/ Reproductive toxicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Target organs: May cause damage to the following organs: kidneys, liver,

N,N-Dimethylformamide

cardiovascular system, upper respiratory tract
skin, eyes
Medical conditions aggravated by over-exposure:
Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk
may be aggravated by over-exposure to this product

SECTION 3 MIXTURE COMPONENTS

SARA 313	Component	CAS Number	Percent Comp.	Dimension	Exposure Limits
<input checked="" type="checkbox"/>	N,N-Dimethylformamide	CAS# 68-12-2	100%	V/V	ACGIH TWA 10 ppm

SECTION 4 FIRST AID MEASURES

Keep away from heat and ignition sources. Harmful if swallowed. Avoid breathing vapors. Use with adequate ventilation. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.

FIRST AID: CALL A PHYSICIAN. SKIN: Remove contaminated clothing. Wash exposed area with soap and water.

EYES: Wash eyes with plenty of water for at least 15 minutes, lifting lids occasionally. Seek Medical Aid. INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen

INGESTION: Give several glasses of milk or water. Vomiting may occur spontaneously, but DO NOT INDUCE! Never give anything by mouth to an unconscious person.

SECTION 5 FIRE FIGHTING MEASURES

Fire Extinguisher Type:	Water spray, Carbon dioxide, dry chemical, powder, foam.
Fire / Explosion Hazards:	Vapor may travel considerable distance to source of ignition and flash back.
Fire Fighting Procedure:	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and clothing.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Evacuate area. Wear self-contained breathing apparatus and protective clothing. Eliminate all sources of ignition.

Personal precautions: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personal from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-Proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for

N,N-Dimethylformamide

emergency contact information and section 13 for waste disposal. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

SECTION 7 HANDLING AND STORAGE

Store in a cool dry well ventilated area. Keep away from heat and flame. Do not get in eyes, on skin, or on clothing.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: NIOSH/MSHA-approved respirator

Ventilation

Local Exhaust

Mechanical

Protective Gloves: NIOSH Approved Gloves

Eye Protection: Splash Goggles

Other Protective Equipment: Wear appropriate clothing to prevent skin exposure

Product name - United States –

Dimethylformamide

ACGIH TLV (United States, 1/2008) Absorbed through skin.

TWA: 10 ppm 8 hour(s)

TWA: 30 mg/m³ 8 hour(s)

OSHA PEL 1989 (United States, 3/1989) Absorbed through skin

TWA: 10 ppm 8 hour(s)

TWA: 30 mg/m³ 8 hour(s)

NIOSH REL (United States, 6/2008) Absorbed through skin

TWA: 10 ppm 8 hour(s)

TWA: 30 mg/m³ 8 hour(s)

OSHA PEL (United States, 11/2006) Absorbed through skin

TWA: 10 ppm 8 hour(s)

TWA: 30 mg/m³ 8 hour(s)

Engineering measures: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection

Eyes: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Recommended: splash goggles

N,N-Dimethylformamide

Skin: Personal protective equipment for the body should be selected based on the task being performed and risks involved and should be approved by a specialist before handling this product.

Body recommended: lab coat

Respiratory: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Recommended: nitrile rubber

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Melting Point:	-61°C	Percent Volatile by Volume:	>99
Boiling Point:	153°C	Evaporation Rate	>1
Vapor Pressure:	2.6 mm Hg	Evaporation Standard	Butylacetate =1
Vapor Density:	2.6	Auto Ignition Temp	Information not available
Solubility in Water:	Miscible	Lower Flamm. Limit in Air	2.2
Appearance /Odors:	Colorless liquid, amine odor	Upper Flamm. Limit in Air	15.2
Flash Point:	136°C		
Specific Gravity:	0.949		

SECTION 10 STABILITY AND REACTIVITY INFORMATION

Stability:	Stable
Conditions to Avoid:	Moisture, heat, open flame
Materials to Avoid:	Oxidizing materials, chlorides, nitrates, bromine, hydrocarbons
Hazardous Decomposition Products:	Dimethylamine, Oxides of carbon
Hazardous polymerization:	Will Not Occur
Conditions to Avoid:	None known

SECTION 11 Toxicological Information

Toxicity data- United States- Product/ ingredient name:

Dimethylformamide			
LD	>3160 mg/kg	Dermal	Rat
LD50	1400 mg/kg	Intraperitoneal	Rat
LD50	4 g/kg	Intraperitoneal	Rat
LD50	2 g/kg	Intravenous	Rat
LD50	>3.2 g/kg	Dermal	Rat

N,N-Dimethylformamide

LD50	4720 mg/kg	Dermal	Rabbit
LD50	2000 mg/kg	Oral	Rat
LD50	2900 mg/kg	Oral	Mouse
LD50	4000 mg/kg	Oral	Rat
LD50	3800 mg/kg	Subcutaneous	Rat
LD50	>3 g/kg	Unreported	Rat
LDLo	1000 mg/kg	Subcutaneous	Rat
LDLo	2000 mg/kg	Oral	Rat
TDLo	500 mg/kg	Oral	Rat
LC50	3421 ppm	Inhalation Gas	Rat
LC50	1948 ppm	Inhalation Gas	Rat
LC50	3421 ppm	Inhalation Gas	Rat

Carcinogenic effects: No known significant effects or critical hazards.

Mutagenic effects: No known significant effects or critical hazards.

Teratogenicity/Reproductive toxicity: No known significant effects or critical hazards.

SECTION 12 Ecological Information

Aquatic toxicity

Product/ ingredient name

Dimethylformamide

Acute EC50 14.1 to 14.4 g/L Fresh water Daphnia – Water flea – Daphnia magna 48 hours

Acute EC50 8485 mg/L Fresh water Daphnia – Water flea – Daphnia magna - <24 hours 2 days

Acute EC50 7500 mg/L Fish 48 hours

Acute EC50 4500 mg/L Daphnia 48 hours

Acute EC50 14.1 mg/L Daphnia 48 hours

Acute EC50 7100000 to 7500000 ug/L Fresh water Fish – Bluegill – Lepomis macrochirus – 0.912 g 96 hours

Acute EC50 4500000 to 5200000 ug/L Fresh water Daphnia – Water flea – Daphnia magna - <=6 hours 48 hours

Acute EC50 11300000 ug/L Fresh water Daphnia – Water flea – Daphnia magna - <=196 hours 48 hours

Acute EC50 11000000 to 13900000 ug/L Fresh water Daphnia – Water flea – Daphnia magna - <=24 hours 48 hours

Acute EC50 10600000 to 10800000 ug/L Fresh water Fish – Fathead minnow – Pimephales promelas – 28 to 32 days – 0.047 g 96 hours

Acute EC50 9800000 to 10700000 ug/L Fresh water Fish – Rainbow trout, Donaldson trout – Oncorhynchus mykiss – Juvenile (Fledgling, Hatchling, Weanling) – 5.08 g

Acute EC50 13600000 to 15500000 ug/L Fresh water Daphnia – Water flea – Daphnia magna - <=96 hours 48 hours

Acute EC50 11900000 to 13200000 ug/L Fresh water Daphnia – Water flea – Daphnia magna - <=24 hours 48 hours

Acute LC50 >100000 ug/L Marine water Crustaceans – Common shrimp – Crangon crangon – Adult 48 hours

Acute LC50 9800 mg/L Fish 96 hours

Acute LC50 10600000 to 10800000 ug/L Fresh water Fish - Fathead minnow – Pimephales promelas – 28 to 32 days – 0.047 g

Acute LC50 10500000 to 11900000 ug/L Fresh water Fish – Fathead minnow – Pimephales promelas – 19 mm – 0.056 g

Acute LC50 10410000 to 18967000 ug/L Fresh water Fish – Fathead minnow – Pimephales promelas – 2 to 3 months – 19 mm – 0.06 g 96 hours

Acute LC50 9800000 to 10700000 ug/L Fresh water Fish – Rainbow trout, Donaldson trout – Oncorhynchus mykiss - Juvenile (Fledgling, Hatchling, Weanling) – 5.08 g

Acute LC50 12 to 13 ml/L Fresh water Fish – Rainbow trout, Donaldson trout – Oncorhynchus mykiss – 0.8g

Acute LC 50 10410 mg/l Fish 96 hours

Acute LC50 7100000 to 7500000 ug/L Fresh water Fish – Bluegill – Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling) – 0.912 g

Acute LC50 7100 mg/L Fish 96 hours

Acute LC 13000 to 16000 ul/L Fresh water Daphnia – Water flea – Daphnia magna - <=24 hours 48 hours

Chronic NOEC 6 g/L Fresh water Daphnia – Water flea – Daphnia magna 48 hours

Chronic NOEC 6000 mg/L Fresh water Daphnia – Water flea – Daphnia magna - <24 hours 48 hours

Environmental effects : No known significant effects or critical hazards.

Other adverse effects : No known significant effects or critical hazards.

N,N-Dimethylformamide

SECTION 13 Disposal Considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14 Transport Information

DOT Classification: N,N-Dimethylformamide, 3, UN2265, PG III

DOT Regulations may change from time to time. Please consult the most recent D.O.T. regulations.

SECTION 15 Regulatory Information

United States

HCS Classification:
Target organ effects
Toxic material
Irritating material
Combustible liquid

U.S. Federal regulations:

United States inventory (TSCA 8b): listed
TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
SARA 302/304/311/312 extremely hazardous substances: No products were found
SARA 302/304 emergency planning and notifications: No products were found
SARA 302/304/311/312 hazardous chemicals: Dimethylformamide
SARA 311/312 MSDS distribution- Chemical inventory- hazard identification:
Dimethylformamide
Fire Hazard:
, Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: No products were found
Clean Water Act (CWA) 311: No products were found
Clean Air Act (CAA) 112 accidental release prevention: No products were found
Clean Air Act (CAA) 112 regulated flammable substance: No products were found.
Clean Air Act (CAA) 112 regulated toxic substance: No products were found

DEA List I Chemicals : not listed
(Precursor Chemicals)
DEA List II Chemicals : not listed
(essential Chemicals)

SARA 313
Form R – Reporting Requirements: Dimethylformamide
CAS number : 68-12-2 Concentration : 100

Supplier notification : Dimethylformamide
CAS number : 68-12-2 Concentration : 100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Massachusetts Substance : This material is listed.
New Jersey Hazardous Substances : This material is listed.
New York Acutely Hazardous Substances : This material is listed.
Pennsylvania RTK Hazardous Substances : This material is listed.
Canada
WHMIS (Canada) :
Class B-3: Combustible liquid with a flash point between 37.8 C (100 F) and 93.3 C (200 F)
Class D-2B: Material causing other toxic effects (Toxic).
Canadian lists : CEPA Toxic Substance: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.

N,N-Dimethylformamide

Alberta Designated Substances: This material is not listed.

Ontario Designated Substances: This material is not listed.

Quebec Designated Substances: This material is not listed.

CEPA DSL/ CEPA NDSL : CEPA DSL:

This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

SECTION 16

Additional Information

Flammability

Health

Reactivity

Revisions

NFPA

0.2

The information herein is believed to be accurate and is offered in good faith for the user's consideration and investigation. No warranty either expressed or implied is made for the completeness or accuracy of the information whether originating from the above mentioned company or not. Users of this material should satisfy themselves by independent investigation of current scientific and medical knowledge that the material can be used safely.