

SAFETY DATA SHEET

476-Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

SECTION 1. IDENTIFICATION

Product name : 476-Thinner aka N,N Dimethylformamide

SDS-Identcode : 130000000031

Manufacturer or supplier's details

Company name of supplier : Hitt Marking Devices

Address : 3231 W. MacArthur Blvd., Santa Ana, CA 92704.
United States of America (USA)

Telephone : 714-979-1405

Emergency telephone : Medical emergency: 1-800-424-9300 (outside USA, Puerto Rico and Canada, call 1-703-527-3887)

Recommended use of the chemical and restrictions on use

Recommended use : Solvent

Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids : Category 3

Acute toxicity (Inhalation) : Category 3

Acute toxicity (Dermal) : Category 4

Eye irritation : Category 2A

Reproductive toxicity : Category 1B

Specific target organ toxicity : Category 2 (Liver)
- repeated exposure

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapor.
H312 Harmful in contact with skin.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H360 May damage fertility or the unborn child.

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version	Revision Date:	SDS Number:	Date of last issue: 04/04/2024
7.2	09/12/2023	1324286-00040	Date of first issue: 02/27/2017

H373 May cause damage to organs (Liver) through prolonged or repeated exposure.

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 + P312 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance
Substance name : N,N-Dimethylformamide

SAFETY DATA SHEET

476-Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

CAS-No. : 68-12-2

Components

Chemical name	CAS-No.	Concentration (% w/w)
N,N-Dimethylformamide	68-12-2	>= 90 - <= 100

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : Eye contact may provoke the following symptoms
Pain
tearing
Swelling of tissue
Redness
Impairment of vision
Skin contact may provoke the following symptoms:
Swelling of tissue
Itching
Discomfort
Redness
Harmful in contact with skin.
Causes serious eye irritation.
Toxic if inhaled.
May damage fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment

SAFETY DATA SHEET

476-Thinner N,N Dimethylformamide

Version	Revision Date:	SDS Number:	Date of last issue: 04/04/2024
7.2	09/12/2023	1324286-00040	Date of first issue: 02/27/2017

when the potential for exposure exists (see section 8).

Notes to physician : Treat symptomatically and supportively.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Do not use a solid water stream as it may scatter and spread fire.
Flash back possible over considerable distance.
Vapors may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NO_x)
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.
Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g., by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Non-sparking tools should be used.
Soak up with inert absorbent material.
Suppress (knock down) gases/vapors/mists with a water spray jet.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be
-

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2	Revision Date: 09/12/2023	SDS Number: 1324286-00040	Date of last issue: 04/04/2024 Date of first issue: 02/27/2017
----------------	------------------------------	------------------------------	---

pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation. If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.
- Advice on safe handling : Do not get on skin or clothing.
Do not breathe vapors or spray mist.
Do not swallow.
Do not get in eyes.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Non-sparking tools should be used.
Keep container tightly closed.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Keep in properly labeled containers.
Store locked up.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.
Keep away from heat and sources of ignition.
- Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
Organic peroxides
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures which in contact with water emit flammable gases
Explosives
Gases
- Recommended storage temperature : < 129.9 °F / < 54.4 °C

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2	Revision Date: 09/12/2023	SDS Number: 1324286-00040	Date of last issue: 04/04/2024 Date of first issue: 02/27/2017
----------------	------------------------------	------------------------------	---

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
N,N-Dimethylformamide	68-12-2	TWA	5 ppm	ACGIH
		TWA	10 ppm 30 mg/m ³	NIOSH REL
		TWA	10 ppm 30 mg/m ³	OSHA Z-1

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Carbon monoxide	630-08-0	TWA	25 ppm	ACGIH
		TWA	35 ppm 40 mg/m ³	NIOSH REL
		C	200 ppm 229 mg/m ³	NIOSH REL
		TWA	50 ppm 55 mg/m ³	OSHA Z-1
Dimethylamine	124-40-3	TWA	5 ppm	ACGIH
		STEL	15 ppm	ACGIH
		TWA	10 ppm 18 mg/m ³	NIOSH REL
		TWA	10 ppm 18 mg/m ³	OSHA Z-1
Formic acid	64-18-6	TWA	5 ppm	ACGIH
		STEL	10 ppm	ACGIH
		TWA	5 ppm 9 mg/m ³	NIOSH REL
		TWA	5 ppm 9 mg/m ³	OSHA Z-1
Nitrogen dioxide	10102-44-0	TWA	0.2 ppm	ACGIH
		ST	1 ppm 1.8 mg/m ³	NIOSH REL
		C	5 ppm 9 mg/m ³	OSHA Z-1
Nitrogen monoxide	10102-43-9	TWA	25 ppm	ACGIH
		TWA	25 ppm 30 mg/m ³	NIOSH REL
		TWA	25 ppm 30 mg/m ³	OSHA Z-1

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version
7.2

Revision Date:
09/12/2023

SDS Number:
1324286-00040

Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
N,N-Dimethylformamide	68-12-2	Total N - Methylforma mide	Urine	End of shift (As soon as possible after exposure ceases)	30 mg/l	ACGIH BEI
		N-Acetyl-S-(N-methylcarba moyl) cysteine	Urine	End of shift at end of work-week	30 mg/l	ACGIH BEI

Engineering measures : Processing may form hazardous compounds (see section 10).
Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection
Material : Neoprene

Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often!

Eye protection : Wear the following personal protective equipment:
Safety goggles

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
-

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Color : colorless
- Odor : slight, amine-like
- Odor Threshold : No data available
- pH : 8
- Melting point/freezing point : -78 °F / -61 °C
- Initial boiling point and boiling range : 307 °F / 153 °C
(1,013 hPa)
- Flash point : 136 °F / 58 °C
Method: ASTM D 93
- Evaporation rate : 0.5
(Butyl Acetate=1.0)
- Flammability (solid, gas) : Not applicable
- Flammability (liquids) : No data available
- Upper explosion limit / Upper flammability limit : 15.2 %(V)
- Lower explosion limit / Lower flammability limit : 2.2 %(V)
- Vapor pressure : 3.5 hPa (68 °F / 20 °C)
-

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

10.7 hPa (100 °F / 38 °C)

Relative vapor density : 2.5

Relative density : 0.949 (68 °F / 20 °C)

Solubility(ies)
Water solubility : soluble

Partition coefficient: n-octanol/water : No data available

Autoignition temperature : 833 °F / 445 °C

Decomposition temperature : > 662 °F / > 350 °C

Viscosity
Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Particle size : Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Flammable liquid and vapor.
Vapors may form explosive mixture with air.
Can react with strong oxidizing agents.
Hazardous decomposition products will be formed at elevated temperatures.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : Oxidizing agents

Hazardous decomposition products

Thermal decomposition : Carbon monoxide
Dimethylamine
Formic acid
Nitrogen dioxide
Nitrogen monoxide

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful in contact with skin.
Toxic if inhaled.

Product:

Acute oral toxicity : Acute toxicity estimate: 3,011 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 4.7 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 1,501 mg/kg
Method: Calculation method

Components:

N,N-Dimethylformamide:

Acute oral toxicity : LD50 (Rat): 3,010 mg/kg

Acute inhalation toxicity : LC50 (Mouse): 4.7 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): 1,500 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Not classified based on available information.

Components:

N,N-Dimethylformamide:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

N,N-Dimethylformamide:

Species : Rabbit
Result : Irritation to eyes, reversing within 21 days

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

N,N-Dimethylformamide:

Test Type : Local lymph node assay (LLNA)
Routes of exposure : Skin contact
Species : Mouse
Method : OECD Test Guideline 406
Result : negative

Germ cell mutagenicity

Not classified based on available information.

Components:

N,N-Dimethylformamide:

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Not classified based on available information.

Components:

N,N-Dimethylformamide:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

IARC Group 2A: Probably carcinogenic to humans
N,N-Dimethylformamide 68-12-2

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

May damage fertility or the unborn child.

Components:

N,N-Dimethylformamide:

Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

STOT-single exposure

Not classified based on available information.

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

STOT-repeated exposure

May cause damage to organs (Liver) through prolonged or repeated exposure.

Components:

N,N-Dimethylformamide:

Target Organs : Liver
Assessment : Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

Repeated dose toxicity

Components:

N,N-Dimethylformamide:

Species : Rat
NOAEL : 238 mg/kg
LOAEL : 475 mg/kg
Application Route : Ingestion
Exposure time : 28 d
Symptoms : Liver effects

Species : Rat
NOAEL : 0.08 mg/l
LOAEL : 0.30 mg/l
Application Route : inhalation (dust/mist/fume)
Exposure time : 2 y
Symptoms : Liver effects

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

N,N-Dimethylformamide:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 7,100 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 13,100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 1,000 mg/l
Exposure time: 72 h

NOEC (Pseudokirchneriella subcapitata (green algae)): 940 mg/l
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 1,500 mg/l
Exposure time: 21 d

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

Persistence and degradability

Components:

N,N-Dimethylformamide:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 95 %
Exposure time: 7 d
Method: OECD Test Guideline 302B

Bioaccumulative potential

Components:

N,N-Dimethylformamide:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 0.3 - 1.2
Method: OECD Test Guideline 305C

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous.
Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 2265
Proper shipping name : N,N-DIMETHYLFORMAMIDE
Class : 3
Packing group : III
Labels : 3

IATA-DGR

UN/ID No. : UN 2265
Proper shipping name : N,N-Dimethylformamide
Class : 3
Packing group : III
Labels : Flammable Liquids

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

Packing instruction (cargo aircraft) : 366

Packing instruction (passenger aircraft) : 355

IMDG-Code

UN number : UN 2265

Proper shipping name : N,N-DIMETHYLFORMAMIDE

Class : 3

Packing group : III

Labels : 3

EmS Code : F-E, S-D

Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number : UN 2265

Proper shipping name : N,N-Dimethylformamide

Class : 3

Packing group : III

Labels : FLAMMABLE LIQUID

ERG Code : 129

Marine pollutant : no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, pack age sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
N,N-Dimethylformamide	68-12-2	100	100
Sodium	7440-23-5	10	*
Dimethylamine	124-40-3	1000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Serious eye damage or eye irritation
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version 7.2 Revision Date: 09/12/2023 SDS Number: 1324286-00040 Date of last issue: 04/04/2024
Date of first issue: 02/27/2017

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

N,N-Dimethylformamide 68-12-2 >= 90 - <= 100 %

US State Regulations

Pennsylvania Right To Know

N,N-Dimethylformamide 68-12-2

California Prop. 65

WARNING: This product can expose you to chemicals including N,N-Dimethylformamide, which is/are known to the State of California to cause cancer, and N,N-Dimethylacetamide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

N,N-Dimethylformamide 68-12-2

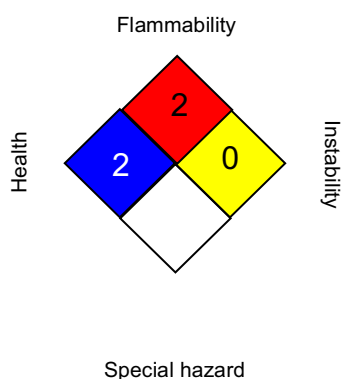
California Permissible Exposure Limits for Chemical Contaminants

N,N-Dimethylformamide 68-12-2

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	*	2
FLAMMABILITY		2
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Belle Chemical Company and the Belle Chemical Company Logo are trademarks of The Belle Company.

Before use read Belle Chemical Company's safety information.

For further information contact the local Belle Chemical Company office or nominated distributors.

All chemical substances in this material are included on or exempted from listing on the TSCA

SAFETY DATA SHEET

476-Thinner N,N Dimethylformamide

Version	Revision Date:	SDS Number:	Date of last issue: 04/04/2024
7.2	09/12/2023	1324286-00040	Date of first issue: 02/27/2017

Inventory of Chemical Substances

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH- Biological Exposure Indices (BEI)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA)- Table Z-1 Limits for Air Contaminants

ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek

NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday

NIOSH REL / C : Ceiling value not be exceeded at any time.
OSHA Z-1 / TWA : 8-hour time weighted average
OSHA Z-1 / C : Ceiling

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

SAFETY DATA SHEET

476 Thinner N,N Dimethylformamide

Version	Revision Date:	SDS Number:	Date of last issue: 04/04/2024
7.2	09/12/2023	1324286-00040	Date of first issue: 02/27/2017

Revision Date : 04/04/2024

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8