DMF(N,N-Dimethylformamide) SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

* Product Name: DMF(N,N-Dimethylformamide)
* Catalog Number: S6192
* CAS Number: 68-12-2
* IUPAC Name: Formamide, N,N-dimethyl-

Relevant identified uses and uses advised against

* Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
* Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

* Company: Selleck Chemicals
* TollFree: +1 877 796-6397
* Tel: +1 832 582-8158
* Fax: +1 832 582-8590

Emergency telephone number

* Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

Flammable liquids: Category 3. H226
Acute toxicity (oral): Category 5. H303
Acute toxicity (dermal): Category 4. H312
Acute toxicity (dermal): Category 5. H313
Skin irritation: Category 2. H315
Serious eye damage: Category 1. H318
Serious eye irritation: Category 2. H319
Eye irritation: Category 2. H320
Acute toxicity (inhalation): Category 3. H331
Acute toxicity (inhalation): Category 4. H332
Germ cell mutagenicity: Category 2. H341
Carcinogenicity: Category 1. H350
Reproductive toxicity: Category 1. H360
Not classified. H360D
Specific target organ toxicity (single exposure): Category 1. H370
Specific target organ toxicity (single exposure): Category 2. H371
Specific target organ toxicity (repeated exposure): Category 1. H372

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word Danger

Hazard statement(s)

H226: Flammable liquid and vapor
H303: May be harmful if swallowed
H312: Harmful in contact with skin
H313: May be harmful in contact with skin
H315: Causes skin irritation
H318: Causes serious eye damage
H319: Causes serious eye irritation
H320: Causes eye irritation
H331: Toxic if inhaled
H332: Harmful if inhaled
H341: Suspected of causing genetic defects
H350: May cause cancer
H360: May damage fertility or the unborn child
H360D: May damage the unborn child
H370: Causes damage to organs
H371: May cause damage to organs
H372: Causes damage to organs through prolonged or repeated exposure

Precautionary statement(s) None.

Prevention

P203: Obtain, read and follow all safety instructions before use.
P210: Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
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 dust/fume/gas/mist/vapors/spray.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P264: Wash hands thoroughly after handling.
P264+P265: Wash hands thoroughly after handling. Do not touch eyes.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Response	P301+P317: IF SWALLOWED: Get medical help. P302+P352: IF ON SKIN: wash with plenty of water. P303+P361: IF ON SKIN (or hair): Take off immediately all contaminated clothing. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351: IF IN EYES: Rinse cautiously with water for several minutes. P305+P354: IF IN EYES: Immediately rinse with water for several minutes. P308+P316: IF exposed or concerned: Get emergency medical help immediately. P316: Get emergency medical help immediately. P317: Get emergency medical help. P318: if exposed or concerned, get medical advice. P319: Get medical help if you feel unwell. P321: Specific treatment (see information on this label and safety datasheet)). P332+P317: If skin irritation occurs: Get medical help. P337+P317: If eye irritation persists: Get medical help. P338: Remove contact lenses, if present and easy to do. Continue rinsing. P353: Rinse skin with water [or shower]. P362+P364: Take off contaminated clothing and wash it before reuse. P370+P378: In case of fire: Use water spray, dry chemical, carbon dioxide, or appropriate foam to extinguish.
Storage	P403+P233: Store in a well-ventilated place. Keep container tightly closed. P403+P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.
Disposal	P501: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: DMF(N,N-Dimethylformamide)

CAS Number: 68-12-2

PubChem CID: 6228

Molecular formula: C3H7NO

Molecular weight: 73.09 g/mol

IUPAC name: N,N-dimethylformamide

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: Fresh air, rest. Refer for medical attention.

Skin contact: Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

Eye contact: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Dry chemical, carbon dioxide (CO2), alcohol-resistant foam, water spray.

Unsuitable: High-pressure water jet (may spread fire).

5.2 Specific hazards arising from the substance or mixture

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]:

CAUTION: The majority of these products have a very low flash point. Use of water spray when fighting fire may be inefficient.

SMALL FIRE: Dry chemical, CO2, water spray or alcohol-resistant foam. Do not use dry chemical extinguishers to control fires involving nitromethane (UN1261) or nitroethane (UN2842).

LARGE FIRE: Water spray, fog or alcohol-resistant foam. Avoid aiming straight or solid streams directly onto the product. If it can be done safely, move undamaged containers away from the area around the fire.

FIRE INVOLVING TANKS, RAIL TANK CARS OR HIGHWAY TANKS: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks in direct contact with flames. For massive fire, use unmanned master stream devices or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2024)

Use water spray, powder, alcohol-resistant foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

Wear self contained breathing apparatus for fire fighting if necessary.

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Use water spray to cool unopened containers.

If material on fire or involved in fire: Use water in flooding quantities as fog. Solid streams of water may be ineffective. Use "alcohol" foam, dry chemical or carbon dioxide. Apply water from as far a distance as possible. Keep run-off water out of sewers and water sources.

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

Flash point: 153 °F (NTP, 1992)

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

WARNING: Highly toxic — only trained personnel should handle spills.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

· CALL 911. Then call emergency response telephone number on shipping paper. If shipping paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.

· Keep unauthorized personnel away.

· Stay upwind, uphill and/or upstream.

· Ventilate closed spaces before entering, but only if properly trained and equipped.

· ELIMINATE all ignition sources (no smoking, flares, sparks or flames) from immediate area.

· All equipment used when handling the product must be grounded.

· Do not touch or walk through spilled material.

· Stop leak if you can do it without risk.

· Prevent entry into waterways, sewers, basements or confined areas.

· A vapor-suppressing foam may be used to reduce vapors.

· Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

· Use clean, non-sparking tools to collect absorbed material.

Large Spill

· Dike far ahead of liquid spill for later disposal.

· Water spray may reduce vapor, but may not prevent ignition in closed spaces.

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]:

IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area for at least 50 meters (150 feet) in all directions.

LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet).

FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Immediate precautionary measure

· Isolate spill or leak area for at least 50 meters (150 feet) in all directions.

Large Spill

· Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

· If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

SRP: The most favorable course of action is to use an alternative chemical product with less inherent propensity for occupational harm/injury/toxicity or environmental contamination. Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in soil or water; effects on animal and plant life; and conformance with environmental and public health regulations.

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a permitted wastewater treatment facility is acceptable only after review by the governing authority and assurance that "pass through" violations will not occur. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must be evaluated in accordance with EPA 40 CFR Part 261, specifically Subpart B, in order to determine the appropriate local, state and federal requirements for disposal.

Recovering: Burn in soln in flammable solvent in furnace equipped with alkali scrubber. Recovery and recycle is an alternative to disposal for dimethyl formamide (DMF) from fiber spin baths and from PVC /polyvinyl chloride/ reactor cleaning solvents. Recommendable method: Incineration.

Product: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The worker should immediately wash the skin when it becomes contaminated.

For more Preventive Measures (Complete) data for N,N-DIMETHYLFORMAMIDE (10 total), please visit the HSDB record page.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames) from immediate area. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor-suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean, non-sparking tools to collect absorbed material.

LARGE SPILL: Dike far ahead of liquid spill for later disposal. Water spray may reduce vapor, but may not prevent ignition in closed spaces. (ERG, 2024)

Separated from incompatible materials. See Chemical Dangers.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Handle and store under inert gas.

Ideal materials for ... storage are nonalloy (carbon) steels, austenitic chromium nickel steels ... and aluminum. Seals ... should be made of polytetrafluoroethylene, polyethylene or polypropylene of high molecular weight. Ethylene-propylene rubber may also be used. Graphite can be used for lubricating moving parts in contact with DMF ... Since dimethylformamide (DMF) is hygroscopic, it should be kept under a blanket of dry nitrogen. High purity DMF, as required for acrylic fibers, is best stored in aluminum tanks.

Keep away from heat, sparks, and open flames. Use explosion-proof equipment.

7.2 Conditions for safe storage, including any incompatibilities

Separated from incompatible materials. See Chemical Dangers.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Handle and store under inert gas.

Ideal materials for ... storage are nonalloy (carbon) steels, austenitic chromium nickel steels ... and aluminum. Seals ... should be made of polytetrafluoroethylene, polyethylene or polypropylene of high molecular weight. Ethylene-propylene rubber may also be used. Graphite can be used for lubricating moving parts in contact with DMF ... Since dimethylformamide (DMF) is hygroscopic, it should be kept under a blanket of dry nitrogen. High purity DMF, as required for acrylic fibers, is best stored in aluminum tanks.

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

Store in original container. Keep upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

15 mg/m

15 mg/m

8.1.2 Appropriate engineering controls

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear chemical safety goggles and face shield.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Wear NIOSH-approved respirator with appropriate cartridges. SCBA for high concentrations.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: N,n-dimethylformamide appears as a water-white liquid with a faint fishy odor. Flash point 136 °F. Slightly less dense than water. Vapors heavier than air. Toxic by inhalation or skin absorption. May irritate eyes.

b) Odor: Fishy odor

c) Odor threshold: No data available

d) pH: pH = 6.7 (0.5 molar solution in water)

e) Melting point/freezing point: -78 °F (NTP, 1992)

f) Initial boiling point and boiling range: 300 to 313 °F at 760 mmHg (NTP, 1992)

g) Flash point: 153 °F (NTP, 1992)

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapor pressure: 3.7 mmHg at 77 °F ; 2.7 mmHg at 68 °F (NTP, 1992)

l) Vapor density: No data available

m) Relative density: 0.95 at 68 °F (USCG, 1999) - Less dense than water; will float

n) Water solubility: greater than or equal to 100 mg/mL at 72 °F (NTP, 1992)

o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): -1

p) Auto-ignition temperature: 833 °F (USCG, 1999)

q) Decomposition temperature: No data available

r) Viscosity: 0.802 cP at 25 °C

s) Explosive properties: No data available

t) Oxidizing properties: No data available

9.2 Other information

Topological Polar Surface Area (TPSA): 20.3 Å²

Complexity: 33

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

Avoid strong oxidizing agents, strong acids, and strong bases.

10.5 Incompatible materials

CAN REACT VIGOROUSLY WITH OXIDIZING AGENTS, HALOGENATED HYDROCARBONS, & INORG NITRATES.

Forms explosive mixture with air. Contact with carbon tetrachloride and other halogenated cmpds, particularly in contact with iron or strong oxidizers may cause fire and explosions. Vigorous reaction with alkylaluminums.

Incompatible with non-oxidizing mineral acids; strong acids; chlorinated hydrocarbons; isocynates, inorganic nitrates; phenols, cresols, ammonia, bromine, chromic anhydride; magnesium nitrate, methylene diisocyanate, phosphorus trioxide, triethylaluminum. Attacks some plastics, rubber and coatings.

Hot solutions of sodium tetrahydroborate (15.7% wt) in DMF will undergo a violent runaway thermal decomposition, the solid residue attaining a temperature of 310 °C. The induction period depends on temperature and is 45 hr at 62 °C and 45 min at 90 °C.

... DMF /reacts violently when/ ... exposed to nitrates, chromic acid ...

For more Hazardous Reactivities and Incompatibilities (Complete) data for N,N-DIMETHYLFORMAMIDE (27 total), please visit the HSDB record page.

Carbon tetrachloride; other halogenated compounds when in contact with iron; strong oxidizers; alkyl aluminums; inorganic nitrates

10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO□), Nitrogen oxides (NOx).

See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

No acute toxicity data available.

Skin corrosion/irritation:

Causes skin irritation (H315).

Serious eye damage/eye irritation:

Causes serious eye damage (H318).

Respiratory or skin sensitization:

No data available.

Germ cell mutagenicity:

Suspected of causing genetic defects (H341).

Carcinogenicity:

May cause cancer (H350).

Reproductive toxicity:

May damage fertility or the unborn child (H360).

Specific target organ toxicity (single exposure):

H370, H371, H372

Specific target organ toxicity (repeated exposure):

No data available.

Aspiration hazard:

No data available.

11.2 Additional information

Carcinogen classification:

N,N-Dimethylformamide

Group 2A: Probably carcinogenic to humans

Volume 47: (1989) Some Organic Solvents, Resin Monomers and Related Compounds, Pigments and Occupational Exposures in Paint Manufacture and Painting

Volume 71: (1999) Re-evaluation of Some Organic Chemicals, Hydrazine and Hydrogen Peroxide (Part 1, Part 2, Part 3)

Volume 115: (2018) Some Industrial Chemicals

2018

2016

3, not classifiable as to its carcinogenicity to humans. (L135)

Exposure routes:

The substance can be absorbed into the body by inhalation and through the skin.

inhalation, skin absorption, ingestion, skin and/or eye contact

Oral ; inhalation ; dermal

Signs and symptoms of exposure:

Sore throat. Abdominal pain. Diarrhoea. Vomiting. Symptoms may be delayed.

MAY BE ABSORBED! See Inhalation.

Redness. Pain.

Aspiration hazard! Abdominal pain. Jaundice.

irritation eyes, skin, respiratory system; nausea, vomiting, colic; liver damage, enlarged liver; high blood pressure; face flush; dermatitis; In Animals: kidney, heart damage

Symptoms of dimethyl formamide exposure may include abdominal pain, nausea, vomiting, dizziness, fatigue, headache, loss of appetite, and temporary alcohol

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

LC50; Species: /Oncorhynchus mykiss/ (rainbow trout) weight 0.8 g; Conditions: static bioassay; Concentration: 12,000 mg/L for 96 hr (95% confidence limits 10,000-13,000 mg/L)

LC50; Species: Pimephales promelas (fathead minnow) weight 0.12 g; Conditions: flow through bioassay, water hardness 45.5 mg/L CaCO3, 25 +/- 1 °C, pH 7.5, dissolved oxygen >60% of saturation; Concentration: 1430 mg/L for 96 hr

EC50; Species: Anabaena inaequalis (Blue-Green Algae) 1X10+6 cells/mL; Conditions: freshwater, static; Concentration: 0.6% for 10-14 days (95% confidence interval: 0.36-0.84%); Effect: growth, general /formulation/

EC50; Species: Daphnia magna (Water flea) age <24 hr; Conditions: freshwater, static, 20.5 °C, pH 7.04-7.97, hardness 46.4 (40.4-56.3) mg/L CaCO3, alkalinity 41.7 (30.0-46.0) mg/L CaCO3, dissolved oxygen 85.5 (77.5-90.8) mg/L; Concentration: 26300000 ug/L for 24 hr (95% confidence interval: 23400000-29600000 ug/L); Effect: intoxication, immobilization

For more Ecotoxicity Values (Complete) data for N,N-DIMETHYLFORMAMIDE (28 total), please visit the HSDB record page.

2.60e+03

1.50e+04

3.10e+01

1.30e+02

6.10e+01

5.00e+00

1.20e-02

1.00e-01

3.00e-02
Volatile
Mutagen
1
1.06e+05
7.90e+03
4.40e+04
9.40e+01
3.90e+02
1.80e+02
5.00e+00
1.00e-01
3.00e-02
Volatile
Mutagen
1
1.06e+05
Environmental effects of the substance have been adequately investigated, but no significant effects have been found.
N,N-Dimethylformamide's production and use as a solvent, in pharmaceutical intermedi

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Log P (n-octanol/water): -1
Low potential for bioaccumulation (Log P < 3).

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

No other adverse ecological effects identified.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION

14.1 UN number

UN 2265

14.2 UN proper shipping name

N,N-Dimethyl formamide

14.3 Transport hazard class(es)

Class 3

IMO classification: Class 3

DOT label: Flammable Liquid

14.4 Packing group

Packing group III

14.5 Environmental hazards

Marine pollutant: No (not classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

DOT Emergency Response Guide (ERG) number: 129

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

Not applicable.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered under REACH

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute (short-term) health hazard

Chronic (long-term) health hazard

Fire hazard

Massachusetts Right To Know Components:

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

Pennsylvania Right To Know Components:

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

New Jersey Right To Know Components:

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

California Prop. 65 Components:

This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: Formamide, N,N-dimethyl-

- California Safe Cosmetics Program (CSCP) Reportable Ingredient: Hazard Traits - Carcinogenicity; Dermatotoxicity; Hepatotoxicity and Digestive System Toxicity; Reproductive Toxicity; Respiratory Toxicity Authoritative List - CA TACs; EC Annex VI CMRs - Cat. 1B; IA

- New Jersey Worker and Community Right to Know Act: The New Jersey Worker and Community Right to Know Act requires public and private employers to provide information about hazardous substances at their workplaces. (N.J.S.A. 34:5A-1 et. seq.)

- Atmospheric Standards: This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to us

- State Drinking Water Guidelines: (FL) FLORIDA 700 ug/L

(ME) MAINE 700 ug/L

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/09

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.