

## 1. Identification

<b>Product identifier</b>	<b>DIMETHYLFORMAMIDE - DMF</b>
<b>Other means of identification</b>	
<b>CAS number</b>	68-12-2
<b>Recommended use</b>	General purpose solvent.

<b>Recommended restrictions</b>	Uses other than the recommended use.
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### Manufacturer/Importer/Supplier/Distributor information

<b>Company Name</b>	Greenfield Global USA Inc. (The technical data referenced below applies to products sold by Greenfield Global Inc., under the names Greenfield Global, Pharmco, and Commercial Alcohols.)
<b>Address</b>	58 Vale Road Brookfield, CT 06804 USA
<b>Telephone</b>	203.740.3471
<b>Fax</b>	203.740.3481
<b>Company Name</b>	Greenfield Global USA Inc.
<b>Address</b>	1101 Isaac Shelby Drive Shelbyville, KY 40065 USA
<b>Telephone</b>	502.232.7600
<b>Emergency phone number</b>	
<b>USA</b>	CHEMTREC: +1.800.424.9300 (CCN 17213)
<b>International</b>	CHEMTREC: +1.703.527.3887 (CCN 17213)

## 2. Hazard(s) identification

### Hazards for the product as sold

<b>Physical hazards</b>	Flammable liquids	Category 3
<b>Hazards for the product as sold</b>		
<b>Health hazards</b>	Acute toxicity, dermal	Category 4
	Acute toxicity, inhalation	Category 4
	Serious eye damage/eye irritation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 1B

### Hazards for the product as sold

<b>OSHA defined hazards</b>	Not classified.
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### Label elements



### Signal word

Danger

### Hazard statement

Flammable liquid and vapor. Harmful in contact with skin. Causes serious eye irritation. Harmful if inhaled. Suspected of causing cancer. May damage fertility or the unborn child.

**Precautionary statement****Prevention**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Avoid breathing vapors. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

**Response**

If on skin: Wash with plenty of water. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.

**Storage**

Store in a well-ventilated place. Keep cool. Store locked up.

**Disposal**

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazard(s) not otherwise classified (HNOC)**

No additional hazards are known to be associated with the expected conditions of use at the time of publication. This document does not address hazards that may arise from uses not reasonably anticipated by the manufacturer.

**Supplemental information**

None.

**3. Composition/information on ingredients****Substances**

Chemical name	Common name and synonyms	CAS number	%
Dimethylformamide		68-12-2	100

**Composition comments**

All concentrations are in percent by weight.

**4. First-aid measures****Inhalation**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Call a poison center or doctor/physician if you feel unwell.

**Skin contact**

Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention if you feel unwell. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.

**Eye contact**

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Ingestion**

Rinse mouth. Get medical advice/attention if you feel unwell.

**Most important symptoms/effects, acute and delayed**

Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

**Indication of immediate medical attention and special treatment needed**

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

**General information**

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

**5. Fire-fighting measures****Suitable extinguishing media**

Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**

Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**

Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	Flammable liquid and vapor.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. This product is miscible in water.
	<b>Large Spills:</b> Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.
	<b>Small Spills:</b> Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Clean surface thoroughly to remove residual contamination.
	Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

## Environmental precautions

## 7. Handling and storage

### Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Dimethylformamide (CAS 68-12-2)	PEL	30 mg/m <sup>3</sup>
		10 ppm

#### US. ACGIH Threshold Limit Values (TLV)

Material	Type	Value
Dimethylformamide (CAS 68-12-2)	TWA	5 ppm

**NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended**

Material	Type	Value
Dimethylformamide (CAS 68-12-2)	IDLH	500 ppm

**US. NIOSH: Pocket Guide to Chemical Hazards**

Material	Type	Value
Dimethylformamide (CAS 68-12-2)	TWA	30 mg/m <sup>3</sup>
		10 ppm

**Biological limit values****ACGIH Biological Exposure Indices (BEI)**

Material	Value	Determinant	Sampling Time
Dimethylformamide (CAS 68-12-2)	40 mg/l	N-Acetyl-S-(N-methylcarbamoyl) cysteine	*
	30 mg/l	Sum of N-Methylformamide and N-(Hydroxymethyl)-N-Methylformamide	Urine *
	30 mg/l	N-Acetyl-S-(N-methylcarbamoyl) cysteine	Urine *
	15 mg/l	N-Methylformamide	*

\* - For sampling details, please see the source document.

**Exposure guidelines****US - California OELs: Skin designation**

Dimethylformamide (CAS 68-12-2) Can be absorbed through the skin.

**US - Tennessee OELs: Skin designation**

Dimethylformamide (CAS 68-12-2) Can be absorbed through the skin.

**US ACGIH Threshold Limit Values: Skin designation**

Dimethylformamide (CAS 68-12-2) Danger of cutaneous absorption

**US. NIOSH: Pocket Guide to Chemical Hazards**

Dimethylformamide (CAS 68-12-2) Can be absorbed through the skin.

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Dimethylformamide (CAS 68-12-2) Can be absorbed through the skin.

<b>Appropriate engineering controls</b>	Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.
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**Individual protection measures, such as personal protective equipment**

<b>Eye/face protection</b>	Chemical goggles and face shield are recommended.
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**Skin protection**

<b>Hand protection</b>	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
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**Skin protection**

<b>Other</b>	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
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<b>Respiratory protection</b>	In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134. Appropriate respirator selection should be made by a qualified professional.
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<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
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**General hygiene considerations** Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Clear.
<b>Odor</b>	Not available.
<b>Melting point/freezing point</b>	-77.8 °F (-61 °C)
<b>Boiling point or initial boiling point and boiling range</b>	307.4 °F (153 °C)
<b>Flammability</b>	Flammable liquid.
<b>Upper/lower flammability or explosive limits</b>	
<b>Explosive limit - lower (%)</b>	2.2 %
<b>Explosive limit - upper (%)</b>	15.2 %
<b>Flash point</b>	136 °F (57.78 °C)
<b>Auto-ignition temperature</b>	833 °F (445 °C)
<b>Decomposition temperature</b>	Not available.
<b>pH</b>	6.7
<b>Kinematic viscosity</b>	Not available.
<b>Solubility</b>	
<b>Solubility (water)</b>	Miscible
<b>Vapor pressure</b>	3.6 hPa (68 °F (20 °C))
<b>Density and/or relative density</b>	
<b>Density</b>	0.948 g/cm3 (77 °F (25 °C))
<b>Vapor density</b>	2.52
<b>Particle characteristics</b>	Not available.
<b>Other information</b>	
<b>Explosive properties</b>	Not explosive.
<b>Oxidizing properties</b>	Not oxidizing.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Harmful if inhaled.
<b>Skin contact</b>	Harmful in contact with skin.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Ingestion</b>	May cause discomfort if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics**

Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

**Information on toxicological effects**

**Acute toxicity** Harmful if inhaled. Harmful in contact with skin.

<b>Product</b>	<b>Species</b>	<b>Test Results</b>
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Dimethylformamide (CAS 68-12-2)

**Acute****Oral**

LD50

Rat

3040 mg/kg

**Skin corrosion/irritation**

Prolonged skin contact may cause temporary irritation.

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Respiratory or skin sensitization**

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity**

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity**

Suspected of causing cancer.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Dimethylformamide (CAS 68-12-2)

2A Probably carcinogenic to humans.

**NTP Report on Carcinogens**

Not listed.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

**Reproductive toxicity**

May damage fertility or the unborn child.

**Specific target organ toxicity - single exposure**

Not classified.

**Specific target organ toxicity - repeated exposure**

Not classified.

**Aspiration hazard**

Not an aspiration hazard.

**Chronic effects**

Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

**12. Ecological information**

**Ecotoxicity**

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<b>Product</b>	<b>Species</b>	<b>Test Results</b>
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Dimethylformamide (CAS 68-12-2)

**Aquatic****Acute**

Algae

EC50

Scenedesmus subspicatus

> 1000 mg/l, 96 Hours

Crustacea

EC50

Daphnia magna

> 100 mg/l, 48 Hours

Fish

LC50

Lepomis macrochirus

7100 mg/l, 96 Hours

**Chronic**

Crustacea

NOEC

Daphnia magna

1500 mg/l, 21 days

**Persistence and degradability**

No data is available on the degradability of this substance.

**Bioaccumulative potential**

No data available.

**Mobility in soil**

No data available.

**Other adverse effects**

No data available.

## 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

## 14. Transport information

### DOT

<b>UN number</b>	UN2265
<b>UN proper shipping name</b>	N,N-Dimethylformamide
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary hazard</b>	-
<b>Label(s)</b>	3
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	B1, IB3, T2, TP2
<b>Packaging exceptions</b>	150
<b>Packaging non bulk</b>	203
<b>Packaging bulk</b>	242

### IATA

<b>UN number</b>	UN2265
<b>UN proper shipping name</b>	N,N-Dimethylformamide
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary hazard</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	No.
<b>ERG Code</b>	3L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### IMDG

<b>UN number</b>	UN2265
<b>UN proper shipping name</b>	N,N-DIMETHYLFORMAMIDE
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary hazard</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-E, S-D
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Transport in bulk according to</b>	Not established.

### IMO instruments

## 15. Regulatory information

<b>US federal regulations</b>	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
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<b>Toxic Substances Control Act (TSCA)</b>	This substance is on the TSCA 8(b) inventory and is designated "active".
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**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Dimethylformamide (CAS 68-12-2)

**SARA 304 Emergency release notification**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)****SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical**

<b>Classified hazard categories</b>	Flammable (gases, aerosols, liquids, or solids) Acute toxicity (any route of exposure) Serious eye damage or eye irritation Carcinogenicity Reproductive toxicity
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**SARA 313 (TRI reporting)**

<b>Chemical name</b>	<b>CAS number</b>	<b>% by wt.</b>
Dimethylformamide	68-12-2	100

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Dimethylformamide (CAS 68-12-2)

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)****US state regulations****US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

Dimethylformamide (CAS 68-12-2)

**US. Massachusetts RTK - Substance List**

Dimethylformamide (CAS 68-12-2)

**US. New Jersey Worker and Community Right-to-Know Act**

Dimethylformamide (CAS 68-12-2)

**US. Pennsylvania Worker and Community Right-to-Know Law**

Dimethylformamide (CAS 68-12-2)

**US. Rhode Island RTK**

Dimethylformamide (CAS 68-12-2)

**California Proposition 65**

**WARNING:** This product can expose you to Dimethylformamide, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Dimethylformamide (CAS 68-12-2)

Listed: October 27, 2017

**International Inventories**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).  
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

<b>Issue date</b>	22-August-2018
<b>Revision date</b>	21-November-2025
<b>Version #</b>	02
<b>HMIS® ratings</b>	Health: 2* Flammability: 3 Physical hazard: 0
<b>Disclaimer</b>	This product is subject to Greenfield Global USA Inc.'s terms and conditions, which can be found at <a href="http://www.greenfield.com/tc-po-us/">http://www.greenfield.com/tc-po-us/</a> . Greenfield cannot anticipate all conditions under which this information and this product, or the products of other manufacturers in combination with this product, may be used. The user is responsible for the proper and safe use, handling, storage and disposal of the product, and assumes liability for any loss, injury, damage or expense arising from any failure to do so. The data in this sheet is based on information and experience available at the time of writing.