

Safety Data Sheet (SDS) According to the REACH Regulation (EC) No. 1907/2006

Issuing Date: 2015-07-23

Revision Date: 2024-03-05

Version: 4

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product No 12767
Product name DMF (Dimethylformamide)

Contains

Chemical name	Index No.	CAS No
N,N-dimethylformamide (90 - 100%)	616-001-00-X	68-12-2
Formula	C ₃ H ₇ NO	
Molecular Weight	73.09 g/mol	

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses For Research Use Only. Not for Use in Diagnostic Procedures.

1.3. Details of the supplier of the safety data sheet

Importer	Manufacturer
Cell Signaling Technology Europe B.V. Dellaertweg 9b 2316 WZ Leiden The Netherlands TEL: +31 (0)71 7200 200 FAX: +31 (0)71 891 0019	Cell Signaling Technology, Inc. 3 Trask Lane Danvers, MA 01923 United States TEL: +1 978 867 2300 FAX: +1 978 867 2400

Website www.cellsignal.com
E-mail Address info@cellsignal.eu

1.4. Emergency telephone number

CHEMTREC 24 hours a day, 7 days a week, 365 days a year
 +1 703 527 3887 (INTERNATIONAL) +1 800 424 9300 (NORTH AMERICA)

Europe 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Acute dermal toxicity	Category 4 - (H312)
Acute inhalation toxicity	Category 4 - (H332)
Serious eye damage/eye irritation	Category 2 - (H319)

Reproductive toxicity	Category 1B - (H360D)
Flammable liquids	Category 3 - (H226)

2.2. Label elements



Signal word

Danger

Hazard statement(s)

H226 - Flammable liquid and vapor.
H312 - Harmful in contact with skin.
H319 - Causes serious eye irritation.
H332 - Harmful if inhaled.
H360D - May damage the unborn child.

Precautionary statement(s)

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.
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.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash face, hands and any exposed skin thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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.
P312 - Call a POISON CENTER or doctor if you feel unwell.
P337 + P313 - If eye irritation persists: Get medical advice/attention.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to an approved waste disposal plant.

2.3. Other hazards

MATERIAL IS RAPIDLY ABSORBED THROUGH THE LUNGS, RAPIDLY ABSORBED THROUGH SKIN. Avoid exposure during pregnancy.

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 3: Composition/information on ingredients

3.1 Substances

12767 - DMF (Dimethylformamide)

Synonyms Dimethyl formamide, N,N-Dimethylformamide, DMF
Formula C₃H₇NO

Chemical name	CAS No	Weight-%	EC No	Classification (1272/2008)	REACH Registration Number
N,N-dimethylformamide	68-12-2	100	200-679-5	Acute Tox. 4 (H312) Acute Tox. 4 (H332) Eye Irrit. 2 (H319) Repr. 1B (H360D) Flam. Liq. 3 (H226)	no data available

For the full text of the R-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.
Inhalation Move to fresh air. Consult a physician.
Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Consult a physician.
Eye contact Rinse thoroughly with plenty of water, also under the eyelids. Consult a physician.
Ingestion Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Consult a physician.

Protection of first-aiders Use personal protective equipment. Avoid contact with skin, eyes and clothing.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Irritating to eyes, respiratory system and skin.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Water
Foam
Carbon dioxide (CO₂)
Dry powder

Unsuitable Extinguishing Media No information available

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. Most vapors are heavier than air. Vapors may spread along ground and collect in low or confined areas (sewers, basements, tanks).

Hazardous Combustion Products Carbon oxides (COx). Nitrogen oxides (NOx).

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Use personal protective equipment. Remove all sources of ignition. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevention of fire and explosion. A vapor suppressing foam may be used to reduce vapors. Do not allow material to contaminate ground water system. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

6.4. Reference to other sections

See Sections 8 & 13 for additional information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Keep away from open flames, hot surfaces and sources of ignition. Avoid static electricity build up with connection to earth. Use only in area provided with appropriate exhaust ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition.

7.3. Specific end use(s)

Use as a laboratory reagent.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit values					
Chemical name	European Union	United Kingdom	France	Spain	Germany
N,N-dimethylformamide	STEL 30 mg/m ³ STEL 10 ppm LTEL 15 mg/m ³ LTEL 5	STEL 10 ppm STEL 30 mg/m ³ TWA 5 ppm TWA 15 mg/m ³	TWA 5 ppm TWA 15 mg/m ³ STEL 30 mg/m ³ STEL 10 ppm	TWA 5 ppm TWA 15 mg/m ³ STEL 10 ppm STEL 30 mg/m ³	TWA: 5 ppm TWA: 15 mg/m ³ Skin Ceiling / Peak: 10 ppm

12767 - DMF (Dimethylformamide)

		Skin	R2 P*	R(TR1) S*	Ceiling / Peak: 30 mg/m ³ H*
Chemical name	Italy	Portugal	Netherlands	Finland	Denmark
N,N-dimethylformamide		TWA 10 ppm C(A4) P*	Huid* STEL 30 mg/m ³ TWA 15 mg/m ³	TWA 5 ppm TWA 15 mg/m ³ STEL 10 ppm STEL 30 mg/m ³ iho*	TWA 5 ppm TWA 15 mg/m ³ H*
Chemical name	Austria	Switzerland	Poland	Norway	Ireland
N,N-dimethylformamide	H* STEL 10 ppm STEL 30 mg/m ³ TWA 5 ppm TWA 15 mg/m ³	SS-B** H* TWA 5 ppm TWA 15 mg/m ³ STEL 10 ppm STEL 30 mg/m ³ Re2	TWA 15 mg/m ³ STEL 30 mg/m ³	TWA 5 ppm TWA 15 mg/m ³ S* R** STEL 10 ppm STEL 30 mg/m ³	TWA 10 ppm TWA 30 mg/m ³ STEL 20 ppm STEL 60 mg/m ³ Skin Repr1B

Biological limit values					
Chemical name	European Union	United Kingdom	France	Spain	Germany
N,N-dimethylformamide			40	15 40	Biologische Grenzwerte nach die Verordnung zur arbeitsmedizinischen Vorsorge vom 18. Dezember 2008 sind zu beachten Biologische Grenzwerte nach TRGS 903 sind zu beachten
Chemical name	Austria	Switzerland	Poland	Norway	Ireland
N,N-dimethylformamide		15			

Derived No Effect Level (DNEL)	
Dermal	1.1 mg/kg/day
Inhalation	6 mg/m ³

8.2. Exposure controls

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection

Tightly fitting safety goggles.

Skin protection

Wear protective gloves and protective clothing

Hand protection

Impervious gloves.

Other

Wear suitable protective clothing.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Environmental Exposure Controls

No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid - Clear
Color	Colorless
Odor	Characteristic, Mild amine

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	6.7	No information available
Melting point/freezing point	No information available	No information available
Boiling point or initial boiling point and boiling range	153 °C	DIN 53171
Flash point	58 °C	Closed cup DIN 51755
Evaporation rate	No information available	No information available
Flammability	No information available	No information available
Upper/lower flammability or explosive limits	Lower: 2.2 °C - Upper: 16 °C	@ 20 °C
Vapor pressure	0.035 hPa	@ 20 °C
Relative vapor density	No information available	No information available
Density and/or relative density	No information available	No information available
Solubility	No information available.	No information available
Partition coefficient: n-octanol/water	No information available	No information available
Autoignition temperature	410 °C	DIN 51794
Decomposition temperature	No information available	No information available.
Viscosity	No information available	No information available
Explosive properties	No information available	No information available
Oxidizing properties	No information available	No information available

9.2. Other information

Softening point	No information available
Molecular Weight	73.09 g/mol
Solubility in other solvents	No information available
VOC content	No information available
Liquid Density	0.094 g/cm ³ @ 20°C

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization	Hazardous polymerization does not occur.
Hazardous reactions	None under normal processing

10.4. Conditions to avoid

Heat (temperatures above flash point), sparks, ignition points, flames, static electricity

10.5. Incompatible materials

Strong oxidizing agents, Halogens, Nitrates, Reducing agents, Alkali.

10.6. Hazardous decomposition products

Thermal decomposition can lead to release of irritating gases and vapors: Carbon oxides (CO_x), Nitrogen oxides (NO_x)

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
N,N-dimethylformamide	= 2250 mg/kg (Rat)	= 1100 mg/kg (Rat)	= 1948 ppm/4 hour (Rat)

Information on likely routes of exposure

Inhalation	Toxic by inhalation. Harmful by inhalation.
Eye contact	Contact with eyes may cause irritation. Vapor may cause irritation.
Skin contact	Irritating to skin. May be absorbed through the skin in harmful amounts.
Ingestion	May be harmful if swallowed.

Symptoms Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Irritating to eyes, respiratory system and skin.

Skin corrosion/irritation	Irritating to skin.
Serious eye damage/eye irritation	Causes serious eye irritation.
Sensitization	No information available.
Mutagenic effects	No information available.
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical name	European Union	IARC
N,N-dimethylformamide		Group 2A

Legend:

IARC: (International Agency for Research on Cancer) *Group 2A - Probably Carcinogenic to Humans*

Reproductive toxicity	May cause harm to the unborn child.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target Organ Effects	Liver.
Aspiration Hazard	No information available.

11.2. Information on other hazards

No information available.

SECTION 12: Ecological information

12.1. Toxicity

No information available.

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
N,N-dimethylformamide	EC50 500 mg/L (Desmodesmus subspicatus) 96 h	LC50 6300 mg/L (Lepomis macrochirus) 96 h LC50 9800 mg/L (Oncorhynchus mykiss) 96 h LC50 10410 mg/L (Pimephales promelas) 96 h	EC50 6800 - 13900 mg/L (Daphnia magna) 48 h EC50 8485 mg/L (Daphnia magna) 48 h EC50 7500 mg/L (Daphnia magna) 48 h

12.2. Persistence and degradability

Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

Chemical name	Octanol-Water Partition Coefficient
N,N-dimethylformamide	-1.028

Bioconcentration factor (BCF) 3

12.4. Mobility in soil

Will likely be mobile in the environment due to its water solubility.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Endocrine disrupting properties

No information available

12.7. Other adverse effects

No information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging Empty containers may contain flammable or explosive vapours. Dispose of in accordance with local regulations.

Other information According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

IMDG/IMO

14.1 UN number UN2265
 14.2 UN proper shipping name N,N-Dimethylformamide
 14.3 Transport hazard class(es) 3
 14.4 Packing group III
 14.5 Environmental hazards None
 14.6 Special precautions for user None
 14.7 Maritime transport in bulk according to IMO instruments Not regulated

ADR/RID

14.1 UN number UN2265
 14.2 UN proper shipping name N,N-Dimethylformamide
 14.3 Transport hazard class(es) 3

12767 - DMF (Dimethylformamide)

14.4 Packing group	III
14.5 Environmental hazards	None
14.6 Special precautions for user	None

IATA

14.1 UN number	UN2265
14.2 UN proper shipping name	N,N-Dimethylformamide
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazards	None
14.6 Special precautions for user	None

SECTION 15: Regulatory information

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

Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

Chemical name	Candidate List of Substances of Very High Concern for Authorization Information	REACH Annex XVII
N,N-dimethylformamide (90 - 100%)	Toxic for reproduction (Article 57c)	Restricted substance

SEVESO Directive Information

Chemical name	96/82/EC - Qualifying Quantities
N,N-dimethylformamide	5000 tonnes (Lower-tier) 50000 tonnes (Upper-tier)

International inventories

TSCA 8(b)	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

International inventories legend

TSCA	- United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL	- Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS	- European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS	- Japan Existing and New Chemical Substances
IECSC	- China Inventory of Existing Chemical Substances
KECL	- Korean Existing and Evaluated Chemical Substances
PICCS	- Philippines Inventory of Chemicals and Chemical Substances
AICS	- Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out

SECTION 16: Other information

Full text of H-Statements referred to under Sections 2 and 3

H312 - Harmful in contact with skin
H332 - Harmful if inhaled
H319 - Causes serious eye irritation
H360D - May damage the unborn child
H226 - Flammable liquid and vapor

Classification procedure: Expert judgment and weight of evidence determination.
Issuing Date: 2015-07-23
Revision Date: 2024-03-05

Disclaimer

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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.