

SAFETY DATA SHEET

According to Regulation (EC) No 453/2010

www.eamaterials.com

SDS –DMF-0001
Version 1.3
Revision Date: 19.02.2021
Printing Date: 19.02.2021

Section 1: IDENTIFICATION OF SUBSTANCE/ MIXTURE AND OF THE COMPANY

1.1 Product identifier

Product name : **N,N-Dimethylformamide**
Including product code : DMF010-2.5, DMF010-4.0.

1.2 Relevant identified uses of the substance or mixture

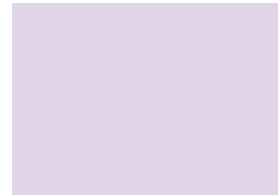
Identified uses : Laboratory chemicals, Manufacture of substances
Uses advised against : Not applicable

1.3 Details of the supplier of the safety data sheet

Company : Elite Advanced Materials Sdn Bhd
No 1, Jalan KPK1/2, Kawasan Perindustrian
Kundang, 48020 Rawang, Selangor, Malaysia
E-mail address : enquiry@eamaterials.com

1.4 Emergency telephone number

Emergency : +603-60343766 (Local business hours only)



Section 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flammable liquid	Category 3
Acute toxicity, Inhalation	Category 4
Acute toxicity, Dermal	Category 4
Eye irritation	Category 2
Reproductive toxicity	Category 1B

2.2 Label elements

Labeling in compliance to Regulation (EC) No. 1272/2008 [CLP/GHS]

Hazard pictograms



GHS02



GHS07



GHS08

Signal word

Danger

Hazard statement

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

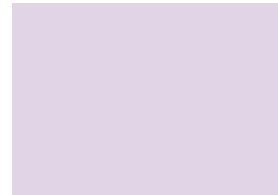
Precautionary statements

Prevention

P201	Obtain special instructions before use.
P210	Keep away from heat.

Response

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
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.

2.3 Other hazards

No data available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Synonyms	:	Dimethylformamide, n-formyldimethylamine
Formula	:	C ₃ H ₇ NO
Molecular Weight	:	73.09 g/mol
CAS-No.	:	68-12-2

Hazardous components according to Regulation (EC) No 1272/2008

Component	Identity	Classification Code	H-Code	Concentration
N,n-dimethylformamide	CAS-No.: 68-12-2	Flam. Liq. 3	H226	<=100 %
		Acute Tox. 4	H332	
		Acute Tox. 4	H312	
		Eye Irritat. 2	H319	
		Rep. Tox. 1B	H360D	

Section 4: FIRST AID MEASURES

4.1 Description of First Aid measures

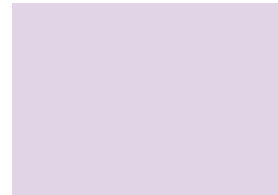
General information

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact



Take off immediately all contaminated clothing. Wash off with soap and plenty of water for at least 15 minutes. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and delayed symptoms and effects

Gastrointestinal disturbance, Vomiting, Nausea, Headache, Dizziness, Drowsiness irritant effects.

4.3 Indication of any immediate medical attention and special treatment

No data available.

Section 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Foam, Carbon dioxide (CO₂), Dry powder, Water.

Unsuitable extinguishing media

None.

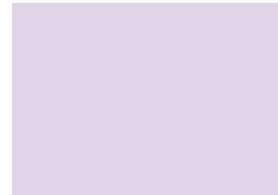
5.2 Special hazards arising from the substance or mixture

Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.



5.3 Advice for fire-fighters

Wear full protective clothing and self-contained breathing apparatus if necessary. Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Use water spray to cool unopened containers. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal protective equipment is required during handling. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Do not discharge into drains or water ways. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

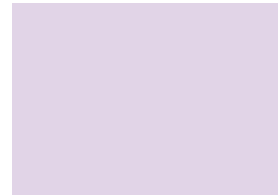
6.4 Reference to other sections

For disposal see Section 13.

Section 7: HANDLING AND STORAGE

7.1 Precaution for safe handling

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



7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. 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.

7.3 Specific end use

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component	ACGIH TLV (8 hr)	CAL/OSHA PEL (8 hr)	NIOSH REL (Up to 10 hr)
N,N-dimethylformamide	TWA: 5 ppm	TWA: 10 ppm	TWA: 10 ppm

(OSHA)

8.2 Exposure control

Personal protection measures, such as personal protective equipment

Never eat, drink or smoke during handling the chemical. Ensure that there is adequate ventilation, especially in confined areas.

Eye/ face protection

Face shield and safety glasses is required during handling. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

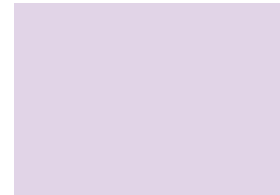
Skin protection

Handle with gloves. 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. Discard of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact*

Material: butyl-rubber



Minimum layer thickness: 0.7 mm
Break through time: >480 min

Splash contact*

Material: Viton (R)
Minimum layer thickness: 0.7 mm
Break through time: >240 min

(Merck, 2018; Ver 2.4)

Body protection

Impervious clothing, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

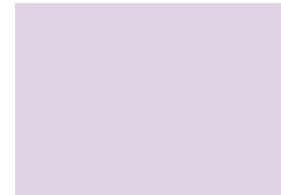
Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Section 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless
Odor	:	Amine-like
Ordor threshold	:	0.329 ppm
pH - value	:	7 at 200g/l 20°C
Melting point / Range	:	-61 °C
Boiling point / Range	:	153 °C at 1013 hPa Method: DIN 53171
Flash point	:	57.5 °C at 1013 hPa Method: DIN 51755 Part 2
Evaporation rate	:	No data available



Lower explosion limit – LEL	:	2.2 % (V)
Upper explosion limit - UEL	:	16 % (V)
Vapour pressure	:	3.77 hPa at 20°C
Vapor density (air = 1)	:	2.51
Density	:	0.94 g/cm ³ at 20 °C
Bulk density	:	No data available
Solubility(ies)	:	No data available
Water solubility	:	1000 g/L at 20 °C
Partition coefficient: n-octanol/water	:	log Pow: -0.85 (25 °C) OECD Test Guideline 107 Bioaccumulation is not expected
Auto-ignition temperature	:	435 °C at 1013 hPa Method: DIN 51794
Decomposition temperature	:	> 350 °C
Viscosity	:	0.86 mPa.s at 20°C
Explosive properties	:	Not classified as explosive
Oxidising properties	:	None
(Merck, 2018; Ver 2.4)		

9.2 Other information

Ignition temperature	:	410 °C Method: DIN 51794
----------------------	---	-----------------------------

Section 10 : STABILITY AND REACTIVITY

10.1 Reactivity

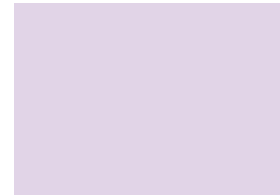
Vapours may form explosive mixture with air

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

Violent reactions possible with:



Alkali metals, halogens, halides, Reducing agents, triethylaluminium, nitrates, metallic oxides, nonmetallic oxides, Halogenated hydrocarbon, Isocyanates, sodium, Sodium borohydride, hydrides, Oxidizing agents, Oxides of phosphorus

A risk of explosion and/or of toxic gas formation exists with the following substances:
azides, Bromine, Chlorine, chromium(VI) oxide, potassium permanganate, triethylaluminium, chlorates

Halogenated hydrocarbon, with, Iron

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Plastics, Copper, Copper alloys, Tin.

10.6 Hazardous decomposition products

In the event of fire: See section 5.

Section 11 : TOXICOLOGY INFORMATION

11.1 Information on toxicological effects

Acute toxicity

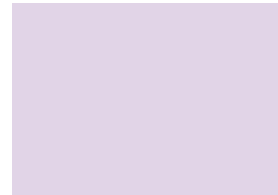
LD50 Oral	- 3010 mg/kg	(Rat)
LD50 Dermal	- 1500 mg/kg	(Rabbit)
LC50 Inhalation	- Symptoms: Possible damages; Mucosal irritations.	

(Merck, 2018; Ver 2.4)

Skin corrosion/irritation

Skin - Rabbit
Result: Not irritation

(Merck, 2018; Ver 2.4)



Serious eye damage/eye irritation

Eyes - Rabbit

Remarks : Causes eye irritation

(Merck, 2018; Ver 2.4)

Respiratory or skin sensitization

Sensitisation test - Guinea pig

Remarks: Negative

Sensitisation test - Mouse

Remarks: Negative

(Merck, 2018; Ver 2.4)

Germ cell mutagenicity

Genotoxicity in vivo

Micronucleus test

Mouse (Male)

Result: negative

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

(Merck, 2018; Ver 2.4)

Carcinogenicity

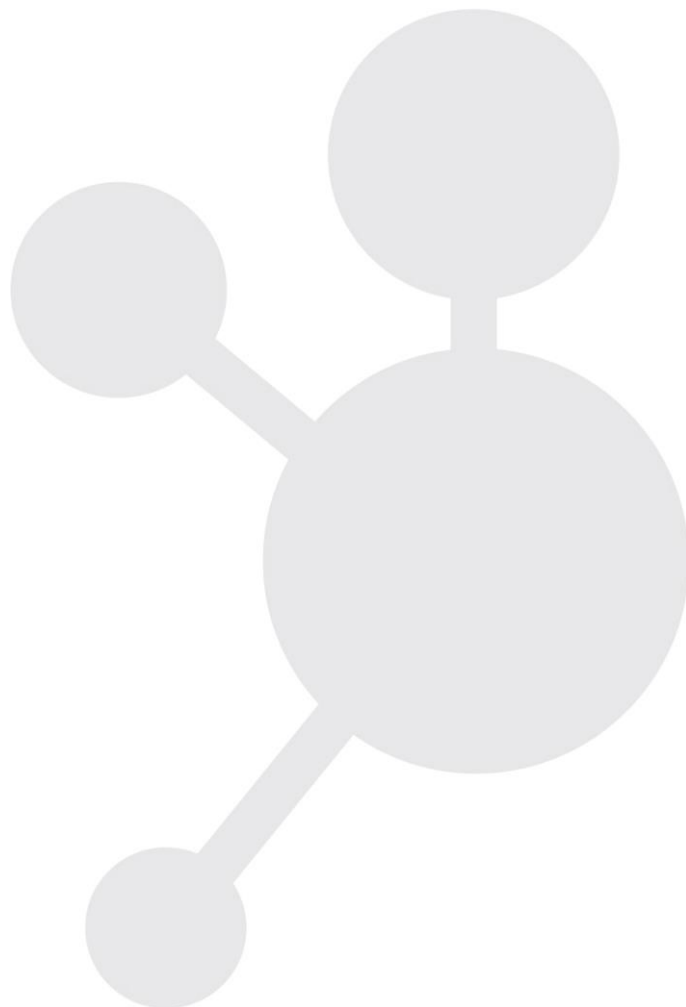
No data available

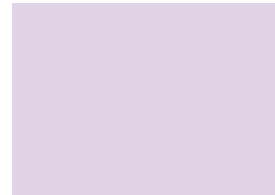
Reproductive toxicity

No data available

Specific target organ toxicity – single exposure

No data available





Specific target organ toxicity – repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

After absorption:
Headache, Dizziness, Drowsiness

Damage to:
Kidney, Liver

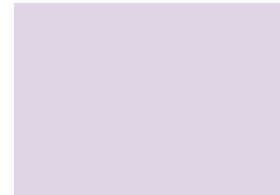
(Merck, 2018; Ver 2.4)

Section 12 : ECOLOGY INFORMATION

12.1 Ecotoxicity

Toxicity to fish	LC50 – <i>Lepomis macrochirus</i> (Bluegill sunfish) - 7100 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - <i>Daphnia magna</i> (Water flea) - 13100 mg/l - 48 h
Toxicity to algae	NOEC - <i>Desmodesmus subspicatus</i> (green algae) - >1000 mg/l - 72 h
Toxicity to bacteria	EC50 – <i>Vibrio fischeri</i> - 17500 mg/l - 5 min

(Merck, 2018; Ver 2.4)



12.2 Persistence and degradability

Biodegradability	Result: 100 % - 21 d - Readily biodegradable Method: OECD Test Guideline 301B
Biochemical Oxygen Demand (BOD)	900 mg/g - 5 d
Theoretical Oxygen Demand (ThOD)	1863 mg/g

(Merck, 2018; Ver 2.4)

12.3 Bioaccumulative potential

Partition coefficient: n-Octanol/water

Log Pow: -0.85 (25 °C)

(Merck, 2018; Ver 2.4)

12.4 Mobility in soil

No data available

12.5 Other adverse effects

No data available

Section 13 : DISPOSAL CONSIDERATIONS

13.1 Waste treatment method

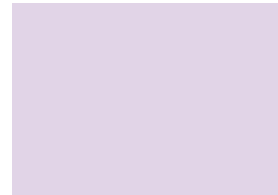
Product

Waste material must be disposed according to national and local regulations. Keep the chemicals in its specific waste container according to the waste classification.

According to Quality Environment Regulation (Scheduled Waste) 2005, waste need to be sent to designated premise for recycle, treatment or disposal. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.



Section 14 : TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 2265	IMDG: 2265	IATA-DGR: 2265
---------------	------------	----------------

14.2 UN proper shipping name

ADR/RID:	N,N-DIMETHYLFORMAMIDE
IMDG:	N,N-DIMETHYLFORMAMIDE
IATA-DGR:	N,N-DIMETHYLFORMAMIDE

14.3 Transport hazard class(es)

ADR/RID: 3	IMDG: 3	IATA-DGR: 3
------------	---------	-------------

14.4 Packaging group

ADR/RID: III	IMDG: III	IATA-DGR: III
--------------	-----------	---------------

14.5 Environmental hazards

ADR/RID: no	IMDG Marine pollutant: no	IATA-DGR: no
-------------	---------------------------	--------------

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

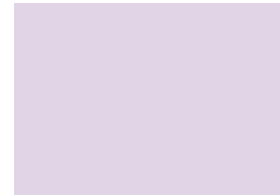
No data available

14.7 Special precautions for user

No data available

Section 15 : REGULATORY INFORMATION

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



All national and local regulations, including Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013, if applicable to the use, should be observed.

National legislation

Storage class: 3

Section 16 : OTHER INFORMATION

This information is based on present level of our knowledge; however, this shall not constitute a guarantee product features and shall not establish a legally valid contractual relationship.

Abbreviations:

ADR : European agreement concerning the international carriage of dangerous goods by road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association

ICAO : International Civil Aviation Organization

RID : Regulations concerning the International Carriage of Dangerous goods by rail.

Notice to reader

The information contained in this Safety Data Sheet is based on the present state of knowledge and current national legislation. It provides guidance on health, safety and environmental aspects of the products and should not be construed as any guarantee of technical performance or suitability for particular application.

The information contained in this Safety Data Sheet comes from sources believed to be accurate or otherwise technically correct. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. The users are advised to carry out their own evaluation of the material to determine suitability in their application. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.