MATERIAL SAFETY DATA SHEET

According to regulation (EU)no.1907/2006

N,N-DIMETHYLFORMAMIDE

Revision : 01	Date : October 18th, 2022	MSDS Number : 032

Section 1 - Chemical Product and Company Identification

1.1 Product Name : **N,N-DIMETHYLFORMAMIDE**
Synonyms : DMF; N,N-Dimethylmethanamide, Formic acid dimethylamide
CAS No. : 68-12-2
HS Code : 2924 19 00
Molecular Weight : 73.10 g/mol
Chemical Formula : $HCON(CH_3)_2$ C_3H_7NO Hill
Brand : PANCASAKTI
1.2 Manufacturer : **PT. Pancasakti Putra Kencana**
Address : Ruko Boulevard TamanTekno Blok E No.9 - 11BSD Serpong, Tangerang - Indonesia
Website : www.pancasakti.co.id
Email : sales@pancasakti.co.id
For information : Telp: +62-21- 7588 0205(Hunting) , fax:+62-21-7588 0198
1.3 Application : Industrial solvent
Emergency Telephone: +62-21-7588 0205(Hunting)

Section 2 - Hazards Identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Eye irritation (Category 2), H319
Reproductive toxicity (Category 1B), H360D

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements
Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word	Danger
Hazard statement(s)	
H226	Flammable liquid and vapour.
H312 + H332	Harmful in contact with skin or if inhaled.
H319	Causes serious eye irritation.
H360D	May damage the unborn child.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry powder or dry sand to extinguish.
Supplemental Hazard Statements	none

Restricted to professional users.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. Rapidly absorbed through skin.

Section 3 - Composition, Information on Ingredients

3.1 Substances

Synonyms : DMF; N,N-Dimethylmethanamide, Formic acid dimethylamide
Formula : $HCON(CH_3)_2$ C_3H_7NO Hill
Molecular weight : 73.10 g/mol
CAS-No. : 68-12-2
EC-No. : 200-679-5
Index-No. : 616-001-00-X

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

Component	Classification	Concentration
N,N-Dimethylformamide CAS-No. 68-12-2 EC-No. 200-679-5 Index-No. 616-001-00-X	Flam. Liq. 3; Acute Tox. 4; Eye Irrit. 2; Repr. 1B; H226, H332, H312, H319, H360D	<=100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

Section 4 - First Aid Measures

4.1 Description of first aid measures

General advice

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

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

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 effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NOx)

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. 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. For personal protection see section 8.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

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 (see section 13).

6.4 Reference to other sections

For disposal see section 13.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Avoid exposure - obtain special instructions before use.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. For precautions see section 2.2

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. Handle and store under inert gas. Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

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

8.2 Exposure controls

Appropriat engineering controls

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

Personal protective equipment

Eye/face protection

FFace shield and safety glasses 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. Dispose 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: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740, Size M)

Splash contact

Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740, Size M)

Body Protection

Complete suit protecting against chemicals, 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 ABEK (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).

Control of environmental exposure

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

Section 9 - Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Form: liquid, clear Colour: colourless
Odour	amine-like
Odour Threshold	No data available
pH	6,7
Melting point/freezingpoint	Melting point/range: -61 °C
Initial boiling point and boiling range	153 °C
Flash point	58 °C - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or	Upper explosion limit: 15,2 %(V) Lower explosion limit: 2,2 %(V)
explosive limits	No data available
Vapour pressure	3,60 hPa at 20 °C 5,16 hPa at 25 °C
Vapour density	2,52 - (Air = 1.0)
Relative density	0,944 g/mL
Water solubility	completely miscible
Partition coefficient: noctanol/water	log Pow: -1,01
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density	2,52 - (Air = 1.0)

Section 10 - Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products - No data available
In the event of fire: see section 5

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - 3.010 mg/kg (OECD Test Guideline 401)
LD50 Dermal - Rabbit - 1.500 mg/kg
Remarks: (IUCLID)

Skin corrosion/irritation

Skin - Rabbit
Result: No skin irritation
Remarks: (IUCLID)

Serious eye damage/eye irritation

Eyes - Rabbit
Result: Eye irritation
Remarks: (IUCLID)

Respiratory or skin sensitisation

Sensitisation test: - Guinea pig
Result: negative Remarks: (Lit.)
Sensitisation test: - Mouse
Result: negative (OECD Test Guideline 406)

Germ cell mutagenicity

Ames test Salmonella typhimurium
Result: negative (ECHA) Mouse - male - Bone marrow
Result: negative (ECHA)

Carcinogenicity

Carcinogenicity - Did not show carcinogenic effects in animal experiments. (Lit.)
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (N,N-Dimethylformamide)

Reproductive toxicity

May damage the unborn child.

Specific target organ toxicity - single exposure

Acute oral toxicity - Gastrointestinal disturbance, Nausea, Vomiting
Acute inhalation toxicity - Possible damages:, mucosal irritations

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No aspiration toxicity classification

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 28 d - No observed adverse effect level - 238 mg/kg - Lowest observed adverse effect level - 475 mg/kg Subacute toxicity

RTECS: LQ2100000
Warning: intolerance for alcohol can occur up to 4 days after dimethylformamide exposure. N,Ndimethylformamide is considered to be a potent liver toxin., Vomiting, Diarrhoea, Abdominal pain, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption: Headache, Dizziness, Drowsiness Damage to: Kidney, Liver This substance should be handled with particular care

Section 12 - Ecological Information

12.1 Toxicity

Toxicity to fish
flow-through test
LC50 - Lepomis macrochirus (Bluegill sunfish) - 7.100 mg/l - 96 h(N,N-Dimethylformamide) (US-EPA)

Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Daphnia magna (Water flea) - 13.100 mg/l - 48 h(N,NDimethylformamide) (OECD Test Guideline 202)

Toxicity to algae
static test EC50 - Desmodesmus subspicatus (green algae) - > 1.000 mg/l - 72 h (N,N-Dimethylformamide) (DIN 38412)

Toxicity to bacteria
static test EC50 - Vibrio fischeri - 12.300 - 17.500 mg/l - 5 min(N,NDimethylformamide)
Remarks: (External MSDS)

12.2 Persistence and degradability

Biodegradability
aerobic - Exposure time 21 d(N,N-Dimethylformamide)
Result: 100 % - Readily biodegradable.
(OECD Test Guideline 301E)

Biochemical Oxygen Demand (BOD)
900 mg/g(N,N-Dimethylformamide)
Remarks: (Lit.)

Theoretical oxygen demand 1.863 mg/g(N,N-Dimethylformamide)
Remarks: (Lit.)

12.3 Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) - 56 d (N,N-Dimethylformamide)
Bioconcentration factor (BCF): 0,3 - 1,2 (OECD Test Guideline 305C)
Remarks: Does not significantly accumulate in organisms.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Stability in water - ca.50 d(N,N-Dimethylformamide)
Test substance: Water
Remarks: reaction with hydroxyl radicals(calculated)(Lit.)

Section 13 - Disposal Considerations

13.1 Waste treatment methods

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.

Contaminated packaging

Dispose of as unused product.

Section 14 - Transport Information

14.1 UN number

ADR/RID: 2265 IMDG: 2265 IATA: 2265

14.2 UN proper shipping name

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

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packaging group

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

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

14.6 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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

Section 16 - Additional Information

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

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

National Fire Protection Association (U.S.A.):

Health: 1
Flammability: 2
Reactivity: 0

MATERIAL SAFETY DATA SHEET According to regulation (EU)no.1907/2006 **N,N-DIMETHYLFORMAMIDE**		PS
Revision : 01	Date : October 18th, 2022	MSDS Number : 032

Revision history :

Date	Rev	Description
21 Aug 19	00	-
18 Octo 22	01	thorough revision

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. PT. Pancasakti Putra Kencana Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.