

N,N-Dimethylformamide**494488-2L**

Version 1.4

Issuing date 12/07/2016

Revision Date 11/03/2017

Print Date 08/07/2019

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product information**

Trade name : N,N-Dimethylformamide

Number : 000000020243

Recommended use of the chemical and restrictions on use : Laboratory chemicals

Manufacturer or supplier's details : Honeywell Specialty Chemicals Seelze GmbH
Wunstorfer Straße 40
Seelze, 30926

For further information, please contact: : 1-800-368-0050
+1-231-726-3171
(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : **Medical: 1-800-498-5701 or +1-303-389-1414**
: **Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
: **In Japan: +(81)-345209637**
: (24 hours/day, 7 days/week)

2. HAZARDS IDENTIFICATION**Classification of the substance or mixture**

Classification of the substance or mixture : Flammable liquids, Category 3
Acute toxicity, Category 4, Inhalation
Eye irritation, Category 2A
Reproductive toxicity, Category 1B

GHS Label elements, including precautionary statements

Symbol(s)

:



Signal word

: Danger

Hazard statements

: Flammable liquid and vapour.
Causes serious eye irritation.

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Precautionary statements

Harmful if inhaled.

May damage fertility or the unborn child.

: **Prevention:**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ ventilating/ lighting/ equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Wash skin 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 (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTSFormula : C₃H₇NO

Chemical nature : Substance

Chemical name

CAS-No.

Concentration

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N,N-Dimethylformamide
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68-12-2

>=90.00 - <=100.00 %

4. FIRST AID MEASURES

- General advice : First aider needs to protect himself.
Move out of dangerous area.
Take off all contaminated clothing immediately.
- Inhalation : If breathed in, move person into fresh air.
Call a physician immediately.
- Skin contact : After contact with skin, wash immediately with plenty of soap and water.
Call a physician immediately.
- Eye contact : Rinse thoroughly with plenty of water, also under the eyelids.
Protect unharmed eye.
Call a physician immediately.
- Ingestion : When swallowed, allow water to be drunk.
Call a physician immediately.

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Foam
Carbon dioxide (CO₂)
Dry powder
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
- Specific hazards during firefighting : Flammable.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)
nitrogen oxides (NO_x)
Dimethylamine
- Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.
No unprotected exposed skin areas.

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Exposure to decomposition products may be a hazard to health.

Further information

: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Cool containers/tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions,
protective equipment and
emergency procedures

: Evacuate personnel to safe areas.
Wear personal protective equipment. Unprotected persons must be kept away.
Ensure adequate ventilation.
Remove all sources of ignition.

Environmental precautions

: Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
Clean contaminated floors and objects thoroughly while observing environmental regulations.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for
containment and cleaning up

: Ventilate the area.
Do not use sparking tools.
Use explosion-proof equipment.
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE**Handling**

Precautions for safe handling

: Wear personal protective equipment.
Use only in well-ventilated areas.

Advice on protection against
fire and explosion

: Keep product and empty container away from heat and sources of ignition.
No smoking.
Take precautionary measures against static discharges.
Vapours may form explosive mixtures with air.

Temperature class

: T2

Storage

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Conditions for safe storage, including any incompatibilities : Store in area designed for storage of flammable liquids. Protect from physical damage. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Update	Basis
N,N-Dimethylformamide N,N-Dimethylformamide	68-12-2	TL : Threshold limits	(10 ppm)	08 2006	ISHL:Industrial Safety and Health Law OEL
		TWA : Time weighted average	30 mg/m3 (10 ppm)	04 2007	Japan Society for Occupational Health:Japan Society for Occupational Health allowable concentration recommendation value
		SKIN_DES : Skin designation:	Can be absorbed through the skin.	04 2007	Japan Society for Occupational Health:Japan Society for Occupational Health allowable concentration recommendation value

Appropriate engineering controls

Use with local exhaust ventilation.

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Prevent vapour buildup by providing adequate ventilation during and after use.

Individual protection measures, such as personal protective equipment

Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment.
Hand protection	: Impervious butyl rubber gloves Gloves must be inspected prior to use. Replace when worn.
Eye protection	: Safety goggles
Skin and body protection	: Impervious clothing
Hygiene measures	: Take off all contaminated clothing immediately. Keep working clothes separately. Separate rooms are required for washing, showering and changing clothes. Recommended preventive skin protection
Protective measures	: Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Colour	: colourless
Odour	: weak
pH	: 7.0 at , 20 °C
Melting point/range	: -61 °C
Boiling point/boiling range	: 152 - 153 °C at 1,013 hPa
Flash point	: 135.5 °F (57.5 °C) at 1,013.25 hPa Method: DIN 51755
Lower explosion limit	: 2.2 %(V)
Upper explosion limit	: 16 %(V)

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Vapour pressure	: 3.77 hPa at 20 °C(68 °F) 23 hPa at 50 °C(122 °F)
Density	: 0.94 g/cm3 at 20 °C
Water solubility	: Note: completely miscible
Solubility in other solvents	: Note: Soluble in most organic solvents
Partition coefficient: n-octanol/water	: log Pow: -0.85 at 25 °C
Ignition temperature	: 410 °C
Decomposition temperature	: Note: No decomposition if used as directed.
Viscosity, dynamic	: 0.86 mPa.s at 20 °C
Molecular weight	: 73.10 g/mol

10. STABILITY AND REACTIVITY

Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Hazardous polymerization does not occur.
Conditions to avoid	: Heat, flames and sparks.
Incompatible materials to avoid	: Strong oxidizing agents Reducing agents Halogenated compounds Alkali metals Nitrates Oxidizing solids Oxidizing liquids

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Hazardous decomposition products : In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)
nitrogen oxides (NO_x)
Dimethylamine

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : LD50: 3,010 mg/kg
Species: Rat
Method: OECD Test Guideline 401

Acute inhalation toxicity : Note: Classification based on Annex VI of regulation 1272/2008/EC.

Acute dermal toxicity : LD50: > 3,160 mg/kg
Species: Rat
Method: OECD

Skin irritation : Species: Rabbit
Result: slight irritation

Sensitisation : Species: Mouse
Result: Does not cause skin sensitisation.
Method: OECD Test Guideline 406

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish : LC50: 7,100 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

Toxicity to daphnia and other aquatic invertebrates : EC50: 13,100 mg/l
Exposure time: 48 h

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Species: *Daphnia magna* (Water flea)

Method: OECD Test Guideline 202

Toxicity to algae

: LC50: > 1,000 mg/l

Exposure time: 96 h

Species: *Desmodesmus subspicatus* (green algae)

Method: DIN 38412

Toxicity to bacteria

: EC50: 12,300 - 17,500 mg/l

Exposure time: 5 min

Species: *Vibrio fischerii* (Bacteria)**Persistence and degradability**

Biodegradability

: aerobic

Result: Readily biodegradable.

Value: 100 %

Method: OECD 301 E

Bioaccumulative potential

Bioaccumulation

: Species: *Cyprinus carpio* (Carp)

Exposure time: 28 d

Bioconcentration factor (BCF): 0.3 - 1.2

Method: OECD Test Guideline 305C

Note: Bioaccumulation is unlikely.

13. DISPOSAL CONSIDERATIONSWDPCL Waste Disposal and
Public Cleansing Law

: Specially Controlled Industrial Waste

Disposal methods

: In accordance with local and national regulations.

14. TRANSPORT INFORMATION**ADR**

UN/ID No.

: UN 2265

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Description of the goods : N,N-DIMETHYLFORMAMIDE
Class : 3
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

IATA

UN/ID No. : UN 2265
Description of the goods : N,N-Dimethylformamide
Class : 3
Packing group : III
Labels : 3
Packing instruction (cargo aircraft) : 366
Packing instruction (passenger aircraft) : 355
Packing instruction (passenger aircraft) : Y344

IMDG

UN/ID No. : UN 2265
Description of the goods : N,N-DIMETHYLFORMAMIDE
Class : 3
Packing group : III
Labels : 3
EmS Number 1 : F-E
EmS Number 2 : S-D

Marine pollutant : no

15. REGULATORY INFORMATION**National regulatory information**

Chemical Substance : Listed
Control Law : Type II Monitoring Chemical Substance.
DES (JP) : Reference: (2)-680

Substances Subject to be :
Notified Names : Threshold Concentration: 0.1 % wt 299
JP MSDSD

Substances Subject to be : Article 18
Indicated Names : Threshold limits: 0.3 % wt 14.13
JPISHL LR

Vessel Safety Law : Flammable liquids (Article 2 and 3 of rules on shipping and
JP VSL : storage of dangerous goods and its Attached Table 1)

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Aviation Law : Flammable liquid (Article 194 of The Enforcement Rules of
JP AVL Aviation Law and its Attached Table 1)

Fire Service Law : Group 4 Flammable liquids
Type 2 petroleums
Hazardous rank III
Water soluble
Keep away from fire

Poisonous and Deleterious : Not relevant
Substances Control Law

Other international regulations**Notification status**

US. Toxic Substances : On TSCA Inventory
Control Act

Australia. Industrial Chemical : On the inventory, or in compliance with the inventory
(Notification and
Assessment) Act

Canada. Canadian : All components of this product are on the Canadian DSL
Environmental Protection Act
(CEPA). Domestic
Substances List (DSL)

Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Existing Chemicals : On the inventory, or in compliance with the inventory
Inventory (KECI)

Philippines. The Toxic : On the inventory, or in compliance with the inventory
Substances and Hazardous
and Nuclear Waste Control
Act

China. Inventory of Existing : On the inventory, or in compliance with the inventory
Chemical Substances

New Zealand. Inventory of : On the inventory, or in compliance with the inventory
Chemicals (NZIoC), as
published by ERMA New
Zealand

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16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 2*	2
Flammability	: 2	2
Physical Hazard	: 0	
Instability	:	0

* - Chronic health hazard

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

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. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Previous Issue Date: 09/13/2017

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group