

**N,N-Dimethylformamide****076-4**

Version 1.0

Revision Date 02/16/2018

Print Date 02/16/2018

**SECTION 1. IDENTIFICATION**

Product name : N,N-Dimethylformamide

Number : 000000022711

Product Use Description : Solvent

Manufacturer or supplier's details : Manufactured by:  
Honeywell International Inc.  
1953 South Harvey Street  
Muskegon, MI 49442  
USA

Distributed by:  
VWR International  
2360 Argentia Road  
Mississauga, Ontario L5N 5Z7  
CANADA

For more information call : 1-800-932-5000  
(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**  
:  
: (24 hours/day, 7 days/week)

**SECTION 2. HAZARDS IDENTIFICATION****Emergency Overview**

Form : liquid

Color : colourless

Odor : mild amine-like

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**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.  
Harmful if inhaled.  
May damage fertility or the unborn child.

Precautionary statements

: **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.

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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.

**Carcinogenicity**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula : C<sub>3</sub>H<sub>7</sub>NO

Chemical nature : Substance

Chemical name	CAS-No.	Concentration
N,N-Dimethylformamide	68-12-2	100.00 %

**SECTION 4. FIRST AID MEASURES**

Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician.

Ingestion : Do not induce vomiting without medical advice. Never give

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anything by mouth to an unconscious person. Call a physician.

**Notes to physician**

Indication of immediate medical attention and special treatment needed, if necessary : Treat symptomatically.

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Dry chemical  
Carbon dioxide (CO<sub>2</sub>)  
Alcohol-resistant foam  
Cool closed containers exposed to fire with water spray.
- 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 (CO<sub>2</sub>)  
nitrogen oxides (NO<sub>x</sub>)  
Dimethylamine
- Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Wear personal protective equipment.  
Immediately evacuate personnel to safe areas.  
Keep people away from and upwind of spill/leak.  
Ensure adequate ventilation.  
Remove all sources of ignition.  
Do not swallow.  
Avoid breathing vapours, mist or gas.

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Avoid contact with skin, eyes and clothing.

Environmental precautions : Prevent further leakage or spillage if safe to do so.  
Prevent product from entering drains.  
Discharge into the environment must be avoided.  
Do not flush into surface water or sanitary sewer system.  
Do not allow run-off from fire fighting to enter drains or water courses.

Methods and materials for containment and cleaning up : Ventilate the area.  
No sparking tools should be used.  
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).

**SECTION 7. HANDLING AND STORAGE****Handling**

Precautions for safe handling : Wear personal protective equipment.  
Use only in well-ventilated areas.  
Keep container tightly closed.  
Do not smoke.  
Do not swallow.  
Avoid breathing vapours, mist or gas.  
Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion : Keep away from fire, sparks and heated surfaces.  
Take precautionary measures against static discharges.  
Ensure all equipment is electrically grounded before beginning transfer operations.  
Use explosion-proof equipment.  
Keep product and empty container away from heat and sources of ignition.  
No sparking tools should be used.  
No smoking.

**Storage**

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.  
Containers which are opened must be carefully resealed and

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kept upright to prevent leakage.  
Keep away from heat and sources of ignition.  
Keep away from direct sunlight.  
Store away from incompatible substances.  
Container hazardous when empty.  
Do not pressurize, cut, weld, braze, solder, drill, grind or expose  
containers to heat or sources of ignition.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

- |                          |   |   |
|--------------------------|---|---|
| Protective measures      | : | Ensure that eyewash stations and safety showers are close to the workstation location.  |
| Engineering measures     | : | Use with local exhaust ventilation.<br>Prevent vapour buildup by providing adequate ventilation during and after use.   |
| Eye protection           | : | Do not wear contact lenses.<br>Wear as appropriate:<br>Safety glasses with side-shields<br>If splashes are likely to occur, wear:<br>Goggles or face shield, giving complete protection to eyes   |
| Hand protection          | : | Solvent-resistant gloves<br>Gloves must be inspected prior to use.<br>Replace when worn.  |
| Skin and body protection | : | Wear as appropriate:<br>Solvent-resistant apron<br>Flame retardant antistatic protective clothing.<br>If splashes are likely to occur, wear:<br>Protective suit   |
| Respiratory protection   | : | In case of insufficient ventilation, wear suitable respiratory equipment.<br>For rescue and maintenance work in storage tanks use self-contained breathing apparatus.<br>Use NIOSH approved respiratory protection.   |
| Hygiene measures         | : | When using, do not eat, drink or smoke.<br>Wash hands before breaks and immediately after handling the product.<br>Keep working clothes separately.<br>Remove and wash contaminated clothing before re-use.<br>Do not swallow.<br>Avoid breathing vapours, mist or gas. |

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Avoid contact with skin, eyes and clothing.  
This material has an established AIHA ERPG exposure limit.  
The current list of ERPG exposure limits can be found at  
[http://www.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documnts/2011erpgweelhandbook\\_table-only.pdf](http://www.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documnts/2011erpgweelhandbook_table-only.pdf).

**Exposure Guidelines**

Components	CAS-No.	Value	Control parameters	Update	Basis
N,N-Dimethylformamide	68-12-2	TWA : Time weighted average	30 mg/m3 (10 ppm)	10 2006	CAD AB OEL:Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)
N,N-Dimethylformamide	68-12-2	SKIN_DES : Skin designation:	Can be absorbed through the skin.	10 2006	CAD AB OEL:Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)
N,N-Dimethylformamide	68-12-2	TWA : Time weighted average	(10 ppm)	07 2007	CAD BC OEL:Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

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N,N-Dimethylformamide	68-12-2	SKIN_DES : Skin designation:	Can be absorbed through the skin.	07 2007	CAD BC OEL:Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)
N,N-Dimethylformamide	68-12-2	SKIN_DES : Skin designation:	Can be absorbed through the skin.	03 2011	CAD MB OEL:Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)
N,N-Dimethylformamide	68-12-2	TWA : Time weighted average	(10 ppm)	03 2011	CAD MB OEL:Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)
N,N-Dimethylformamide	68-12-2	TWA : Time weighted average	(10 ppm)	11 2010	CAD ON OEL:Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)



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N,N-Dimethylformamide	68-12-2	SKIN_DES : Skin designation:	Can be absorbed through the skin.	11 2010	CAD ON OEL:Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)
N,N-Dimethylformamide	68-12-2	8 HR ACL : 8 hour average contamination limit:	(10 ppm)	05 2009	CAD SK OEL:Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)
N,N-Dimethylformamide	68-12-2	SKIN_DES : Skin designation:	Can be absorbed through the skin.	05 2009	CAD SK OEL:Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)
N,N-Dimethylformamide	68-12-2	15 MIN ACL : 15 minute average contamination limit:	(15 ppm)	05 2009	CAD SK OEL:Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)
N,N-Dimethylformamide	68-12-2	TWA : Time weighted average	30 mg/m3 (10 ppm)	12 2008	OEL (QUE):Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

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N,N-Dimethylformamide	68-12-2	SKIN_DES : Skin designation:	Can be absorbed through the skin.	12 2008	OEL (QUE):Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)
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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical state	: liquid
Color	: colourless
Odor	: mild amine-like
Odor threshold	: Note: no data available
pH	: Note: neutral
Freezing point	: -60.4 °C
Boiling point/boiling range	: 153 °C
Flash point	: 136 °F (58 °C) Method: closed cup
Lower explosion limit	: 2.2 %(V)
Upper explosion limit	: 15.2 %(V)
Vapor pressure	: 3.6 hPa
Vapor density	: 2.5 Note: (Air = 1.0)

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Density	: 0.949 g/cm <sup>3</sup> at 20 °C
Water solubility	: Note: completely soluble
Ignition temperature	: 445 °C
Viscosity, kinematic	: Note: no data available
Molecular weight	: 73.10 g/mol

**SECTION 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. Keep away from direct sunlight.
Incompatible materials	: Strong oxidizing agents Halogenated compounds Iron Carbon tetrachloride Alkyl aluminums Inorganic nitrates
Hazardous decomposition products	: In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO <sub>2</sub> ) nitrogen oxides (NO <sub>x</sub> ) Toxic gases/vapours Dimethylamine

**SECTION 11. TOXICOLOGICAL INFORMATION**

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Acute oral toxicity	: LD50: 2,800 mg/kg Species: Rat
Acute inhalation toxicity	: LC50: > 5.9 mg/l , vapour Exposure time: 4 h Species: Rat
Acute dermal toxicity	: LD50: 4,720 mg/kg Species: Rabbit
Skin irritation	: Species: Rabbit Result: slight irritation
Eye irritation	: Species: Rabbit Result: Irritating to eyes.
Repeated dose toxicity	: Species: Rat Application Route: Inhalation Note: Liver toxicity (100 or 400 ppm for 6h/day, 5 days/week for 2 yr.)  : Species: Mouse Application Route: Inhalation Note: Liver toxicity (100 or 400 ppm, males and 400 ppm, females for 6h/day, 5days/week for 18 mos.)

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity effects**

Toxicity to fish	: LC50: > 500 mg/l Exposure time: 48 h Species: Leuciscus idus (Golden orfe)
Toxicity to daphnia and other aquatic invertebrates	: LC50: 12.4 g/l Exposure time: 48 h

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Species: Daphnia magna (Water flea)

Toxicity to algae : LC50: > 1,000 mg/l  
Exposure time: 96 h  
Species: Scenedesmus capricornutum (fresh water algae)

**Further information on ecology****SECTION 13. DISPOSAL CONSIDERATIONS**

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

**SECTION 14. TRANSPORT INFORMATION**

**TDG** UN/ID No. : UN 2265  
Proper shipping name : N,N-DIMETHYLFORMAMIDE  
Class : 3  
Packing group : III  
Hazard Labels : 3

**IATA** UN/ID No. : UN 2265  
Description of the goods : N,N-DIMETHYLFORMAMIDE  
Class : 3  
Packaging group : III  
Hazard 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  
Packaging group : III  
Hazard Labels : 3  
EmS Number : F-E, S-D  
Marine pollutant : no

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**SECTION 15. REGULATORY INFORMATION****Inventories**

US. Toxic Substances Control Act : On TSCA Inventory

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

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

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

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

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

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

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

**National regulatory information**

US. EPA CERCLA Hazardous Substances (40 CFR 302) : The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ):

Reportable quantity: 100 lbs  
: N,N-Dimethylformamide 68-12-2

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**WHMIS****Components**

: N,N-Dimethylformamide

68-12-2

**NPRI****Components**

: N,N-Dimethylformamide

68-12-2

**SECTION 16. OTHER INFORMATION**

	<b>HMIS III</b>	<b>NFPA</b>
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.

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group