

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : N-Methylpyrrolidone (304, 305)

MSDS Number : 000000011401

Product Use Description : Solvent

Manufacturer or supplier's details : Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962-1057

For more information call : 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**
:
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid, clear

Color : colourless

Odor : amine-like

Classification of the substance or mixture

Classification of the substance or mixture : Flammable liquids, Category 4
Skin irritation, Category 2
Eye irritation, Category 2A
Reproductive toxicity, Category 1B
Specific target organ toxicity - single exposure, Category 3,

N-Methylpyrrolidone (304, 305)

000000011401

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

Respiratory system

GHS Label elements, including precautionary statements

Symbol(s)

:



Signal word

: Danger

Hazard statements

: Combustible liquid
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
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.
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/ eye protection/ face protection.**Response:**IF ON SKIN: Wash with plenty of soap and water.
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 skin irritation occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.**Storage:**

Store in a well-ventilated place. Keep container tightly closed.

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

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 : C₅H₉NO

Chemical nature : Substance

Chemical Name	CAS-No.	Concentration
N-methyl-2-pyrrolidone	872-50-4	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 if irritation develops or persists.

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

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

Notes to physician

Treatment : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
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 : Combustible.
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 dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : 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.
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.

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

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 for cleaning up : Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

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

Requirements for storage areas and containers : 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 kept upright to prevent leakage.
Keep away from heat and sources of ignition.

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

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

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
N-methyl-2-pyrrolidone	872-50-4	TWA : time weighted average	40 mg/m ³ (10 ppm)	2007	WEEL:US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

N-methyl-2-pyrrolidone	872-50-4	SKIN_DE S : Skin designati on:	Can be absorbed through the skin.	2007	WEEL:US. AIHA Workplace Environmental Exposure Level (WEEL) Guides
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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid, clear

Color : colourless

Odor : amine-like

pH : Note: not applicable

Melting point/freezing point : -24 °C

Boiling point/boiling range : 202 °C

Flash point : 190 °F (88 °C)
Method: closed cup

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

Lower explosion limit	:	1 %(V)
Upper explosion limit	:	9.5 %(V)
Vapor pressure	:	> 1.33 hPa at 20 °C(68 °F)
Vapor density	:	3.4 Note: (Air = 1.0)
Density	:	1.0304 g/cm ³ at 20 °C 1.0259 g/cm ³ at 25 °C
Water solubility	:	Note: completely miscible
Ignition temperature	:	346 °C
Molecular weight	:	99.15 g/mol

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Heat, flames and sparks. Keep away from direct sunlight.
Incompatible materials to avoid	:	Oxidizing agents Acids Aldehydes Acid anhydrides Isocyanates

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

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Do not mix with different types of chlorinating chemicals.
May attack many plastics, rubbers and coatings.

Hazardous decomposition products : In case of fire hazardous decomposition products may be produced such as:
Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : LD50: 3,914 mg/kg
Species: rat

Acute inhalation toxicity : LC50: > 5.1 mg/l , vapour
Exposure time: 4 h
Species: rat
Note: No deaths

Acute dermal toxicity : LD50: 8,000 mg/kg
Species: rabbit

Skin irritation : Species: rabbit
Result: Mild skin irritation

Eye irritation : Species: rabbit
Result: Moderate eye irritation

Further information : Note: Contains material which may cause birth defects based on animal data.

SECTION 12. ECOLOGICAL INFORMATION

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

Ecotoxicity effects

Toxicity to daphnia and other aquatic invertebrates : LC50: 3,135 mg/l
Exposure time: 96 h
Species: Daphnia magna (Water flea)

Further information on ecology

Additional ecological information : Accumulation in aquatic organisms is unlikely.

SECTION 13. DISPOSAL CONSIDERATIONS

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

SECTION 14. TRANSPORT INFORMATION

DOT UN/ID No. : NA 1993
Proper shipping name : Combustible liquid, n.o.s.
(N-Methyl-2-pyrrolidone)
Class CBL
Packing group III
Hazard Labels NONE
Required only for US-DOT Bulk Shipments

TDG Not dangerous goods

IATA Not dangerous goods

IMDG Not dangerous goods

SECTION 15. REGULATORY INFORMATION**Inventories**

US. Toxic Substances Control Act : On TSCA Inventory

Australia. Industrial : On the inventory, or in compliance with the inventory

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

Chemical (Notification and Assessment) Act

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. Toxic Chemical Control Law (TCCL) List : 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

SARA 302 Components : SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:
: N-methyl-2-pyrrolidone 872-50-4

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

California Prop. 65 : WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
 N-methyl-2-pyrrolidone 872-50-4

Massachusetts RTK : N-methyl-2-pyrrolidone 872-50-4

New Jersey RTK : N-methyl-2-pyrrolidone 872-50-4

Pennsylvania RTK : N-methyl-2-pyrrolidone 872-50-4

WHMIS Classification : B3: Combustible Liquid
 D2B: Toxic Material Causing Other Toxic Effects
 This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 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

N-Methylpyrrolidone (304, 305)**000000011401**

Version 1.6

Revision Date 07/21/2014

Print Date 12/26/2014

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: 04/14/2014

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group