1. Identification

Product identifier used on the label

N-Methylpyrrolidone dist.

Recommended use of the chemical and restriction on use

* The “Recommended use” identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula:	C(5)H(9)NO
Chemical family:	heterocyclic, amides
Synonyms:	NMP TECHNICAL

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Flam. Liq.	4	Flammable liquid
Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	2A	Serious eye damage/eye irritation
Repr.	1B (unborn child)	Reproductive toxicity
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H227	Combustible liquid.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H360	May damage the unborn child.

Precautionary Statements (Prevention):

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P271	Use only outdoors or in a well-ventilated area.
P210	Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P260	Do not breathe dust/gas/mist/vapours.
P202	Do not handle until all safety precautions have been read and understood.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P352	IF ON SKIN (on hair): Wash with plenty of soap and water.
P308 + P311	IF exposed or concerned: Call a POISON CENTER or doctor/physician.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P311	If eye irritation persists: Call a POISON CENTER or doctor/physician.
P362 + P364	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage):

P233	Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

See section 12 - Results of PBT and vPvB assessment.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

NOT FOR COSMETIC USE
WARNING:
COMBUSTIBLE LIQUID.
Irritating to eyes and skin.
INGESTION MAY CAUSE GASTRIC DISTURBANCES.
A component of this product has been shown to be developmentally toxic in animal studies.
Use with local exhaust ventilation.
Avoid contact with the skin, eyes and clothing.
Wear a NIOSH-certified (or equivalent) organic vapour respirator.
Wear chemical resistant protective gloves.
Wear NIOSH-certified chemical goggles.
Wear protective clothing.
Eye wash fountains and safety showers must be easily accessible.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
872-50-4	>= 99.7 - <= 99.9 %	N-Methylpyrrolidone
60544-40-3	>= 0.05 - <= 0.4 %	Pyrrolidinone, dimethyl-

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
872-50-4	>= 99.8 %	N-Methylpyrrolidone
60544-40-3	<= 0.4 %	Pyrrolidinone, dimethyl-

4. First-Aid Measures

Description of first aid measures

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:
Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Seek medical attention.

If swallowed:
Rinse mouth and then drink plenty of water. Induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Indication of any immediate medical attention and special treatment needed

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, nitrous gases
Under certain conditions in case of fire other hazardous combustion products may be generated.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear appropriate respiratory protection. Use personal protective clothing. Ensure adequate ventilation.

Environmental precautions

This product is not regulated by RCRA. This product is not regulated by CERCLA ('Superfund').

Methods and material for containment and cleaning up

For small amounts: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder).
Dispose of absorbed material in accordance with regulations.
For large amounts: Pump off product.
Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Product should be worked up in closed equipment as far as possible.

Avoid contact with skin and eyes. Wear suitable gloves and eye/face protection.

Protection against fire and explosion:
The product is combustible.

Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Containers should be stored tightly sealed in a dry place.

8. Exposure Controls/Personal Protection

Advice on system design:
Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) organic vapour respirator. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Hand protection:
Wear chemical resistant protective gloves., butyl rubber (butyl) - 0.7 mm coating thickness, Consult with glove manufacturer for testing data.

Eye protection:
Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists. Safety glasses with side-shields.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures:
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with the skin, eyes and clothing. Females in early pregnancy must never be exposed to the substance. Under no circumstances should the product come into contact with the skin of pregnant women or be inhaled by them. Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to minimize contact. Wash soiled clothing immediately. When using do not eat or drink. When using do not smoke. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	mild, amine-like	
Odour threshold:		Not determined due to potential health hazard by inhalation.
Colour:	clear colourless	
pH value:	8.5 - 10	(100 g/l, 20 °C)
Melting point:	-23.6 °C	(760 mmHg)
Boiling point:	204.3 °C	(760 mmHg)
Flash point:	196 °F	(ASTM D93)
Flammability:	not readily ignited	
Lower explosion limit:		For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.
Upper explosion limit:		For liquids not relevant for classification and labelling.

Autoignition:	245 °C	
Vapour pressure:	0.32 hPa	(20 °C) (measured)
Density:	1.028 g/cm3	(25 °C) (DIN 51757)
Relative density:	1.0300	(20 °C)
Vapour density:		not determined
Partitioning coefficient n-octanol/water (log Pow):	-0.46	(25 °C) (OECD Guideline 107)
Self-ignition temperature:		not self-igniting
Thermal decomposition:	365 °C, > 100 kJ/kg (DSC (DIN 51007)) Thermal decomposition above the indicated temperature is possible. It is not a self-decompositionable substance.	
Viscosity, dynamic:	1.661 mPa.s	(25 °C)
Solubility in water:		Literature data., miscible
Solubility (qualitative):	miscible solvent(s): organic solvents,	
Molar mass:	99.13 g/mol	
Evaporation rate:		Value can be approximated from Henry's Law Constant or vapor pressure.

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
not fire-propagating (other)

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
Exothermic reaction. Reacts with strong acids and alkalies.
Reacts with oxidizing agents.

Conditions to avoid
Avoid all sources of ignition: heat, sparks, open flame.

Incompatible materials
strong acids, oxidizing agents

Hazardous decomposition products

Decomposition products:
Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxides

Thermal decomposition:
365 °C (DSC (DIN 51007))
Thermal decomposition above the indicated temperature is possible. It is not a self-decompositionable substance.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Of low toxicity after single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

Oral
Type of value: LD50
Species: rat (male/female)
Value: 4,150 mg/kg (OECD Guideline 401)
Literature data.

Inhalation
Type of value: LC50
Species: rat (male/female)
Value: > 5.1 mg/l (OECD Guideline 403)
Exposure time: 4 h
An aerosol was tested.
Limit concentration test only (LIMIT test). No mortality was observed.

Dermal
Type of value: LD50
Species: rat (male/female)
Value: > 5,000 mg/kg (OECD Guideline 402)
Literature data.

Assessment other acute effects
Assessment of STOT single:
Causes temporary irritation of the respiratory tract.

Irritation / corrosion
Assessment of irritating effects: Eye contact causes irritation. Skin contact causes irritation. Causes temporary irritation of the respiratory tract. EU-classification

Skin
Species: rabbit
Result: Slightly irritating.
Method: Draize test
Literature data. The European Union (EU) has classified this substance with 'Irritating to skin' (R38).

Eye
Species: rabbit
Result: Irritant.
Method: Draize test
Literature data.

Sensitization
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Mouse Local Lymph Node Assay (LLNA)
Species: mouse
Result: Non-sensitizing.
Method: OECD Guideline 429
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aspiration Hazard
not applicable

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation. The substance may cause damage to the testes after repeated inhalation of high doses.

Experimental/calculated data: rat by inhalation 2 Week 10 dose
rat by inhalation 2 Week 10 dose
rat by inhalation 2 Week 10 dose

Genetic toxicity
Assessment of mutagenicity: The substance was not mutagenic in bacteria. No mutagenic effect was found in various tests with mammalian cell culture and mammals.

Carcinogenicity
Assessment of carcinogenicity: In long-term animal studies in which the substance was given by inhalation, a carcinogenic effect was not observed. In long-term studies in rats in which the substance was given by feed, a carcinogenic effect was not observed. In long-term studies in rodents exposed to high doses, a tumorigenic effect was found; however, these results are thought to be due to a rodent-specific liver effect that is not relevant to humans. The whole of the information assessable provides no indication of a carcinogenic effect.

Reproductive toxicity
Assessment of reproduction toxicity: As shown in animal studies, the product may cause damage to the testes after repeated high exposures that cause other toxic effects.

Teratogenicity
Assessment of teratogenicity: The substance caused malformations/developmental toxicity in laboratory animals.

Symptoms of Exposure

Medical conditions aggravated by overexposure
Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish
LC50 (96 h) > 500 mg/l, Salmo gairdneri, syn. O. mykiss (static)
The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates
EC50 (24 h) > 1,000 mg/l, Daphnia magna (DIN 38412 Part 11, static)
The details of the toxic effect relate to the nominal concentration.

Aquatic plants
EC50 (72 h) > 500 mg/l, Scenedesmus subspicatus (DIN 38412 Part 9)
The details of the toxic effect relate to the nominal concentration.

Chronic toxicity to fish
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates
No observed effect concentration (21 d) 12.5 mg/l, Daphnia magna (OECD Guideline 202, part 2, semistatic)
The details of the toxic effect relate to the nominal concentration.

Assessment of terrestrial toxicity
Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms
DIN EN ISO 8192 aquatic
activated sludge, industrial/EC50 (0.5 h): > 600 mg/l
The details of the toxic effect relate to the nominal concentration.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Readily biodegradable (according to OECD criteria).

Elimination information

73 % BOD of the ThOD (28 d) (OECD 301C; ISO 9408; 92/69/EEC, C.4-F) (aerobic, Inoculum conforming to MITI requirements (OECD 301C)) Readily biodegradable (according to OECD criteria).

Assessment of stability in water
In contact with water the substance will hydrolyse slowly.

Bioaccumulative potential

Assessment bioaccumulation potential
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Mobility in soil

Assessment transport between environmental compartments
The substance will rapidly evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

Additional information

Sum parameter

Chemical oxygen demand (COD): (DIN 38409 Part 41) approx. 1,600 mg/g

Biochemical oxygen demand (BOD) Incubation period 5 d: < 2 mg/g

Adsorbable organically-bound halogen (AOX):
This product contains no organically-bound halogen.

13. Disposal considerations

Waste disposal of substance:
Dispose of in accordance with national, state and local regulations. Do not discharge into waterways or sewer systems without proper authorization.

Container disposal:
Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport
USDOT

Classified as combustible liquid in containers greater than 119 gallons.

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Fire; Chronic; Acute

EPCRA 313:

CAS Number	Chemical name
872-50-4	N-Methylpyrrolidone

CERCLA RQ	CAS Number	Chemical name

100 LBS	74-89-5	methylamine

State regulations

State RTK	CAS Number	Chemical name
MA, NJ, PA	872-50-4	N-Methylpyrrolidone

CA Prop. 65:
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

NFPA Hazard codes:
Health : 2 Fire: 2 Reactivity: 0 Special:

HMIS III rating
Health: 2¤ Flammability: 2 Physical hazard: 0

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Eye Dam./Irrit.	2A	Serious eye damage/eye irritation
Skin Corr./Irrit.	2	Skin corrosion/irritation
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
Repr.	1B (unborn child)	Reproductive toxicity
Flam. Liq.	4	Flammable liquid
Acute Tox.	5 (oral)	Acute toxicity

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2014/07/30

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