SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : N-Methyl-2-pyrrolidone

Manufacturer or supplier's details

Company : Nexeo Solutions LLC
Address : 3 Waterway Square Place Suite 1000
Woodlands, Tx. 77380
United States of America

Emergency telephone number:
Health North America: 1-855-NEXEO4U (1-855-639-3648)
Health International: 1-855-NEXEO4U (1-855-639-3648)
Transport North America: CHEMTREC 800.424.9300

Additional Information:
Responsible Party: Product Safety Group
E-Mail: msds@nexeosolutions.com
SDS Requests: 1-855-429-2661
SDS Requests Fax: 1-281-500-2370
Website: www.nexeosolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Flammable liquids : Category 4
Skin irritation : Category 2
Eye irritation : Category 2A
Reproductive toxicity : Category 1B
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

GHS Label element
Hazard pictograms : 

Signal word : Danger
Hazard statements : H227 Combustible liquid.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H360 May damage fertility or the unborn child.

Precautionary statements:

**Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
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.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required.

**Response:**
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P332 + P313 IF skin irritation occurs: Get medical advice/ attention.
P337 + P313 IF eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

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

**Disposal:**
P501 Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

**Carcinogenicity:**

IARC

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Safety Data Sheet
N-Methyl-2-pyrrolidone

Version 1.0
Revision Date: 10/27/2014

ACGIH
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP
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.

Emergency Overview

<table>
<thead>
<tr>
<th>Appearance</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>clear, light yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>mild, amine-like, ammoniacal</td>
</tr>
<tr>
<td>Hazard Summary</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Substance

Hazardous components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Chemical Name</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>872-50-4</td>
<td>1-Methyl-2-pyrrolidone</td>
<td>90 - 100</td>
</tr>
</tbody>
</table>

Molecular formula: C5H9NO

Synonyms: 2-Pyrrolidinone, 1-methyl-, N-Methyl-2-pyrrolidone, NMP,

SECTION 4. FIRST AID MEASURES

General advice:
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled:
If unconscious place in recovery position and seek medical advice.
If symptoms persist, call a physician.
In case of skin contact: If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact: Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed: Clean mouth with water and drink afterwards plenty of water. Induce vomiting immediately and call a physician. Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

Notes to physician: Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media: Carbon dioxide (CO2) Dry chemical Water spray Foam

Unsuitable extinguishing media: High volume water jet

Specific hazards during firefighting: Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products: Carbon oxides Nitrogen oxides (NOx)

Specific extinguishing methods: Use a water spray to cool fully closed containers.

Further information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments.
Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

NFPA Flammable and Combustible Liquids Classification:
Combustible Liquid Class IIIA

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment.

Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling: Avoid formation of aerosol. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage: No smoking. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Components</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>872-50-4</td>
<td>1-Methyl-2-pyrrolidone</td>
<td>TWA</td>
<td>10 ppm</td>
<td>US WEEL</td>
</tr>
</tbody>
</table>

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>5-Hydroxy-N-methyl-2-pyrrolidone</td>
<td>In urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>100 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

### Personal protective equipment

**Respiratory protection**: No personal respiratory protective equipment normally required. In the case of vapour formation use a respirator with an approved filter.

**Hand protection**

**Remarks**: The suitability for a specific workplace should be discussed with the producers of the protective gloves.

**Eye protection**: Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

**Skin and body protection**: impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

**Hygiene measures**: When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Colour: clear, light yellow
Odour: mild, amine-like, ammoniacal
Odour Threshold: No data available
pH: 8.5 - 10 @ 100 g/l 20 °C (68 °F)
Freezing Point (Melting point/range): -24.4 - -23.6 °C (-11.9 - -10.5 °F) (1013 hPa)
Boiling Point (Boiling point/boiling range): 202 °C (396 °F) (1013 hPa)
Flash point: 91 °C (196 °F) (1013 hPa)
Evaporation rate: No data available
Flammability (solid, gas): No data available
Burning rate: No data available
Upper explosion limit: 9.5 %(V)
Lower explosion limit: 1.3 %(V)
Vapour pressure: 0.24 mmHg @ 20 °C (68 °F)
Relative vapour density: 3.4 @ 15.5 - 32.2 °C (59.9 - 90.0 °F) AIR=1
Relative density: 1.03 @ 20 °C (68 °F)
Density: 1.028 g/cm3 @ 25 °C (77 °F)
Bulk density: No data available
Solubility(ies)
  Water solubility: 1,000 g/l completely miscible @ 20 °C (68 °F)
Solubility in other solvents: completely miscible
Solvent: organic solvents

Partition coefficient: n-octanol/water: log Pow: -0.46 @ 25 °C (77 °F)

Auto-ignition temperature: 245 °C 760 mmHg

Thermal decomposition: > 300 °C

Viscosity
Viscosity, dynamic: 1.661 mPa.s @ 25 °C (77 °F)

Oxidizing properties: The substance or mixture is not classified as oxidizing.

SECTION 10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Vapours may form explosive mixture with air.

Conditions to avoid: Keep away from heat, flame, sparks and other ignition sources.
Exposure to moisture.

Incompatible materials: Strong oxidizing agents
Strong acids
Bases
Strong reducing agents
Humid air

Hazardous decomposition products: carbon dioxide and carbon monoxide
nitrogen oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:
872-50-4:

MSDS Number: 100000004560 8 / 18
Safety Data Sheet
N-Methyl-2-pyrrolidone

Version 1.0     Revision Date: 10/27/2014

Acute oral toxicity  : LD50 (rat): 4,150 mg/kg
                      Method: OECD Test Guideline 401
                      GLP: no

Acute inhalation toxicity  : LC50 (rat, male and female): > 5.1 mg/l
                          Exposure time: 4 h
                          Method: OECD Test Guideline 403
                          GLP: yes
                          Assessment: The component/mixture is low toxic after short term inhalation.

Acute dermal toxicity  : LD50 (rat, male and female): > 5,000 mg/kg
                      Method: OECD Test Guideline 402

Skin corrosion/irritation

Product:
Remarks: Irritating to skin.

Components:
872-50-4:
Species: rabbit
Method: OECD Test Guideline 404
Result: Irritating to skin.
GLP: yes

Serious eye damage/eye irritation

Product:
Remarks: Irritating to eyes.

Components:
872-50-4:
Species: rabbit
Result: Irritating to eyes.
Method: OECD Test Guideline 405
GLP: no

Respiratory or skin sensitisation

Components:
872-50-4:
Test Type: lymph node assay
Species: mouse
Method: OECD Test Guideline 429
Result: Did not cause sensitisation on laboratory animals.
Test substance: Information given is based on data obtained from similar substances.
Germ cell mutagenicity

Components:
872-50-4:
Genotoxicity in vitro: Test Type: Ames test
   Test species: Salmonella typhimurium
   Metabolic activation: with and without metabolic activation
   Method: OECD Test Guideline 471
   Result: negative
GLP: no

Genotoxicity in vivo: Test Type: In vivo micronucleus test
   Test species: mouse (male and female)
   Application Route: Oral
   Dose: 950; 1,900 and 3,800 mg/kg bw
   Method: OECD Test Guideline 474
   Result: negative
GLP: yes

Germ cell mutagenicity-Assessment: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:
872-50-4:
Species: mouse, (male and female)
Application Route: Oral
Exposure time: 18 mo
Dose: 0; 600; 1,200; 7,200 ppm
NOAEL: 600 ppm

Method: OECD Test Guideline 451
Result: Limited evidence of carcinogenic effects
Symptoms: increase incidence of hepatocellular carcinomas
GLP: yes

Carcinogenicity - Assessment: Not classifiable as a human carcinogen.

Reproductive toxicity

Components:
872-50-4:
Effects on fertility: Test Type: Two-generation study
   Species: rat, male and female
   Application Route: oral
Dose: 0, 50, 160, 500/350 mg/kg bw/
General Toxicity - Parent: NOAEL: 350 mg/kg bw
General Toxicity F1: NOAEL: 160 mg/kg bw
Symptoms: Fetal effects. Reduced embryonic survival
Method: OECD Test Guideline 416
Result: Embryotoxic effects and adverse effects on the offspring were detected.
GLP: yes

Effects on foetal development:

Species: rat
Application Route: oral
Dose: 0, 125, 250, 500, 750 mg/kg b
Duration of Single Treatment: 10 d
General Toxicity Maternal: NOAEL: 125 mg/kg bw
Teratogenicity: NOAEL: 250 mg/kg bw
Embryo-foetal toxicity.: NOAEL: 125 mg/kg
Symptoms: Skeletal malformations., Visceral malformations., Reduced number of viable fetuses.
Method: OECD Test Guideline 414
Result: Teratogenic effects., Developmental toxicity occurred at maternal toxicity dose levels
GLP: yes

Reproductive toxicity - Assessment:

Presumed human reproductive toxicant

STOT - single exposure
Product: No data available
Components:
872-50-4:

<table>
<thead>
<tr>
<th>Exposure routes</th>
<th>Target Organs</th>
<th>Assessment</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Respiratory system</td>
<td>May cause respiratory irritation., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.</td>
<td></td>
</tr>
</tbody>
</table>

STOT - repeated exposure
Product: No data available
Components:
872-50-4: No data available
Safety Data Sheet
N-Methyl-2-pyrrolidone

Version 1.0

Repeated dose toxicity

Components:
872-50-4:
Species: rat, male and female
NOAEL: 3000 ppm
LOAEL: 7500 ppm
Application Route: Oral
Exposure time: 90 d
Number of exposures: daily
Dose: 3000, 7500, and 18000 ppm
Method: OECD Test Guideline 408
GLP: yes

Aspiration toxicity

Product:
No aspiration toxicity classification

Further information

Product:
Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:
872-50-4:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
GLP: no

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 24 h
Test Type: static test
GLP: no

Toxicity to algae: EC50 (Desmodesmus subspicatus): > 100 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Toxicity to bacteria: LC 50 (Bacteria): 9,000 mg/l

Persistence and degradability

**Components:**

**872-50-4:**

Biodegradability: aerobic
- Inoculum: activated sludge
- Concentration: 100 mg/l
- Result: Readily biodegradable.
- Biodegradation: 73%
- Exposure time: 28 d
- Method: OECD Test Guideline 301C
- GLP: No data available

Bioaccumulative potential

**Components:**

**872-50-4:**

Partition coefficient: n-octanol/water
- log Pow: -0.38

Mobility in soil
- No data available

Other adverse effects
- No data available

Product:

**Regulation:** 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
- Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
- Additional ecological information: No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
- Waste from residues: Dispose of in accordance with all applicable local, state and federal regulations.
- For assistance with your waste management needs - including disposal, recycling and waste stream reduc-
Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

IATA (International Air Transport Association): Not regulated as a dangerous good

IMDG-Code: Not regulated as a dangerous good

DOT (Department of Transportation): NA1993, Combustible liquid, n.o.s., (1-METHYL-2-PYRROLIDONE), CBL, III

Special Notes: The flash point for this material is greater than 100 F (38 C). Therefore, in accordance with 49 CFR 173.150(f) non-bulk containers (<450L or <119 gallon capacity) of this material may be shipped as non-regulated when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

SECTION 15. REGULATORY INFORMATION

OSHA Hazards: Combustible Liquid, Moderate skin irritant, Moderate eye irritant, Moderate respiratory irritant, Teratogen

WHMIS Classification: B3: Combustible Liquid
D2A: Very Toxic Material Causing Other Toxic Effects
D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312: Fire Hazard
Hazards

Acute Health Hazard
Chronic Health Hazard

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

SARA 313
The following components are subject to reporting levels established by SARA Title III, Section 313:

872-50-4 1-Methyl-2-pyrrolidone 100 %

Clean Air Act
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC’s (40 CFR 60.489).

Clean Water Act
This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know
872-50-4 1-Methyl-2-pyrrolidone 90 - 100 %

Pennsylvania Right To Know
872-50-4 1-Methyl-2-pyrrolidone 90 - 100 %

New Jersey Right To Know
872-50-4 1-Methyl-2-pyrrolidone 90 - 100 %

California Prop 65
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
872-50-4 1-Methyl-2-pyrrolidone

The components of this product are reported in the following inventories:

<table>
<thead>
<tr>
<th>Switzerland. New notified substances and declared preparations</th>
<th>:</th>
<th>y (positive listing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(The formulation contains substances listed on the Swiss Inventory)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Safety Data Sheet
### N-Methyl-2-pyrrolidone

<table>
<thead>
<tr>
<th>Table Label</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States TSCA Inventory</td>
<td>y (positive listing) (On TSCA Inventory)</td>
</tr>
<tr>
<td>Canadian Domestic Substances List (DSL)</td>
<td>y (positive listing) (All components of this product are on the Canadian DSL.)</td>
</tr>
<tr>
<td>Australia Inventory of Chemical Substances (AICS)</td>
<td>y (positive listing) (On the inventory, or in compliance with the inventory)</td>
</tr>
<tr>
<td>New Zealand. Inventory of Chemical Substances</td>
<td>y (positive listing) (On the inventory, or in compliance with the inventory)</td>
</tr>
<tr>
<td>Japan. ENCS - Existing and New Chemical Substances Inventory</td>
<td>y (positive listing) (On the inventory, or in compliance with the inventory)</td>
</tr>
<tr>
<td>Japan. ISHL - Inventory of Chemical Substances (METI)</td>
<td>y (positive listing) (On the inventory, or in compliance with the inventory)</td>
</tr>
<tr>
<td>Korea. Korean Existing Chemicals Inventory (KECI)</td>
<td>y (positive listing) (On the inventory, or in compliance with the inventory)</td>
</tr>
<tr>
<td>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>y (positive listing) (On the inventory, or in compliance with the inventory)</td>
</tr>
<tr>
<td>China. Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>y (positive listing) (On the inventory, or in compliance with the inventory)</td>
</tr>
</tbody>
</table>
SECTION 16. OTHER INFORMATION

Further information

NFPA:  

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Health</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

HMIS III:

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2*</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

0 = not significant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data may become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by NEXEO™ Solutions EHS Product Safety Department (1-855-429-2661) MSDS@nexeosolutions.com.

Material number:  
16056628, 16056627, 16062165, 16052616, 72970, 732504, 16035296, 16024509, 780310, 769857, 769358, 72989, 105751, 88420, 20438, 547044, 547043, 105732, 150951, 71289, 105889, 56750, 144348, 139248, 20440, 20439, 712753, 643520, 73488, 621148, 612623, 104048, 554342, 554151, 104965, 136401, 506704, 502673, 501516

Key or legend to abbreviations and acronyms used in the safety data sheet

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose 50%</td>
</tr>
<tr>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
</tr>
<tr>
<td>LOAEL</td>
<td>Lowest Observed Adverse Effect Level</td>
</tr>
<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety &amp; Health</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
</tr>
</tbody>
</table>
Safety Data Sheet
**N-Methyl-2-pyrrolidone**

Version 1.0  
Revision Date: 10/27/2014

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration</td>
</tr>
<tr>
<td>EC50 50%</td>
<td>Effective Concentration 50%</td>
</tr>
<tr>
<td>EGST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
</tr>
<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
</tr>
<tr>
<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater Than or Equal To</td>
</tr>
<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IECSC</td>
<td>Inventory of Existing Chemical Substances in China</td>
</tr>
<tr>
<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
</tr>
<tr>
<td>KECI</td>
<td>Korea, Existing Chemical Inventory</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less Than or Equal To</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal Concentration 50%</td>
</tr>
<tr>
<td>NZIoC</td>
<td>New Zealand Inventory of Chemicals</td>
</tr>
<tr>
<td>NOAEL</td>
<td>No Observable Adverse Effect Level</td>
</tr>
<tr>
<td>NOEC</td>
<td>No Observed Effect Concentration</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>PICCS</td>
<td>Philippines Inventory of Commercial Chemical Substances</td>
</tr>
<tr>
<td>PRNT</td>
<td>Presumed Not Toxic</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-term Exposure Limit</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
</tr>
<tr>
<td>UVCB</td>
<td>Unknown or Variable Compositon, Complex Reaction Products, and Biological Materials</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
</tr>
</tbody>
</table>

**MSDS Number:** 100000004560

18 / 18 N-Methyl-2-pyrrolidone