SAFETY DATA SHEET

AZ NMP Rinse

Version 3.4  Revision Date: 29.07.2019  SDS Number: 70MDGM184529

SECTION 1. IDENTIFICATION

Product identifier
Product name : AZ NMP Rinse

Product number : 184529

Recommended use of the chemical and restrictions on use
Details of the supplier of the safety data sheet


Emergency telephone : 1-800-424-9300 CHEMTREC (USA)
                        1-703-741-5970 CHEMTREC (International)
                        24 Hours/day; 7 Days/week

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 elements
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/sparks/open flames/hot surfaces. No smoking.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 Wash skin thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor 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 to extinguish.

**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.
AZ NMP Rinse

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Substance
CAS-No.: 872-50-4

Formula: C₅H₉NO (Hill)
Molar mass: 99.13 g/mol

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Concentration (% w/w)</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-methyl-2-pyrrolidone</td>
<td>&gt;= 90 - &lt;= 100</td>
<td>872-50-4</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

If inhaled: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact: Rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed: immediately make victim drink water (two glasses at most). Consult a physician.

Most important symptoms and effects, both acute and delayed: irritant effects
Cough
Shortness of breath
Pain
Diarrhea
Vomiting

Notes to physician: No information available.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water
Foam
Carbon dioxide (CO2)
Dry powder
Unsuitable extinguishing media: For this substance/mixture no limitations of extinguishing agents are given.

Specific hazards during fire fighting:
- Combustible.
- Vapors are heavier than air and may spread along floors.
- Forms explosive mixtures with air on intense heating.
- Development of hazardous combustion gases or vapors possible in the event of fire.
- Fire may cause evolution of:
  - nitrogen oxides
  - nitrous gases

Further information:
- Cool closed containers exposed to fire with water spray.
- Suppress (knock down) gases/vapors/mists with a water spray jet.
- Prevent fire extinguishing water from contaminating surface water or the ground water system.
- Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Avoid breathing vapors and keep upwind.

Special protective equipment for fire-fighters:
- Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
- Well closed full protective clothing (coat and pants) including helmet.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
- Advice for non-emergency personnel:
  - Do not breathe vapors, aerosols.
  - Avoid substance contact.
  - Ensure adequate ventilation.
  - Keep away from heat and sources of ignition.
  - Evacuate the danger area, observe emergency procedures, consult an expert.
- Advice for emergency responders:
  - Protective equipment see section 8.
  - Indications about waste treatment see section 13.

Environmental precautions:
- Do not flush into surface water or sanitary sewer system.

Methods and materials for:
- Cover drains. Collect, bind, and pump off spills.
containment and cleaning up
Observe possible material restrictions (see sections 7 and 10).
Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling
Advice on protection against fire and explosion:
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities
Storage conditions:
Tightly closed.
Keep in a well-ventilated place.
Keep locked up or in an area accessible only to qualified or authorized persons.

Risks from decomposition products: see section 10

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-methyl-2-pyrrolidone</td>
<td>872-50-4</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>Samplin g time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>872-50-4</td>
<td>872-50-4</td>
<td>5-Hydroxy-N-methyl-2-</td>
<td>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>

Engineering measures:
Ensure that eye flushing systems and safety showers are located close to the working place.
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See section 7.
**SAFETY DATA SHEET**

**AZ NMP Rinse**

<table>
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<tr>
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</tr>
</tbody>
</table>

**Personal protective equipment**

**Respiratory protection**: required when vapors/aerosols are generated.

**Hand protection**

**Additional Protection**: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Protective measures**: Flame retardant antistatic protective clothing.

**Eye protection**: Safety glasses

**Hygiene measures**: Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. Avoid contact with skin, eyes and clothing. Wash hands and face before breaks and immediately after handling the product. Keep away from food and drink.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>amine-like</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>8.5 - 10.0</td>
</tr>
<tr>
<td></td>
<td>at 100 g/l</td>
</tr>
<tr>
<td></td>
<td>68 °F (20 °C)</td>
</tr>
<tr>
<td>Melting point</td>
<td>-24 °C</td>
</tr>
<tr>
<td></td>
<td>at 1,013 hPa</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>399.99 °F (204.44 °C)</td>
</tr>
<tr>
<td></td>
<td>at 1,013 hPa</td>
</tr>
</tbody>
</table>
Flash point: 196 °F (91 °C) at 1,013 hPa
   Method: DIN 51758

Evaporation rate: No information available.

Flammability (solid, gas): No information available.

Lower explosion limit: 1.3 %(V)

Upper explosion limit: 9.5 %(V)

Vapor pressure: 0.32 hPa at 68 °F (20 °C)
   Method: OECD Test Guideline 104

Relative vapor density: 3.42

Density: 1.03 g/cm³ at 68 °F (20 °C)

Relative density: No information available.

Water solubility: 1,000 g/l at 77 °F (25 °C)

Partition coefficient: n-octanol/water
   log Pow: -0.46 (25 °C)
   OECD Test Guideline 107
   Bioaccumulation is not expected.

Autoignition temperature: No information available.

Decomposition temperature: No information available.

Viscosity, dynamic: 1.80 mPas at 68 °F (20 °C)

Explosive properties: Not classified as explosive.

Oxidizing properties: none

Ignition temperature: 473 °F (245 °C) at 1,013 hPa
   Method: DIN 51794
SECTION 10. STABILITY AND REACTIVITY

Reactivity : Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Chemical stability : The product is chemically stable under standard ambient conditions (room temperature).

Possibility of hazardous reactions : Risk of ignition or formation of inflammable gases or vapors with: Oxidizing agents Violent reactions possible with: Strong acids Strong bases mineral acids

Conditions to avoid : Strong heating.

Incompatible materials : no information available

Hazardous decomposition products : in the event of fire: See section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Product

Carcinogenicity

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

NTP

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

Likely route of exposure

Inhalation, Eye contact, Skin contact

Acute oral toxicity

LD50 Rat: 4,150 mg/kg
OECD Test Guideline 401(ECHA)
Acute inhalation toxicity
LC50 Rat: > 5.1 mg/l; 4 h; aerosol
OECD Test Guideline 403

Irritating to respiratory system.

Acute dermal toxicity
LD50 Rat: > 5,000 mg/kg
OECD Test Guideline 402

Skin irritation
Rabbit
Result: Skin irritation
OECD Test Guideline 404

Eye irritation
Rabbit
Result: irritating
OECD Test Guideline 405

Sensitization
Mouse
Result: Not a skin sensitizer.
Method: OECD Test Guideline 429

Patch test: Human
Result: negative
(IUCLID)

Genotoxicity in vivo
In vivo micronucleus test
Mouse
Result: negative
Method: OECD Test Guideline 474

Chromosome aberration test
Result: negative
Method: OECD Test Guideline 475
Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test
Result: negative
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476

unscheduled DNA synthesis assay
Result: negative
Method: OECD Test Guideline 482

Reproductive toxicity
Application Route: Oral
Rat
Method: OECD Test Guideline 416

CMR effects
Teratogenicity / Reproductive toxicity:
May damage fertility or the unborn child.

Experience with human exposure
STOT-single exposure
Target Organs: Respiratory system
Assessment: May cause respiratory irritation.

Other Relevant Toxicity Information:
After absorption:
pain, Diarrhea
Other dangerous properties can not be excluded., Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
Product
Toxicity to fish
static test LC50 Oncorhynchus mykiss (rainbow trout): > 500 mg/l; 96 h
Analytical monitoring: yes(ECHA)
Toxicity to daphnia and other aquatic invertebrates
static test EC50 Daphnia magna (Water flea): > 1,000 mg/l; 24 h
DIN 38412

Toxicity to algae
static test EC50 Desmodesmus subspicatus (green algae): > 500 mg/l; 72 h
DIN 38412

Toxicity to bacteria
static test EC50 activated sludge: > 600 mg/l; 0.5 h
ISO 8192

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
semi-static test NOEC Daphnia magna (Water flea): 12.5 mg/l; 21 d

Analytical monitoring: yes

OECD Test Guideline 211

Persistence and degradability

Biodegradability
73 %; 28 d: aerobic
OECD Test Guideline 301C
Readily biodegradable.

Biochemical Oxygen Demand (BOD)
1,100 mg/g (5 d)
(Lit.)

Chemical Oxygen Demand (COD)
1,600 mg/g
(Lit.)

Ratio BOD/ThBOD
BOD1 99 %
(IUCLID)

Bioaccumulative potential

Partition coefficient: n-octanol/water
log Pow: -0.46 (25 °C)
OECD Test Guideline 107
Bioaccumulation is not expected.

Bioaccumulation
(Bioaccumulation is unlikely.)

Mobility in soil
No information available.

Additional ecological information
Discharge into the environment must be avoided.
SECTION 13. DISPOSAL CONSIDERATIONS

Product Waste: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

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

Clean Air Act
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). This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (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.
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US State Regulations

Massachusetts Right To Know
N-methyl-2-pyrrolidone 872-50-4

Pennsylvania Right To Know
N-methyl-2-pyrrolidone 872-50-4

New Jersey Right To Know
N-methyl-2-pyrrolidone 872-50-4

California Prop. 65
WARNING: This product can expose you to one or more chemicals which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov
N-methyl-2-pyrrolidone 872-50-4

The ingredients of this product are reported in the following inventories:
DSL : All components of this product are on the Canadian DSL
TSCA : All substances listed on the TSCA Active Inventory.

TSCA list
The following substance(s) is/are subject to TSCA 12(b) export notification requirements:
N-methyl-2-pyrrolidone 872-50-4

SECTION 16. OTHER INFORMATION

The information provided in this Material 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.