

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/16/2024

Reviewed on 05/16/2024

1 Identification

- **Product identifier**
- **Trade name:** PMDA Reagent
in 1-Methyl-2-Pyrrolidone
- **Article number:** LY350
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586
- **Information department:**
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Sensitization - Respiratory 1

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Toxic to Reproduction 1B

H360 May damage fertility or the unborn child.



GHS05 Corrosion

Eye Damage 1

H318 Causes serious eye damage.



GHS07

Skin Irritation 2

H315 Causes skin irritation.

Sensitization - Skin 1

H317 May cause an allergic skin reaction.

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

Flammable Liquids 4

H227 Combustible liquid.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

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**Trade name: PMDA Reagent
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· **Hazard pictograms**



GHS05 GHS07 GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

1-Methyl-2-Pyrrolidinone

Pyromellitic Dianhydride

· **Hazard statements**

Combustible liquid.

Causes skin irritation.

Causes serious eye damage.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

May damage fertility or the unborn child.

May cause respiratory irritation.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from flames and hot surfaces. – No smoking.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

[In case of inadequate ventilation] wear respiratory protection.

If on skin: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a poison center/doctor.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

If experiencing respiratory symptoms: Call a poison center/doctor.

Wash contaminated clothing before reuse.

In case of fire: Use CO₂, powder or water spray to extinguish.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 1

Reactivity = 0

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· **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = *3
FIRE	1	Fire = 1
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 872-50-4	1-Methyl-2-Pyrrolidinone	95.124%
CAS: 89-32-7	Pyromellitic Dianhydride	4.876%

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.

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Do not allow to enter sewers/ surface or ground water.

· Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:

CAS: 872-50-4	1-Methyl-2-Pyrrolidinone	30 ppm
CAS: 89-32-7	Pyromellitic Dianhydride	6.8 mg/m ³

· PAC-2:

CAS: 872-50-4	1-Methyl-2-Pyrrolidinone	32 ppm
CAS: 89-32-7	Pyromellitic Dianhydride	74 mg/m ³

· PAC-3:

CAS: 872-50-4	1-Methyl-2-Pyrrolidinone	190 ppm
CAS: 89-32-7	Pyromellitic Dianhydride	450 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· Information about protection against explosions and fires: *Keep respiratory protective device available.*

· Conditions for safe storage, including any incompatibilities

· Storage:

· Requirements to be met by storerooms and receptacles: *No special requirements.*

· Information about storage in one common storage facility: *Not required.*

· Further information about storage conditions: *Keep receptacle tightly sealed.*

· Specific end use(s) *No further relevant information available.*

8 Exposure controls/personal protection

· Additional information about design of technical systems: *No further data; see section 7.*

· Control parameters

· Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

CAS: 872-50-4 1-Methyl-2-Pyrrolidinone

TLV	BEI
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WEEL	Long-term value: 10 ppm Skin
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· Ingredients with biological limit values:

CAS: 872-50-4 1-Methyl-2-Pyrrolidinone

BEI	100 mg/L LD50 Intraperitoneal: urine Time: end of shift LD50: 5-Hydroxy-N-methyl-2-pyrrolidone
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· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

· Personal protective equipment:

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the skin.
Avoid contact with the eyes and skin.

· Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:



Tightly sealed goggles

· Body protection: Protective work clothing

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9 Physical and chemical properties

· Information on basic physical and chemical properties	
· General Information	
· Appearance:	
Form:	Liquid
Color:	Light yellow
· Odor:	Characteristic
· Odor threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	-24 °C (-11.2 °F)
Boiling point/Boiling range:	202 °C (395.6 °F)
· Flash point:	93 °C (199.4 °F)
· Flammability (solid, gaseous):	Not applicable.
· Auto igniting:	270 °C (518 °F)
· Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Not determined.
· Explosion limits:	
Lower:	1.3 Vol %
Upper:	9.5 Vol %
· Vapor pressure at 20 °C (68 °F):	0.3 hPa (0.2 mm Hg)
· Density at 20 °C (68 °F):	1.04585 g/cm ³ (8.72762 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/water): Not determined.	
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	95.1 %
VOC content:	95.12 %
	994.9 g/l / 8.30 lb/gal
Solids content:	4.9 %
· Other information	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

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- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:**
 - Sensitization possible through inhalation.
 - Sensitization possible through skin contact.
- **Additional toxicological information:**
 - The product shows the following dangers according to internally approved calculation methods for preparations:
 - Harmful
 - Irritant
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)
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None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)
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None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 - Water hazard class 1 (Self-assessment): slightly hazardous for water
 - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
 - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

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13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- | | |
|---|--|
| <ul style="list-style-type: none"> · UN-Number · DOT · IMDG, IATA | <p>NA1993
UN1993</p> |
| <ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG, IATA | <p>COMBUSTIBLE LIQUID, N.O.S. (1-Methyl-2-Pyrrolidinone (N-methyl Pyrrolidone))
FLAMMABLE LIQUID, N.O.S. (1-Methyl-2-Pyrrolidinone (N-methyl Pyrrolidone))</p> |
| <ul style="list-style-type: none"> · Transport hazard class(es) · DOT | <p>3 Combustible liquids
3</p> |
| <ul style="list-style-type: none"> · Class · Label | <p>3 Combustible liquids
3</p> |
| <ul style="list-style-type: none"> · IMDG, IATA | <p>3 Flammable liquids
3</p> |
| <ul style="list-style-type: none"> · Packing group · DOT, IATA | <p>III</p> |
| <ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: | <p>No</p> |
| <ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: | <p>Warning: Flammable liquids
30
F-E,S-E</p> |
| <ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | <p>Not applicable.</p> |

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· **UN "Model Regulation":** UN 1993 FLAMMABLE LIQUID, N.O.S. (1-METHYL-2-PYRROLIDINONE (N-METHYL PYRROLIDONE)), 3, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

CAS: 872-50-4 | 1-Methyl-2-Pyrrolidinone

· **TSCA (Toxic Substances Control Act):**

1-Methyl-2-Pyrrolidinone

ACTIVE

Pyromellitic Dianhydride

ACTIVE

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

CAS: 872-50-4 | 1-Methyl-2-Pyrrolidinone

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS05

GHS07

GHS08

· **Signal word** Danger

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- **Hazard-determining components of labeling:**

- 1-Methyl-2-Pyrrolidinone

- Pyromellitic Dianhydride

- **Hazard statements**

- Combustible liquid.

- Causes skin irritation.

- Causes serious eye damage.

- May cause allergy or asthma symptoms or breathing difficulties if inhaled.

- May cause an allergic skin reaction.

- May damage fertility or the unborn child.

- May cause respiratory irritation.

- **Precautionary statements**

- Obtain special instructions before use.

- Do not handle until all safety precautions have been read and understood.

- Keep away from flames and hot surfaces. – No smoking.

- Avoid breathing dust/fume/gas/mist/vapors/spray

- Wash thoroughly after handling.

- Use only outdoors or in a well-ventilated area.

- Contaminated work clothing must not be allowed out of the workplace.

- Wear protective gloves/protective clothing/eye protection/face protection.

- [In case of inadequate ventilation] wear respiratory protection.

- If on skin: Wash with plenty of water.

- IF INHALED: Remove person to fresh air and keep comfortable for breathing.

- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

- Continue rinsing.

- Immediately call a poison center/doctor.

- IF exposed or concerned: Get medical advice/attention.

- Specific treatment (see on this label).

- Take off contaminated clothing and wash it before reuse.

- If skin irritation or rash occurs: Get medical advice/attention.

- If experiencing respiratory symptoms: Call a poison center/doctor.

- Wash contaminated clothing before reuse.

- In case of fire: Use CO₂, powder or water spray to extinguish.

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

- Store in a well-ventilated place. Keep cool.

- Store locked up.

- Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Environment protection department.

- **Contact:**

- Date of Preparation / Last Revision:

- **Date of preparation / last revision**

- Revision 1.2, 05/16/2024: Reviewed SDS for accuracy. MH/STN

- 05/16/2024

- **Abbreviations and acronyms:**

- IMDG: International Maritime Code for Dangerous Goods

- DOT: US Department of Transportation

- IATA: International Air Transport Association

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EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flammable Liquids 4: Flammable liquids – Category 4
Skin Irritation 2: Skin corrosion/irritation – Category 2
Eye Damage 1: Serious eye damage/eye irritation – Category 1
Sensitization - Respiratory 1: Respiratory sensitisation – Category 1
Sensitization - Skin 1: Skin sensitisation – Category 1
Toxic to Reproduction 1B: Reproductive toxicity – Category 1B
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

· *** Data compared to the previous version altered.**

US