



PRODUCT: N-ETHYL-2-PYRROLIDONE. (NET2PY) REVISION:1 DATED: 12/03/11 PAGE 1 OF 7

PRODUCT SPECIFICATION	
Product Name	N-Ethyl-2-Pyrrolidone
Product Specification	NET2PY/1 (03/11)
SALES SPECIFICATION	
Appearance @ 25°C	Clear liquid
Colour (APHA, as is C1227)	50 maximum
% N-Ethyl Pyrrolidone (GC, CO6162)	99.0 minimum
ppm Ethyl Amine (GC, CO612)	180 maximum
% Moisture (Karl Fischer, W606)	0.20 maximum
Hydroperoxide, mol/l (W1314)	0.0004 maximum
NOTES	
Exclusion of Liability	
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Any information or advice obtained from Tennants otherwise than by means of this publication and whether relating to Tennants materials or other materials, is also given in good faith. However, it remains at all times the responsibility of the customer to ensure that Tennants materials are suitable for the particular purpose intended.	
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Health and Safety	
A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.	



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SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

1.1 Product Identifier

Chemical Name (EINECS)	N-Ethyl Pyrrolidone
CAS Number	2687-91-4
EINECS Number	220-250-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified use(s)
Process intermediate
Binder and release agent
Laboratory chemicals

Uses advised against
No information given

1.3 Details of the supplier of the safety data sheet

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1.4 Emergency telephone number

Tel: 44(0) 844 3350001 (24 hours)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation 1272/2008 (CLP)

Serious eye damage/eye irritation:	Category 1
Reproductive toxicity:	Category 2
Physical hazard statements:	Combustible material

2.1.2 EEC Directive 67/548/EEC & Directive 1999/45/EC

Indication of danger:	Xn: Harmful Xi: Irritant Repr. Cat. 3
Risk Phrases:	R41: Risk of serious damage to eyes R63: Possible risk of harm to the unborn child

2.2 Label elements

According to Regulation (EC) No. 1272/2008 (CLP).

Trade name

Hazard Pictogram



Signal word(s)	Danger.
Hazard statement(s)	
H318:	Causes serious eye damage
H361:	Suspected of damaging fertility or the unborn child

Precautionary statement(s)

P280:	Wear protective gloves/protective clothing/eye protection/face protection
P305+P351+P338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing



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P312:	Call a POISON CENTRE/doctor/physician if you feel unwell
P308+P313:	IF exposed or concerned: Get medical attention/advice
P501:	Dispose of contents/container in accordance with local regulations
P201:	Obtain special instructions before use
P202:	Do not handle until all safety precautions have been read and understood
P281:	Use personal protective equipment as require
P405:	Store locked up

For labelling the priority statements are: P280, P305 + P351 + P338, P308 + P313, P202, P405, P501

2.3 Other hazards

Combustible material

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	Weight %	CLP Regulation 1272/2008	Directive 67/548/EEC	ECC Numbers
2-Pyrrolidinone, 1-ethyl 2687-91-4	98	N/A	N/a	220-250-6

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation

Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Get medical attention

Skin contact

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician

Ingestion

Do NOT induce vomiting. Drink 1 or 2 glasses of water. Get medical attention

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms/effects: None known

4.3 Indication of any immediate medical attention and special treatment needed

Note to physicians: Treat symptomatically

5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media: Water spray, alcohol resistant foam, dry chemical, carbon dioxide (CO₂)

Unsuitable extinguishing media: No information given

5.2 Special hazards arising from the substance or mixture

Specific hazards:

Vapours may travel to areas away from work site before igniting/flashing back to vapour source. Vapours may form explosive mixture with air

Flammable properties: Combustible liquid

Explosive properties: Not explosive

5.3 Advice for fire-fighters

Wear self contained breathing apparatus and protective suit

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment

6.2 Environmental precautions

No information given

6.3 Methods and material for containment and cleaning up

Remove all sources of ignition. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust)

6.4 Reference to other sections

For personal protection see Section 8

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not get into eyes. Wash thoroughly after handling. Keep away from open flames, hot surfaces and sources of ignition



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7.2 Conditions for safe storage, including any incompatibilities

Storage: Keep tightly closed in a dry and cool place. Keep away from direct sunlight
Incompatible materials: Strong oxidising agents. Strong reducing agents

7.3 Specific end use(s)

Product use description: Process intermediate, binder and release agent, laboratory chemical

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components	UK Workplace Exposure Limits (WELs)
2-Pyrrolidinone, 1-ethyl 2687-91-4 (98)	Not determined

Contains no substances with occupational exposure limits

Derived No Effect Level

DNEL

End Use	Value/ Route of Exposure
Acute systemic and local (worker)	80 mg/m ³ (inhalation)
Long term systemic (worker)	8 mg/m ³ (dermal)
Long term systemic and local (worker)	40 mg/m ³ (inhalation)

Predicted No Effect Concentrations (PNEC):

Freshwater = 0.25 mg/l
Marine water = 0.025 mg/l
Intermittent releases = 1 mg/l
Sediment (freshwater) = 1.91 mg/kg sediment dw
Soil: 0.235 mg/kg: 10 mg/l

8.2 Exposure controls

Appropriate engineering controls

Use only in well ventilated areas

Respiratory protection

Use only in well ventilated areas

Hand protection

Wear protective gloves

Eye protection

Chemical resistant goggles must be worn. Face shield

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

Protective Measures

General industrial hygiene practice

Environmental exposure controls

Not determined

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Liquid
Colour	Clear
Odour	Slight amine
Odour threshold	No information available
pH	Not determined
Melting Point	<-120°C
Freezing Point	<-120°C
Boiling point	212.5°C @ 1013.25 hPa
Initial boiling point	No information available
Boiling point/range	Not determined
Flash point	90.8°C Method: Closed cup
Evaporation rate	No data available
Flammability limits in air	
Upper	Not determined
Lower	Not determined
Vapour pressure	0.18 hPa @ 20°C
Vapour density	Not determined



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Specific gravity	0.9930 @ 25°C (water = 1)
Solubility	Soluble in water
Partition coefficient-octanol/water	-0.2 @ 20°C
Auto ignition temperature	245°C
Decomposition temperature	Not determined
Viscosity	2.1 mPa.s @ 20°C
Explosive properties	Not explosive
Oxidising properties	Not an oxidiser
9.2 Other information	
No further information	
10. STABILITY AND REACTIVITY	
10.1 Reactivity	
No data available	
10.2 Chemical stability	
Stable under normal conditions	
10.3 Possibility of hazardous reactions	
None under normal processing	
10.4 Conditions to avoid	
Keep away from open flames, hot surfaces and sources of ignition	
10.5 Incompatible materials	
Strong oxidising agents. Strong reducing agents	
10.6 Hazardous decomposition products	
None known	
11. TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects	
Acute Oral Toxicity	
LD50: 3200 mg/kg (Rat)	
Acute Dermal Toxicity	
LD50: >2000 mg/kg (Rat)	
Skin Corrosion/Irritation	
LC50: >5.1 mg/l (4 hour) (Rat)	
Eye irritation	
Severe eye irritation (Rabbit). May cause irreversible eye damage	
Skin irritation	
Slightly irritating to rabbit skin	
Sensitisation	
Not sensitising (LLNA)	
Mutagenicity	
Non-genotoxic in in-vitro and in-vivo assays	
Teratogenicity	
Pre-natal developmental toxicity observed in rats dermally exposed on gestation days 6 – 16 at doses toxic to all the dams. Maternal NOAEL = 200 mg/kg/day, Prenatal development NOAEL = 400 mg/kg/day Increased malformations were observed in foetuses of rabbits exposed by oral gavage on gestation days 6 – 28 at maternally toxic doses. Material NOAEL = 60 mg/kg/day, Prenatal NOAEL = 60 mg/kg/day	
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 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 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	
Further information	
90 day oral study in rats doses 0, 100, 300 or 1000 mg/kg bw/day resulted in a NOAEL = 100 mg/kg bw/day	



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12. ECOLOGICAL INFORMATION	
12.1 Toxicity Ecotoxicity: LC50 = >464 – 999 mg/l 96 hour (Dania rerio) EC50 = >104 mg/l 48 hour (Daphnia magna) EC50 = >101 mg/l 72 hour (Algae)	
12.2 Persistence and degradability 90 – 100% after 28 days Readily biodegradable	
12.3 Bio accumulative potential Does not bioaccumulate (log KOW = -0.2 @ 20°C)	
12.4 Mobility in soil Not determined	
12.5 Results of PBT and vPvB assessment This substance is not considered to be persistent, bio accumulating nor toxic (PBT) This substance is not considered to be very persistent nor very bio accumulating vPvB)	
12.6 Other adverse effects Unknown	
13. DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods Waste disposal method: Dispose of in accordance with local regulations Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal	
14. TRANSPORT INFORMATION	
ADR	Not regulated
RID	Not regulated
IMDG	Not regulated
IATA	Not regulated
DOT (Non-Bulk)	Not regulated
DOT (Bulk)	
UN Proper shipping name	COMBUSTIBLE LIQUID, N.O.S. (N-ETHYL-2-PYRROLIDONE)
Hazard Class	COMBUSTIBLE LIQUID
UN Number	1993
Packing Group	Not regulated
14.6 Special precautions for users	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable	
15. REGULATORY INFORMATION	
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
Inventory	Status
TSCA	Listed
DSL	Listed
NDSL	Not Listed
ENC	Listed
AICS	Not Listed
EINECS	Listed
ELINCS	Not Listed
NzloC	Listed
KECI	Listed
PICCS	Listed
IECSC	Listed
Component	Germany VCI Assigned Classification into Water Endangering Classes (WGK) List
2-Pyrrolidinone, 1-ethyl 2687-91-4	Annex 3: 7180
15.2 Chemical safety assessment A chemical safety assessment has been carried out for this product by the supplier	



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16. OTHER INFORMATION

Full text of R Phrases referred to under sections 2 and 3

R41: Risk of serious damage to eyes

R63: Possible risk of harm to the unborn child

Full text of H-Statements referred to under sections 2 and 3

H318: Causes serious eye damage

H361: Suspected of damaging fertility or the unborn child

Source of key data used to compile the data sheet

Supplier information

Modifications from last revision

Not applicable: First issue

Date: 12/03/11