SAFETY DATA SHEET

According to EC Regulation 1907/2006/EC

N-Ethyl-Pyrrolidone

Revision Date *23-Jan-2013*
Revision Number *2*

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product Identifier

Product Name	N-Ethyl-Pyrrolidone
Synonyms	Ethyl Pyrrolidone

Use of the Substance/Mixture

Identified uses	Solvent

Manufacturer or supplier's details

Company/Undertaking Identification	Taminco BVBA
Address	Pantserschipstraat 207 9000 GENT BELGIUM
E-mail address	MSDS_FCH@taminco.com
Telephone	(+32) 9 254 14 11
Telefax	(+32) 9 254 14 10

Emergency Telephone Number

Emergency Telephone Number	(+32) 9 254 10 36

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn : R63
Xi : R41
S26, S37, S39

REGULATION (EC) No 1272/2008

Classification of the substance or mixture	H361D : Repr. cat. 2 H318 : Eye damage cat. 1

Precautionary Statement - Prevention	P201 - Obtain special instructions before use P202 - Do not handle until all safety precautions have been read and understood P280 - Wear protective gloves/protective clothing/eye protection/face protection P281 - Use personal protective equipment as required

Precautionary Statement - Response	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 P310 - Immediately call a POISON CENTER or doctor/physician

Precautionary Statement - Storage	P405 - Store locked up

Precautionary Statement - Disposal	P501 - Dispose of contents/container to an approved incineration plant

Label elements

Product Name N-Ethyl-Pyrrolidone

Hazard pictograms

Signal Word
Danger

Hazard Statements
H318 - Causes serious eye damage
H361d - Suspected of damaging the unborn child
Precautionary Statements
P201 - Obtain special instructions before use
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
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER or doctor/physician

Other hazards

Other hazards which do not result in classification
None known

For the full text of the R phrases mentioned in this Section, see Section 16

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Chemical Name	CAS-No	Weight %	EINECS	Registration number
2-Pyrrolidinone, 1-ethyl-	2687-91-4	>99	220-250-6	

4. FIRST AID MEASURES

FIRST AID MEASURES

General Advice

Show this material safety data sheet to the doctor in attendance. If symptoms persist, call a physician.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes
Obtain medical attention

Skin Contact

Take off all contaminated clothing immediately
Wash off immediately with soap and plenty of water
If skin irritation persists, call a physician

Inhalation

Remove from exposure, lie down
Move to fresh air
If breathing is difficult, give oxygen
If not breathing, give artificial respiration
Obtain medical attention

Ingestion

Drink plenty of water
Do not induce vomiting
Obtain medical attention

Most important symptoms and effects, both acute and delayed

- Serious eye damage/eye irritation

Indication of immediate medical attention and special treatment needed

None known

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

- water spray
- carbon dioxide (CO_2)
- dry chemical
- Alcohol-resistant foam

Extinguishing media which must not be used for safety reasons

- high volume water jet

Specific Hazards Arising from the Chemical

Specific hazards

- Combustible liquid
- Heating or fire can release toxic gas

  Nitrogen oxides (NOx)
  Carbon monoxide

Specific methods

- Cool containers / tanks with water spray
- Keep product and empty container away from heat and sources of ignition
- Do not flush into surface water or sanitary sewer system
- Prevent product from entering drains
- Collect contaminated fire extinguishing water separately. This must not be discharged into drains

Protective Equipment and Precautions for Firefighters

Wear full protective clothing and self-contained breathing apparatus

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- Avoid contact with skin, eyes and clothing
- Evacuate personnel to safe areas
- Keep people away from and upwind of spill/leak
- Wear self-contained breathing apparatus and protective suit
- Rubber gloves

Environmental precautions

- Should not be released into the environment
- Remove immediately adhering matter
- Prevent product from entering drains
- Do not flush into surface water or sanitary sewer system

Methods and materials for containment and cleaning up

- Wear self-contained breathing apparatus and protective suit
- Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container
- Remove all sources of ignition

7. HANDLING AND STORAGE

Precautions for safe handling

- Use only in area provided with appropriate exhaust ventilation
- Wear personal protective equipment
- Do not eat, drink or smoke when using this product
- Wash hands after handling
- Remove contaminated clothing and protective equipment before entering eating areas
- Ensure that eyewash stations and safety showers are close to the workstation location
- Avoid breathing vapors or mists

Conditions for safe storage, including any incompatibilities

- In accordance with local and national regulations
- Keep away from open flames, hot surfaces and sources of ignition
- Keep container tightly closed
- Keep in a dry, cool and well-ventilated place

Specific end uses

See also section 1

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Exposure controls

Engineering Controls

- Local exhaust

Personal Protective Equipment

Eye/face Protection	• Tightly fitting safety goggles • Face-shield • Respirator with a full face mask
Skin Protection	• Wear suitable protective equipment • Complete suit protecting against chemicals
Hand Protection	• Neoprene gloves • Solvent-resistant gloves (butyl-rubber) • The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it • The suitability for a specific workplace should be discussed with the producers of the protective gloves
Respiratory Protection	• In the case of vapor formation use a respirator with filter model A • self-contained breathing apparatus (EN 133) (in case of higher concentration)
Environmental exposure controls	• Prevent product from entering drains • Do not contaminate surface water • Avoid subsoil penetration

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

Physical State	Liquid
Color	Colorless
Odor	No information available

Important Health Safety and Environmental Information

Boiling Point/Range	212.5°C
Flash Point	90.8°C closed cup
Viscosity	2.1 mPas @ 20°C
Vapor Pressure	0.18 hPa @ 20 °C
Partition coefficient: n-octanol/water	log Pow -0.2 @ 20°C
pH	No data available
Water solubility	Miscible
Oxidizing Properties	none
Explosive Properties	Not explosive
Melting Point/Range	< -120°C
Density	0.9974 g/cm3 (20 °C)
Flammability	Combustible liquid The substance or mixture is not classified as pyrophoric
Autoignition Temperature	245°C
Surface tension	69 mN/m @ 20 °C
Dissociation constant	not applicable

10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability

10. STABILITY AND REACTIVITY

- Stable under normal conditions
- Hazardous polymerisation does not occur

Possibility of hazardous reactions

- None under normal processing

Conditions to Avoid

- Heat, flames and sparks
- Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors)

Incompatible materials to avoid

- Strong acids and oxidizing agents
- Strong bases

Hazardous Decomposition Products

- Heating or fire can release toxic gas
  Nitrogen oxides (NOx)
  Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Product Information

LD50/oral/rat =	3200 mg/kg
LD50/dermal/rat =	> 2000 mg/kg
LC50/inhalation/8h/rat =	> 5.1 mg/l
Eye irritation	corrosive
Skin irritation	Non-irritating to the skin
Sensitization	Did not cause sensitization on laboratory animals
Mutagenic Effects	Did not show mutagenic effects in animal experiments
Reproductive toxicity	Experiments have shown reproductive toxicity effects on laboratory animals
Carcinogenic effects	Did not show carcinogenic effects in animal experiments
Specific target organ systemic toxicity (repeated exposure)	No observed adverse effect level : 100 mg/kg/d, Oral, rat
Target Organ Effects	Liver Kidney

Human experience

Human experience	Irritating to respiratory system

12. ECOLOGICAL INFORMATION

Ecotoxicity

Danio rerio (zebra fish)	LC50 : > 464 - 999 mg/l - 96hour
EC50/48h/daphnia =	> 104 mg/l
Toxicity to algae	> 101 mg/l
Toxicity to bacteria	Not required Readily biodegradable,

Mobility

Koc = 40.46

Persistence and degradability

Readily biodegradable

Bioaccumulative Potential

Not expected

Results of PBT and vPvB assessment

- This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)
- This substance is not considered to be very persistent nor very bioaccumulating (vPvB)

Other adverse effects

None known based on information supplied

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method

- Should not be released into the environment
- Dispose of contents/container in accordance with local regulation

Contaminated Packaging

- Empty containers should be taken to an approved waste handling site for recycling or disposal

14. TRANSPORT INFORMATION

Road transport

Not classified as dangerous in the meaning of transport regulations
Marine pollutant no

Sea transport

Not classified as dangerous in the meaning of transport regulations
Marine pollutant no

Air transport

Not classified as dangerous in the meaning of transport regulations
Marine pollutant no

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

Chemical Name	TSCA	EINECS	DSL	ENCS	AICS
2-Pyrrolidinone, 1-ethyl-	X	220-250-6	DSL - Listed	(5)-113	

Chemical Safety Assessment

- Not applicable

16. OTHER INFORMATION

This data sheet contains changes from the previous version in section(s)

Revision Date 23-Jan-2013

Reason for revision Classification and hazard labeling

Literary Reference -Chemiekaarten : 25th ed. - 2010
-Taminco Proprietary Studies

List of relevant R-phrases

- R41 - Risk of serious damage to eyes
- R63 - Possible risk of harm to the unborn child
- S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- S37 - Wear suitable gloves
- S39 - Wear eye/face protection

Training advice

Provide adequate information, instruction and training for operators

Further information for the material safety data sheet

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. 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. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release.

End of Material Safety Data Sheet