



Safety Data Sheet

Material Name: SAFETY-KLEEN N-ETHYL PYRROLIDONE

SDS ID: 820299

*** Section 1 - Identification ***

Product Identifier

SAFETY-KLEEN N-ETHYL PYRROLIDONE

Product Code

Not available.

Synonyms

Not available

Recommended Use

Pharmaceutical production

Restrictions on Use

If this product is used in combination with other products, refer to the Safety Data Sheet for those products.

Manufacturer Information

Safety-Kleen Systems, Inc.
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Emergency # 1-800-468-1760

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*** Section 2 - Hazard(s) Identification ***

Classification in Accordance with 29 CFR 1910.1200.

Flammable Liquids - Category 4
Acute Toxicity - Oral - Category 4
Serious Eye Damage/Eye Irritation - Category 2A
Skin Sensitization - Category 1A
Reproductive Toxicity - Category 1B
Specific Target Organ Toxicity - Single Exposure - Category 1

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER!

Hazard Statement(s)

Combustible Liquid
Harmful if swallowed
Causes serious eye irritation
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Causes damage to organs.

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Precautionary Statement(s)

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flame/hot surfaces - No smoking. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Wear protective gloves.

Response

In case of fire: Use carbon dioxide, regular foam, dry chemical, water spray, or water fog. IF exposed or concerned: Get medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

Storage

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

Disposal

Dispose of in accordance with all applicable federal, state and local regulations.

Hazard(s) Not Otherwise Classified

None known.

*** Section 3 - Composition / Information on Ingredients ***

CAS	Component	Percent
2687-91-4	2-Pyrrolidinone, 1-ethyl-	97-100
100-51-6	Benzyl alcohol	0-2.4
123-51-3	Isoamyl alcohol	0-2

*** Section 4 - First Aid Measures ***

Description of Necessary Measures

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion

IF SWALLOWED: Do NOT induce vomiting. Rinse mouth. If vomiting occurs, keep head lower than hips to help prevent aspiration. Call a poison control center or doctor immediately for treatment advice.

Most Important Symptoms/Effects

Acute

Harmful if swallowed, causes serious eye irritation. May cause allergic skin reaction.

Delayed

May damage fertility or the unborn child. Causes damage to organs.

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Indication of Immediate Medical Attention and Special Treatment Needed, If Needed

Treat symptomatically and supportively. Treatment may vary with condition of victim and specifics of incident. Call 1-800-468-1760 for additional information.

*** Section 5 - Fire-Fighting Measures ***

Suitable Extinguishing Media

Carbon dioxide, regular foam, dry chemical, water spray, or water fog.

Unsuitable Extinguishing Media

Do not use high-pressure water streams.

Specific Hazards Arising from the Chemical

Combustible liquid and vapor. Avoid friction, static electricity and sparks. Product may be sensitive to static discharge, which could result in fire or explosion. Vapors may form explosive mixture with air. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. Fire may produce irritating, poisonous and/or corrosive fumes. Runoff may create fire or explosion hazard. Containers may rupture or explode. Empty containers may contain product residue.

Hazardous Combustion Products

Decomposition and combustion materials may be toxic. Burning may produce carbon dioxide, carbon monoxide, and unidentified organic compounds.

Special Protective Equipment and Precautions for Firefighters

A positive-pressure, self-contained breathing apparatus (SCBA) and full-body protective equipment are required for fire emergencies.

Fire Fighting Measures

Keep storage containers cool with water spray. Move container from fire area if it can be done without risk. Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Stay upwind and keep out of low areas. Dike for later disposal.

*** Section 6 - Accidental Release Measures ***

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Clean Up

Remove all ignition sources. Do not touch or walk through spilled product. Stop leak if you can do it without risk. Wear protective equipment and provide engineering controls as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area and avoid breathing vapor or mist. A vapor suppressing foam may be used to reduce vapors. Contain spill away from surface water and sewers. Contain spill as a liquid for possible recovery, or sorb with compatible sorbent material and shovel with a clean, sparkproof tool into a sealable container for disposal. Additionally, for large spills: Water spray may reduce vapor, but may not prevent ignition in closed spaces. Dike far ahead of liquid spill for collection and later disposal. There may be specific federal regulatory reporting requirements associated with spills, leaks, or releases of this product. Also see **Section 15**.

*** Section 7 - Handling and Storage ***

Precautions for Safe Handling

Keep away from heat, sparks, or flame. Where flammable mixtures may be present, equipment safe for such locations should be used. Use clean, sparkproof tools and explosion-proof equipment. When transferring product, metal containers, including trucks and tank cars, should be grounded and bonded. Do not breathe vapor or mist. Use in a well ventilated area. Avoid contact with eyes, skin, clothing, and shoes. Do not smoke while using this product. Wash thoroughly after handling.

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Conditions for Safe Storage, Including Any Incompatibilities

Store in a well-ventilated place. Keep cool. Store locked up. Keep containers away from heat, flame, sparks, static electricity, or other sources of ignition. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, or grind containers. Empty product containers may retain product residue and can be dangerous. Store in a well-ventilated place. See Section 14 for packing group information.

Incompatibilities

Peroxides, oxidizing materials, acids, alcohols, amines

*** Section 8 - Exposure Controls / Personal Protection ***

Component Exposure Limits

Isoamyl alcohol	123-51-3
ACGIH:	100 ppm TWA; 125 ppm STEL
NIOSH:	100 ppm TWA ; 360 mg/m3 TWA; 125 ppm STEL ; 450 mg/m3 STEL; 500 ppm IDLH
OSHA (US):	100 ppm TWA ; 360 mg/m3 TWA

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

2-Pyrrolidinone, 1-ethyl- (2687-91-4)

Medium: urine Time: end of shift Parameter: 5-Hydroxy-N-ethyl-2-pyrrolidone (5-HNEP) without hydrolysis (nonquantitative)

Appropriate Engineering Controls

Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limits. Where adequate general ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below applicable exposure limits. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

Individual Protective Measures, such as Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to regulatory requirements. The following PPE should be considered the minimum required Safety glasses Gloves Lab coat or apron.

Eyes/Face Protection

Safety glasses with side shields should be worn at a minimum. Additional protection like goggles, face shields, or respirators may be needed dependent upon anticipated use and concentrations of mists or vapors. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. Contact lens use is not recommended.

Skin Protection

Where skin contact is likely, wear gloves impervious to product; use of natural rubber (latex) or equivalent gloves is not recommended. To avoid prolonged or repeated contact where spills and splashes are likely, wear appropriate chemical-resistant faceshield, boots, apron, whole body suits, or other protective clothing.

Respiratory Protection

Use NIOSH-certified, full-face respirators (self-contained breathing apparatus or air-line) respiratory protective equipment when concentration of vapor or mist exceeds applicable exposure limits. Protection provided by air purifying respirators is limited. Selection and use of respiratory protective equipment should be in accordance in the USA with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4.

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*** Section 9 - Physical & Chemical Properties ***

Appearance/Odor :	Clear, Colorless liquid	pH:	Not applicable
Odor:	Not available	Odor Threshold:	Not available
Boiling Point:	Not available	Melting Point:	Not available
Solubility (H2O):	Not available	Specific Gravity:	0.99 (water =1)
Density:	Not available	Octanol/H2O Coeff.:	Not available
Evaporation Rate:	<1 (Butyl acetate=1)	Molecular Weight:	Not available
Auto Ignition Temperature:	Not available	LFL:	Not available
Flash Point:	169°F (76.1°C)	UFL:	Not available
Viscosity:	Not available	Vapor Pressure:	20 mm Hg at 96.5°C
Flammability Class:	Combustible	Vapor Density:	3.9 (air = 1)
Decomposition Temperature:	Not available	Freezing Point:	Not available
Flammability (solid, gas):	Not available		

Other Property Information

No information is available.

*** Section 10 - Stability & Reactivity ***

Reactivity

No reactivity hazard is expected.

Chemical Stability

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions

Will not polymerize under normal temperature and pressure conditions.

Conditions To Avoid

Avoid heat, sparks, flames, and other sources of ignition Avoid contact with incompatible materials.

Incompatible Materials

Peroxides, oxidizing materials, acids, alcohols, amines

Hazardous Decomposition Products

Burning may produce carbon dioxide, carbon monoxide, and unidentified organic compounds.

*** Section 11 - Toxicological Information ***

Information on Likely Routes of Exposure

Inhalation

May cause irritation, central nervous system effects, nausea, headache, drowsiness, dizziness, disorientation.

Skin Contact

May cause skin irritation. May cause allergic skin reaction.

Eye Contact

Causes serious eye irritation.

Ingestion

Harmful if swallowed. May cause throat irritation, nausea, vomiting, diarrhea.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

2-Pyrrolidinone, 1-ethyl- (2687-91-4)

Oral LD50 Rat 1350 mg/kg

Benzyl alcohol (100-51-6)

Oral LD50 Rat 1230 mg/kg; Dermal LD50 Rabbit 2 g/kg; Inhalation LC50 Rat 8.8 mg/L 4 h

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Isoamyl alcohol (123-51-3)

Oral LD50 Rat 1300 mg/kg; Dermal LD50 Rabbit 3250 mg/kg

Product Toxicity Data

Acute Toxicity Estimate

Dermal	> 2000 mg/kg
Oral	1289.262 mg/kg

Immediate Effects

Harmful if swallowed. Causes serious eye irritation. May cause allergic skin reaction.

Delayed Effects

May damage fertility or the unborn child. Causes damage to organs.

Irritation/Corrosivity Data

Causes serious eye irritation. May cause respiratory tract irritation, skin irritation.

Respiratory Sensitization

No information available for the product.

Dermal Sensitization

May cause allergic skin reaction.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.

Germ Cell Mutagenicity

No information for the product.

Tumorigenic Data

No data available

Reproductive Toxicity

May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Central nervous system

Specific Target Organ Toxicity - Repeated Exposure

No target organs identified.

Aspiration hazard

No information available for the product.

Medical Conditions Aggravated by Exposure

Eye disorders, skin disorders, central nervous system disorders, respiratory disorders.

*** Section 12 - Ecological Information ***

Ecotoxicity

May be harmful to aquatic life.

Component Analysis - Aquatic Toxicity

Benzyl alcohol	100-51-6
Fish:	LC50 96 h Pimephales promelas 460 mg/L [static]; LC50 96 h Lepomis macrochirus 10 mg/L [static]
Invertebrate:	EC50 48 h water flea 23 mg/L
Isoamyl alcohol	123-51-3
Fish:	LC50 96 h Oncorhynchus mykiss 700 mg/L [static]

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Algae:	EC50 72 h Desmodemus subspicatus 493 mg/L IUCLID ; EC50 96 h Desmodemus subspicatus 181 mg/L IUCLID
Invertebrate:	EC50 48 h Daphnia magna 260 mg/L IUCLID

Invertebrate Toxicity

No additional information is available.

Persistence and Degradability

No information available for the product.

Bioaccumulative Potential

This material is believed not to bioaccumulate.

Mobility

No information available for the product.

*** Section 13 - Disposal Considerations ***

Disposal Methods

Dispose of in accordance with all applicable federal, state and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact Safety-Kleen regarding proper recycling or disposal.

Hazardous Waste Number(s): U080. Subject to disposal regulations: U.S. EPA 40 CFR 262. Based on available data, this information applies to the product as supplied to the user. Processing, use, or contamination by the user may change the waste code applicable to the disposal of this product.

*** Section 14 - Transport Information ***

US DOT Information:

Shipping Name: COMBUSTIBLE LIQUID, N.O.S. , (Contains: 2-Pyrrolidinone, 1-ethyl-)

Hazard Class: Combustible liquid

UN/NA #: NA1993

Packing Group: III

Required Label(s): Combustible liquid

IATA Information:

UN#: No classification assigned

IMDG Information:

UN#: No classification assigned

TDG Information:

UN#: No classification assigned

International Bulk Chemical Code

This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Benzyl alcohol	100-51-6
IBC Code:	Category Y
Isoamyl alcohol	123-51-3
IBC Code:	Category Z

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*** Section 15 - Regulatory Information ***
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U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

2-Pyrrolidinone, 1-ethyl-	2687-91-4
TSCA 12b:	Section 5 , 1 % de minimis concentration

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories

Flammable; Acute toxicity; Reproductive Toxicity; Respiratory/Skin Sensitization; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Benzyl alcohol	100-51-6	No	Yes	Yes	No	Yes
Isoamyl alcohol	123-51-3	Yes	Yes	Yes	Yes	Yes

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

Not listed under California Proposition 65.

Component Analysis - Inventory

2-Pyrrolidinone, 1-ethyl- (2687-91-4)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	No	Yes	EIN	Yes	Yes	No	Yes
KR - REACH CCA		MX	NZ	PH	TH-TECI	TW	VN (Draft)	
No		Yes	Yes	Yes	Yes	Yes	Yes	

Benzyl alcohol (100-51-6)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	Yes	Yes	No
KR - REACH CCA		MX	NZ	PH	TH-TECI	TW	VN (Draft)	
No		Yes	Yes	Yes	Yes	Yes	Yes	

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Isoamyl alcohol (123-51-3)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	Yes	Yes	No
KR - REACH CCA		MX	NZ	PH	TH-TECI	TW	VN (Draft)	
No		Yes	Yes	Yes	Yes	Yes	Yes	

*** Section 16 - Other Information ***

NFPA Ratings: Health: 2 Fire: 2 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes:

Update to composition.

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists. CAS No. - Chemical Abstract Service Registry Number CFR = Code of Federal Regulations. DSL - Domestic Substances List GHS - Globally Harmonized System of Classification and Labelling of Chemicals HEPA = High Efficiency Particulate Air NDSL - Non-Domestic Substances List NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. PEL - Permissible Exposure Limit RTK - Right-To-Know STEL - Short Term Exposure Limit (15 minute Time Weighted Average) TLV - Threshold Limit Value WHMIS - Workplace Hazardous Materials Information System

Disclaimer

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