



## SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 11/05/2014

Version 1.2

### SECTION 1. Identification

#### Product identifier

Product number	100975
Product name	n-Amyl alcohol (Pentan-1-ol) for analysis EMSURE®
CAS-No.	71-41-0

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

Identified uses	Reagent for analysis
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#### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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### SECTION 2. Hazards identification

#### GHS Classification

Flammable liquid, Category 3, H226  
Acute toxicity, Category 4, Inhalation, H332  
Skin irritation, Category 2, H315  
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system, H335  
For the full text of the H-Statements mentioned in this Section, see Section 16.

#### GHS-Labeling

##### *Hazard pictograms*



*Signal Word*  
Warning

##### *Hazard Statements*

H226 Flammable liquid and vapor.  
H315 Causes skin irritation.

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H332 Harmful if inhaled.  
H335 May cause respiratory irritation.

### *Precautionary Statements*

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
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.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P312 Call a POISON CENTER or doctor/ physician if you feel unwell.  
P321 Specific treatment (see supplemental first aid instructions on this label).  
P332 + P313 If skin irritation occurs: 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 for extinction.  
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.  
P501 Dispose of contents/ container to an approved waste disposal plant.

### **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Formula	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>4</sub> OH	C <sub>5</sub> H <sub>12</sub> O (Hill)
Molar mass	88.15 g/mol	

### **Hazardous ingredients**

*Chemical Name ( Concentration)*

CAS-No.

*n-Amyl alcohol ( >= 90 % - <= 100 % )*

71-41-0

Exact percentages are being withheld as a trade secret.

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

#### *Inhalation*

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration.  
Oxygen if necessary. Immediately call in physician.

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### *Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing.

### *Eye contact*

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

### *Ingestion*

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

Never give anything by mouth to an unconscious person.

### **Most important symptoms and effects, both acute and delayed**

irritant effects, Cough, Shortness of breath, Dizziness, Unconsciousness, narcosis, Diarrhea, Nausea, Vomiting, Headache, drowsiness, Coma  
Drying-out effect resulting in rough and chapped skin.

### **Indication of any immediate medical attention and special treatment needed**

No information available.

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **Special hazards arising from the substance or mixture**

Combustible material, Vapors are heavier than air and may spread along floors.  
Forms explosive mixtures with air at elevated temperatures.  
Development of hazardous combustion gases or vapors possible in the event of fire.

### **Advice for firefighters**

#### *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.

#### *Further information*

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### **Environmental precautions**

Do not empty into drains. Risk of explosion.

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### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

#### *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

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage temperature: no restrictions.

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## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

Contains no substances with occupational exposure limit values.

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

#### *Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

#### *Eye/face protection*

Safety glasses

#### *Hand 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.

#### *Other protective equipment:*

Flame retardant antistatic protective clothing.

#### *Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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### SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	characteristic
Odor Threshold	0.007 - 34.9 ppm
pH	at 22 g/l 68 °F ( 20 °C) neutral
Melting point	-78 °C
Boiling point/boiling range	280 °F ( 138 °C) at 1,013 hPa
Flash point	117 °F ( 47 °C) at 1,013.25 hPa
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.6 %(V)
Upper explosion limit	8.0 %(V)
Vapor pressure	2.6 hPa at 68 °F ( 20 °C)
Relative vapor density	3.0
Density	0.815 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Relative density	No information available.
Water solubility	22 g/l at 68 °F ( 20 °C)
Partition coefficient: n-octanol/water	log Pow: 1.51 ( 25 °C) (experimental) (IUCRID) Bioaccumulation is not expected.
Autoignition temperature	No information available.

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Decomposition temperature	No information available.
Viscosity, dynamic	4 mPa.s at 68 °F ( 20 °C)
Explosive properties	No information available.
Oxidizing properties	No information available.
Ignition temperature	572 °F ( 300 °C) DIN 51794

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### SECTION 10. Stability and reactivity

#### Reactivity

danger of spontaneous combustion!  
Vapor/air-mixtures are explosive at intense warming.

#### 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:

Fluorine, Oxygen

Violent reactions possible with:

Oxidizing agents, Alkali metals, Alkaline earth metals, halogens, Acid chlorides, Isocyanates, lithium silicide, acids

#### Conditions to avoid

Heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

#### Incompatible materials

rubber, various plastics

#### Hazardous decomposition products

no information available

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### SECTION 11. Toxicological information

#### Information on toxicological effects

##### *Likely route of exposure*

Inhalation, Eye contact, Skin contact

##### *Acute inhalation toxicity*

absorption

Irritating to respiratory system.

Acute toxicity estimate: 11.1 mg/l

Expert judgment

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### *Skin irritation*

Rabbit

Result: Irritations

Drying-out effect resulting in rough and chapped skin.

Causes skin irritation.

### *Genotoxicity in vitro*

Ames test

Result: negative

(IUCLID)

### *Specific target organ systemic toxicity - single exposure*

May cause respiratory irritation.

### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **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 ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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.

ACGIH

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

## **Further information**

If swallowed

Absorption via:

Gastrointestinal tract

After absorption of large quantities:

Headache, drowsiness, lack of appetite, Nausea, Vomiting, Diarrhea, Dizziness,

Unconsciousness, Coma

Possible damages:

Damage to:

Liver, Kidney, Cardiac, Lungs

Further data:

Handle in accordance with good industrial hygiene and safety practice.

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### SECTION 12. Ecological information

#### Ecotoxicity

##### *Toxicity to fish*

LC50 Danio rerio (zebra fish): 530 mg/l; 96 h  
OECD Test Guideline 203

##### *Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 341 mg/l; 48 h (IUCLID)

##### *Toxicity to algae*

IC5 Scenedesmus quadricauda (Green algae): 260 mg/l; 8 d (IUCLID)

##### *Toxicity to bacteria*

microtox test EC50 Photobacterium phosphoreum: 394 mg/l; 30 min (IUCLID)

EC20 activated sludge: > 1,000 mg/l; 30 min

ISO 8192 (IUCLID)

#### Persistence and degradability

##### *Biodegradability*

80 - 90 %; 28 d  
(External MSDS)  
Readily biodegradable.

##### *Biochemical Oxygen Demand (BOD)*

1,278 mg/g (5 d)  
(IUCLID)

##### *Chemical Oxygen Demand (COD)*

1,814 mg/g  
(IUCLID)

##### *Ratio BOD/ThBOD*

BOD5 47 %  
(IUCLID)

##### *Ratio COD/ThBOD*

67 %  
(IUCLID)

#### Bioaccumulative potential

##### *Partition coefficient: n-octanol/water*

log Pow: 1.51 (25 °C)  
(experimental)  
(IUCLID) Bioaccumulation is not expected.

#### Mobility in soil

No information available.

##### *Additional ecological information*

Discharge into the environment must be avoided.



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### SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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### SECTION 14. Transport information

#### Land transport (DOT)

UN number	UN 1105
Proper shipping name	PENTANOLS
Class	3
Packing group	III
Environmentally hazardous	--

#### Air transport (IATA)

UN number	UN 1105
Proper shipping name	PENTANOLS
Class	3
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

#### Sea transport (IMDG)

UN number	UN 1105
Proper shipping name	PENTANOLS
Class	3
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-D

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### SECTION 15. Regulatory information

#### United States of America

##### SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

##### SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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### 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.

### DEA List I

Not listed

### DEA List II

Not listed

## US State Regulations

### Massachusetts Right To Know

*Ingredients*

n-Amyl alcohol

### Pennsylvania Right To Know

*Ingredients*

n-Amyl alcohol

### New Jersey Right To Know

*Ingredients*

n-Amyl alcohol

### California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

### Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Labeling

*Hazard pictograms*



*Signal Word*

Warning

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### *Hazard Statements*

H226 Flammable liquid and vapor.  
H315 Causes skin irritation.  
H332 Harmful if inhaled.  
H335 May cause respiratory irritation.

### *Precautionary Statements*

Prevention  
P210 Keep away from heat.  
Response  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P313 Get medical advice/ attention.

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

H226	Flammable liquid and vapor.
H315	Causes skin irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

### **Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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