

**SAFETY DATA SHEET**

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

Revision Date 10/06/2017

Version 1.1

**SECTION 1. Identification****Product identifier**

|                |  |
|----------------|--|
| Product number | AX1440                                     |
| Product name   | Isoamyl Alcohol [Isopentyl Alcohol] GR ACS |
| CAS-No.        | 123-51-3                                   |

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

|                 |                      |
|-----------------|----------------------|
| Identified uses | Reagent for analysis |
|-----------------|----------------------|

**Details of the supplier of the safety data sheet**

|         |   |
|---------|---|
| Company | EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821,<br>United States of America   General Inquiries: +1-978-715-4321  <br>Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)<br>MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany. |
|---------|---|

|                            |  |
|----------------------------|--|
| <b>Emergency telephone</b> | 800-424-9300 CHEMTREC (USA)<br>+1-703-527-3887 CHEMTREC (International)<br>24 Hours/day; 7 Days/week |
|----------------------------|--|

**SECTION 2. Hazards identification****GHS Classification**

Flammable liquid, Category 3, H226  
Acute toxicity, Category 4, Inhalation, H332  
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.  
H332 Harmful if inhaled.  
H335 May cause respiratory irritation.

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## *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.

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/doctor if you feel unwell.

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

$(\text{CH}_3)_2\text{CHCH}_2\text{CH}_2\text{OH}$

$\text{C}_5\text{H}_{12}\text{O}$  (Hill)

Molar mass

88.15 g/mol

## **Hazardous ingredients**

*Chemical name (Concentration)*

CAS-No.

*Isoamyl alcohol (>= 90 % - <= 100 % )*

123-51-3

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.

#### *Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

#### *Eye contact*

After eye contact: rinse out with plenty of water. Remove contact lenses.

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## *Ingestion*

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

Never give anything by mouth to an unconscious person.

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

Dermatitis, Dizziness, Unconsciousness, Diarrhea, Nausea, Vomiting, Headache, muscular weakness, somnolence, confusion, Coma  
irritant effects, Cough, Shortness of breath, Repeated exposure may cause skin dryness or cracking.

## **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.

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*

In the event of fire, wear self-contained breathing apparatus.

#### *Further information*

Remove container from danger zone and cool with water. 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: Do not breathe vapors, aerosols. Avoid substance contact.

Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### **Environmental precautions**

Do not let product enter drains. Risk of explosion.

### **Methods and materials for containment and cleaning up**

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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. Chemizorb®). Dispose of properly. Clean up affected area.

## SECTION 7. Handling and storage

### Precautions for safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

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.

Store at room temperature.

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### *Ingredients*

| Basis                           | Value                             | Threshold limits                 | Remarks |
|---------------------------------|-----------------------------------|----------------------------------|---------|
| <i>Isoamyl alcohol 123-51-3</i> |                                   |                                  |         |
| ACGIH                           | Time Weighted Average (TWA):      | 100 ppm                          |         |
|                                 | Short Term Exposure Limit (STEL): | 125 ppm                          |         |
| NIOSH/GUIDE                     | Recommended exposure limit (REL): | 100 ppm<br>360 mg/m <sup>3</sup> |         |
|                                 | Short Term Exposure Limit (STEL): | 125 ppm<br>450 mg/m <sup>3</sup> |         |
| OSHA_TRANS                      | PEL:                              | 100 ppm<br>360 mg/m <sup>3</sup> |         |
| Z1A                             | Short Term Exposure Limit (STEL): | 125 ppm<br>450 mg/m <sup>3</sup> |         |
|                                 | Time Weighted Average (TWA):      | 100 ppm<br>360 mg/m <sup>3</sup> |         |

### 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.

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### *Hygiene measures*

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

### *Eye/face protection*

Safety glasses

### *Hand protection*

full contact:

|                     |                |
|---------------------|----------------|
| Glove material:     | Nitrile rubber |
| Glove thickness:    | 0.40 mm        |
| Break through time: | > 480 min      |

splash contact:

|                     |                |
|---------------------|----------------|
| Glove material:     | Nitrile rubber |
| Glove thickness:    | 0.11 mm        |
| Break through time: | > 30 min       |

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 730 Camatril® -Velours (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

### *Other protective equipment:*

Flame retardant antistatic protective clothing.

### *Respiratory protection*

required when vapors/aerosols are generated.

Recommended Filter type: Filter A (acc. to DIN 3181) for vapors of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer. These measures have to be properly documented.

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## SECTION 9. Physical and chemical properties

|                |                                 |
|----------------|---------------------------------|
| Physical state | liquid                          |
| Color          | colorless                       |
| Odor           | malodorous                      |
| Odor Threshold | No information available.       |
| pH             | 7<br>at 25 g/l<br>68 °F (20 °C) |

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|  |  |
|--|--|
| Melting point                          | -233 °F (-147 °C)<br>Method: OECD Test Guideline 102                         |
| Boiling point/boiling range            | 267.3 °F (130.7 °C)<br>at 1,013 hPa  |
| Flash point                            | 110.3 °F (43.5 °C)<br>Method: closed cup                                     |
| Evaporation rate                       | No information available.  |
| Flammability (solid, gas)              | No information available.  |
| Lower explosion limit                  | 1.2 %(V)   |
| Upper explosion limit                  | 8 %(V)   |
| Vapor pressure                         | 3 hPa<br>at 68 °F (20 °C)  |
| Relative vapor density                 | 3.04   |
| Density                                | 0.81 g/cm <sup>3</sup><br>at 68 °F (20 °C)<br>Method: DIN 53217              |
| Relative density                       | No information available.  |
| Water solubility                       | 25 g/l<br>at 68 °F (20 °C)   |
| Partition coefficient: n-octanol/water | log Pow: 1.35<br>OECD Test Guideline 107<br>Bioaccumulation is not expected. |
| Autoignition temperature               | No information available.  |
| Decomposition temperature              | Distillable in an undecomposed state at normal pressure.                     |
| Viscosity, dynamic                     | 4.3 mPa.s<br>at 68 °F (20 °C)  |
| Explosive properties                   | Not classified as explosive.   |
| Oxidizing properties                   | none   |
| Ignition temperature                   | 635 °F (335 °C)<br>at 1,013 hPa<br>Method: DIN 51794                         |

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Saturated vapor concentration    11 g/m<sup>3</sup>  
at 68 °F (20 °C)

Viscosity, kinematic                    5.32 mm<sup>2</sup>/s  
at 68 °F (20 °C)

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## SECTION 10. Stability and reactivity

### Reactivity

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, Strong oxidizing agents, Oxygen, Alkali metals, Alkaline earth metals, Acids, Isocyanates, halogens, perchloric acid, lithium aluminum hydride, Acid anhydrides, perchlorates, Aluminum, Sulfides

### Conditions to avoid

Heating.

### Incompatible materials

rubber

### 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

#### *Target Organs*

Eyes

Skin

Respiratory system

Central nervous system

#### *Acute oral toxicity*

LD50 Rat: > 5,000 mg/kg (External MSDS)

Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.

#### *Acute inhalation toxicity*

Acute toxicity estimate: 11.1 mg/l; vapor

Expert judgment

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Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.

Irritating to respiratory system.

### *Acute dermal toxicity*

LD50 Rabbit: > 3,000 mg/kg

(External MSDS)

### *Skin irritation*

Repeated exposure may cause skin dryness or cracking.

Dermatitis

### *Genotoxicity in vitro*

Ames test

Result: negative

(Lit.)

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

May cause respiratory irritation.

Target Organs: Respiratory system

### *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 component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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**

Absorption via:

Gastrointestinal tract

After absorption of large quantities:

Headache, somnolence, lack of appetite, Nausea, Vomiting, Diarrhea, Dizziness, muscular weakness, confusion, Unconsciousness, Coma



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Possible damages:

Damage to:

Liver, Kidney, Lungs, Cardiac

Effect potentiated by: ethanol

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### Ecotoxicity

*Toxicity to fish*

LC50 Oncorhynchus mykiss (rainbow trout): 700 mg/l; 96 h (IUCLID)

*Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia: 260 mg/l; 48 h (IUCLID)

*Toxicity to algae*

IC50 Desmodesmus subspicatus (green algae): 493 mg/l; 72 h (IUCLID)

*Toxicity to bacteria*

EC50 Pseudomonas putida: 2,500 mg/l; 17 h (IUCLID)

### Persistence and degradability

*Biodegradability*

84 %; 27 d

OECD Test Guideline 301C

Readily biodegradable.

*Theoretical oxygen demand (ThOD)*

2,740 mg/g

(Lit.)

*Ratio BOD/COD*

63 %

(IUCLID)

*Ratio BOD/ThBOD*

BOD5 55 %

(Lit.)

*Ratio COD/ThBOD*

77 %

(Lit.)

### Bioaccumulative potential

*Partition coefficient: n-octanol/water*

log Pow: 1.35

OECD Test Guideline 107

Bioaccumulation is not expected.

### Mobility in soil

No information available.

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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*

Isoamyl alcohol

### Pennsylvania Right To Know

#### *Ingredients*

Isoamyl alcohol

### New Jersey Right To Know

#### *Ingredients*

Isoamyl 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.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

EUH066 Repeated exposure may cause skin dryness or cracking.

## *Precautionary Statements*

Prevention

P210 Keep away from heat.

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

H226 Flammable liquid and vapor.

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).

Revision Date 10/06/2017

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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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