

SAFETY DATA SHEET

1. IDENTIFICATION

Product Name: CYCAT® 500 Catalyst
Synonyms: Aromatic sulfonic acid
Product Description: Aromatic sulfonic acid
Molecular Formula: Mixture
Molecular Weight: Mixture
Intended/Recommended Use: Catalyst

Allnex USA Inc., 9005 Westside Parkway, Alpharetta, Georgia 30009, USA

For Product and all Non-Emergency Information call your local Allnex contact point or contact us at <http://www.allnex.com/contact>

EMERGENCY PHONE (24 hours/day) - For emergency only involving spill, leak, fire, exposure or accident call:

+1-866-928-0789 (toll free) or +1-215-207-0061 (Carechem 24 - Allnex29003-NCEC)

See Section 16 for Emergency phone numbers for other regions.

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2. HAZARDS IDENTIFICATION

GHS Classification

Flammable Liquids Hazard Category 3

Specific Target Organ Toxicity - Single Exposure Hazard Category 3

Skin Corrosion / Irritation Hazard Category 2

Serious Eye Damage / Eye Irritation Hazard Category 1

Aquatic Environment Chronic Hazard Category 3

LABEL ELEMENTS



Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor

May cause drowsiness or dizziness

May cause respiratory irritation

Causes skin irritation

Causes serious eye damage

Harmful to aquatic life with long lasting effects

Precautionary Statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/Bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wear protective gloves/protective clothing/eye protection/face protection.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well-ventilated area.

Wash face, hands and any exposed skin thoroughly after handling.

Avoid release to the environment.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

In case of fire: Use CO₂, dry chemical, or foam to extinguish.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Specific treatment (see supplemental first aid instructions on this label).

Take off contaminated clothing and wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Store in a well-ventilated place. Keep cool.

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Dispose of contents/container in accordance with local and national regulations.

Hazards Not Otherwise Classified (HNOC), Other Hazards

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS

Component / CAS No.	%	GHS Classification	Carcinogen
Isobutanol 78-83-1	60	Flam. Liq. 3 (H226) STOT SE 3 (H335) STOT SE 3 (H336) Skin Irrit. 2 (H315) Eye Dam. 1 (H318)	-
Dinonyl naphthalene disulfonic acid 60223-95-2	40	Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Aquatic Chronic 3 (H412)	-

Additional GHS classification or other information may be included in this section but has not been adopted by OSHA. See Section 16 for full text of H phrases.

4. FIRST AID MEASURES

First-aid Measures

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

Skin Contact:

Remove contaminated clothing and shoes without delay. Wash immediately with plenty of water. Do not reuse contaminated clothing without laundering. Get medical attention if pain or irritation persists after washing or if signs and symptoms of overexposure appear.

Eye Contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical attention immediately.

Ingestion:

If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Most Important Symptoms and Effects, Acute and Delayed

None known.

Immediate Medical Attention and Special Treatment

Not applicable.

Notes To Physician:

No specific measures have been identified.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Use water spray, alcohol foam, carbon dioxide or dry chemical to extinguish fires. Water stream may be ineffective.

Unsuitable Extinguishing Media:

full water jet.

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See SDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:

Keep containers cool by spraying with water if exposed to fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Where exposure level is known, wear approved respirator suitable for level of exposure. Where exposure level is not known, wear approved, positive pressure, self-contained respirator. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

Methods For Cleaning Up:

Remove sources of ignition. Cover spills with some inert absorbent material; sweep up and place in a waste disposal container. Flush spill area with water.

Environmental Precautions:

Use appropriate containment to avoid environmental contamination. Avoid release to the environment.

References to other sections:

See Sections 7, 8 and 13 for additional information.

7. HANDLING AND STORAGE

HANDLING

Precautions: Keep away from heat, sparks and open flame. - No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting and other equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves and eye/face protection. Wash hands thoroughly after handling. Avoid release to the environment. Use only

outdoors or in a well-ventilated area. Avoid breathing vapors or spray mist.

Special Handling Statements: This material corrodes steel at a rate less than 6.25 mm (0.25 inch) a year at a test temperature of 55 °C (130 °F). By analogy with a product of similar composition. Containers must be bonded and grounded when pouring or transferring material.

STORAGE

Areas containing this material should have fire safe practices and electrical equipment in accordance with applicable regulations and/or guidelines. Standards are primarily based on the material's flashpoint, but may also take into account properties such as miscibility with water or toxicity. All local and national regulations should be followed. In the Americas, National Fire Protection Association (NFPA) 30: Flammable and Combustible Liquids Code, is a widely used standard. NFPA 30 establishes storage conditions for the following classes of materials: Class I Flammable Liquids, Flashpoint <37.8 °C. Class II Combustible Liquids, 37.8 °C < Flashpoint <60 °C. Class IIIa Combustible Liquids, 60 °C < Flashpoint < 93 °C. Class IIIb Combustible Liquids, Flashpoint > 93 °C.

Storage Temperature: Store at 18 - 25 °C 64 - 77 °F

Reason: Quality.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:

Utilize a closed system process where feasible. Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure.

Respiratory Protection:

For operations where inhalation exposure can occur use an approved respirator. Recommendations are listed below. Other protective respiratory equipment may be used based on user's own risk assessment. Recommended respirators include those certified by NIOSH.

Recommended:

Full Face Mask with organic vapor cartridge, Type A filter (BP >65°C)

Eye Protection:

Prevent eye and skin contact. Provide eye wash fountain and safety shower in close proximity to points of potential exposure. Wear eye/face protection such as chemical splash proof goggles or face shield.

Skin Protection:

Prevent contamination of skin or clothing when removing protective equipment. Wear impermeable gloves and suitable protective clothing.

Hand Protection:

Wear protective gloves. Recommendations are listed below. Other protective materials may be used based on user's own risk assessment. Barrier creams may help to protect the exposed areas of the skin, they should however not be applied once exposure has occurred. Replace gloves immediately when torn or any change in appearance (dimension, color, flexibility etc.) is noticed.

Gloves for repeated or prolonged exposure - non exhaustive list:

Nitrile rubber (NBR), thickness: > 0.38 mm, break through time: > 480 min

Gloves for short term exposure/splash protection - non exhaustive list:

Nitrile rubber (NBR), thickness: 0.12 mm, break through time: up to 120 min

The chemical resistance depends on the type of product and amount of product on the glove. Therefore gloves need to be changed when in contact with chemicals.

Not suitable gloves - non exhaustive list:

Natural rubber (NRL), thickness: 0.12 mm

Due to many conditions (e.g. temperature, abrasion) the practical usage of a chemical protective glove in practice

may be much shorter than the permeation time determined through testing. Use PE gloves as under gloves for difficult situations like for instance: high exposure, unknown composition or unknown properties of the chemicals.

Additional Advice:

Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

Exposure Limit(s)

78-83-1	Isobutanol	
OSHA (PEL):		100 ppm (TWA) 300 mg/m ³ (TWA)
ACGIH (TLV):		50 ppm (TWA)
Other Value:		Not established

Biological Exposure Limit(s)

No values have been established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	amber
Appearance:	liquid
Odor:	Isobutanol
Boiling Point:	108 °C 226 °F (value for isobutanol)
Melting Point:	Not applicable
Vapor Pressure:	10 mm Hg @ 30 °C (value for isobutanol)
Specific Gravity/Density:	0.93 g/cm ³
Vapor Density:	2.6 (air = 1) (value for isobutyl alcohol)
Percent Volatile (% by wt.):	60
pH:	Not applicable
Saturation In Air (% By Vol.):	Not applicable
Evaporation Rate:	Not applicable
Solubility In Water:	Insoluble
Volatile Organic Content:	Not available
Flash Point:	33 °C 91 °F Closed Cup
Flammable Limits (% By Vol):	Lower: 1.7 Upper: 10.9 (values for isobutanol)
Autoignition Temperature:	Not available
Decomposition Temperature:	Not available
Partition coefficient (n-octanol/water):	Not available
Odor Threshold:	Not available
Viscosity (Kinematic):	Not available
Viscosity (Dynamic):	Not available
Explosive Properties:	Not available
Oxidizing Properties:	Not available

10. STABILITY AND REACTIVITY

Reactivity:	No information available
Stability:	Stable.
Conditions To Avoid:	None known.

Polymerization:	Will not occur
Conditions To Avoid:	None known.
Materials To Avoid:	Strong oxidizing agents.
Hazardous Decomposition Products:	Carbon monoxide (CO) Carbon dioxide oxides of sulfur (includes sulfur di and tri oxides)

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Oral, Skin, Eyes, Respiratory System.

Acute toxicity - oral: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Acute toxicity - dermal: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Acute toxicity - inhalation: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Skin corrosion / irritation: Causes skin irritation

Serious eye damage / eye irritation: Causes serious eye damage

Respiratory sensitization: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Skin sensitization: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Carcinogenicity: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Germ cell mutagenicity: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Reproductive toxicity: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Specific target organ toxicity (STOT) - single exposure: May cause drowsiness or dizziness. May cause respiratory irritation.

Specific target organ toxicity (STOT) - repeated exposure: Not Classified. - Based on available data and/or professional judgment, the classification criteria are not met.

Aspiration hazard: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

PRODUCT TOXICITY INFORMATION

ACUTE TOXICITY DATA

oral	rat	Acute LD50	> 2000 mg/kg
dermal	rabbit	Acute LD50	> 2000 mg/kg
inhalation	rat	Acute LC50 4 hr	> 5 mg/l (Dust/Mist)

LOCAL EFFECTS ON SKIN AND EYE

Acute Irritation	dermal	Not irritating
Acute Irritation	eye	Not irritating

ALLERGIC SENSITIZATION

Sensitization	Skin	No data
Sensitization	respiratory	No data

GENOTOXICITY**Assays for Gene Mutations**

Ames Salmonella Assay	No data
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OTHER INFORMATION

The product toxicity information above has been estimated.

11. TOXICOLOGICAL INFORMATION**HAZARDOUS INGREDIENT TOXICITY DATA**

Isobutanol has acute oral (rat) and dermal (rabbit) LD50 values of 2.46 g/kg and 2.46 - 3.4 g/kg, respectively. The LC50 (rat) following a 4-hour inhalation exposure is >8000 ppm (24.24 mg/L). Acute overexposure to isobutanol vapor can cause irritation to the eyes (severe), skin (moderate), and mucous membranes, as well as, central nervous system depression. Literature reports that acute oral exposure to isobutanol has produced CNS effects in animals. Direct contact with isobutanol may cause severe eye and mild to moderate skin irritation.

12. ECOLOGICAL INFORMATION**TOXICITY, PERSISTENCE AND DEGRADABILITY, BIOACCUMULATIVE POTENTIAL, MOBILITY IN SOIL, OTHER ADVERSE EFFECTS**

Overall Environmental Toxicity: Harmful to aquatic life with long lasting effects.

The ecological assessment for this material is based on an evaluation of its components.

RESULTS OF PBT AND vPvB ASSESSMENT

Not determined

HAZARDOUS INGREDIENT TOXICITY DATA

Component / CAS No.	Toxicity to Fish
Isobutanol (78-83-1)	LC50 1120 - 1520 mg/L - Oncorhynchus mykiss (96h)
	LC50 1370 - 1670 mg/L - Pimephales promelas (96h)
	LC50 1480 - 1730 mg/L - Lepomis macrochirus (96h)
Dinonyl naphthalene disulfonic acid (60223-95-2)	Not available

Component / CAS No.	Toxicity to Water Flea
Isobutanol (78-83-1)	EC50 = 1300 mg/L - Daphnia magna (48h)
Dinonyl naphthalene disulfonic acid (60223-95-2)	Not available

Component / CAS No.	Toxicity to Algae
Isobutanol (78-83-1)	EC50 = 230 mg/L - Desmodismus subspicatus (48h)
Dinonyl naphthalene disulfonic acid (60223-95-2)	Not available

Component / CAS No.	Partition coefficient
Isobutanol (78-83-1)	0.79
Dinonyl naphthalene disulfonic acid (60223-95-2)	Not available

13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA "listed hazardous waste" or has any of the four RCRA "hazardous waste characteristics." Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA "listed hazardous waste"; information contained in Section 15 of this SDS is not intended to indicate if the product is a "listed hazardous waste." RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this SDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 3 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT

Dangerous Goods? X
 PROPER SHIPPING NAME: ISOBUTANOL SOLUTION
 Hazard Class: 3
 Packing Group: III
 UN/ID Number: UN1212
 Transport Label Required: Flammable Liquid

<u>Component / CAS No.</u>	<u>Hazardous Substances/Reportable Quantity of Product (lbs)</u>
Isobutanol	8333

Comments: Hazardous Substances/Reportable Quantities - DOT requirements specific to Hazardous Substances only apply if the quantity in one package equals or

exceeds the product reportable quantity.

TRANSPORT CANADA

Dangerous Goods? X
PROPER SHIPPING NAME: ISOBUTANOL SOLUTION
Hazard Class: 3
Packing Group: III
UN Number: UN1212
Transport Label Required: Flammable Liquid

ICAO / IATA

Dangerous Goods? X
UN PROPER SHIPPING NAME: ISOBUTANOL SOLUTION
Transport Hazard Class: 3
Packing Group: III
UN Number: UN1212
Transport Label Required: Flammable Liquid

IMO

Dangerous Goods? X
UN PROPER SHIPPING NAME: ISOBUTANOL SOLUTION
Transport Hazard Class: 3
UN Number: UN1212
Packing Group: III
Transport Label Required: Flammable Liquid

SPECIAL PRECAUTIONS FOR USER

Storage and transports between +18 and +25°C.

15. REGULATORY INFORMATION

Inventory Information

United States (USA): All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

European Economic Area (including EU): When purchased from an Allnex legal entity based in the EEA (EU or Norway), this product is compliant with the registration of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt and/or registered.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

New Zealand: This product is approved or exempt under the Hazardous Substances and New Organisms (HSNO) Act.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: All components of this product are included on the Japanese (ENCS and ISHL) inventories or are not required to be listed on the Japanese inventories.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

Philippines: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

Taiwan: All components of this product are included in the Taiwan chemical substance inventory or are not required to be listed on the Taiwan chemical substance inventory (TCSI).

Switzerland: All components of this product are exempt from the new substance notification requirements for Switzerland (SR 813.11 art. 24-26).

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

Component / CAS No.	%	TPQ (lbs)	RQ(lbs)	S313	TSCA 12B
Isobutanol 78-83-1	60	None	5000	No	No

PRODUCT HAZARD CATEGORY UNDER SECTIONS 311 AND 312 OF EPCRA

Physical Hazards

Flammable (gases, aerosols, liquids, or solids)

Health Hazards

Skin Corrosion or Irritation

Serious eye damage or eye irritation

Specific target organ toxicity (single or repeated exposure)

16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

Fire: 3 - Liquids and solids that can be ignited under almost all ambient temperature conditions.

Instability: 1 - Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures.

Reasons For Issue: Revised Section 14

Date Prepared: 06/21/2019

Date of last significant revision: 06/10/2019

Component - Hazard Statements

Isobutanol

H226 - Flammable liquid and vapor.

H315 - Causes skin irritation.

H318 - Causes serious eye damage.

H335 - May cause respiratory irritation.

H336 - May cause drowsiness or dizziness.

Dinonyl naphthalene disulfonic acid

H315 - Causes skin irritation.

H318 - Causes serious eye damage.

H412 - Harmful to aquatic life with long lasting effects.

Emergency phone numbers for other regions

Asia Pacific

Australia: +61 1800 022 037 (Allnex Australia)

China (PRC): +86(0)25 8547 7110 (Jiangsu registration center) / +86(0)532 8388 9090 (NRCC)

India: 000 800 100 7479 (toll free) or +65 3158 1198 (Carechem 24)

Indonesia: 007 803 011 0293 (Carechem 24)

Japan: +81 345 789 341 (Carechem 24)

Korea: +82 2 3479 8401 (Carechem 24)

Malaysia: +60 3 6207 4347 (Carechem 24)

New Zealand: +64 0800 803 002 (Allnex New Zealand)

Philippines: +63 2 231 2149 (Carechem 24)

Taiwan: +886 2 8793 3212 (Carechem 24)

Vietnam: +84 8 4458 2388 (Carechem 24)

All Others: +65 3158 1074 (Carechem 24)

Europe

+44 (0) 1235 239 670 (Carechem 24)

Middle East, Africa

+44 (0) 1235 239 671 (Carechem 24)

Latin America

Brazil: +55-800-707-7022 (toll free) or +55-11-98149-0850 (Suatrans 24)

Chile: +56 2 2582 9336 (Carechem 24)

Mexico and all others: +52-555-004-8763 (Carechem 24)

Prepared By: Product Stewardship & Regulatory Affairs Department, <http://www.allnex.com/contact>

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