



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name : Linear Alkyl Benzene Sulfonic Acid

CAS No. : 27176-87-0

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

Identified uses : Laboratory chemicals, manufacture of substances.

1.3 Details of the supplier of the safety data sheet

Company: Aurora Industry Co.,Ltd.

Tel: 0411-82288674

Address: Room 7033, No.9-1, Haifu Road, Dalian Free Trade Zone, China

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Physical hazards

Not classified.

Health hazards

Acute toxicity, oral - Category 4

Skin corrosion/irritation - Category 1C

Serious eye damage/eye irritation - Category 1

OSHA defined hazards

Not classified.

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard Statements

Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage.

Precautionary Statements

Prevention



Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.

Response

If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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/doctor.

Wash contaminated clothing before reuse.

Storage

Store locked up.

Disposal

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

Environmental hazards

Hazardous to the aquatic environment, acute hazard - Category 1

Hazardous to the aquatic environment, long-term hazard - Category 3

Hazard(s) not otherwise classified (HNOC):

Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Supplemental information: None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name Linear Alkyl Benzene Sulfonic Acid

CAS Number Mixture

COMPONENT	CAS NUMBER	CONCENTRATION
Benzenesulfonic Acid, C10-16 alkyl Derivatives	68584-22-5	90 – 100%
Sulfuric Acid (Byproduct)	7664-93-9	< 1.5%
Benzene, C10-16 alkyl Derivatives	68648-87-3	< 1.5%
Sulfur Dioxide	7446-09-5	< 0.1%

4. FIRST AID MEASURES

Inhalation: Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.



Ingestion: Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed: Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Indication of immediate medical attention and special treatment needed: Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Firefighting equipment/instructions: Move containers from fire area if you can do so without risk.

Specific methods: Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards: No unusual fire or explosion hazards noted.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up



Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent product from entering drains. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses, or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

7.2 Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Occupational exposure limits

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Byproducts	Type	Value
Sulfuric Acid (CAS 7664-93-9)	PEL	1 mg/m ³

Impurities	Type	Value
Sulfur Dioxide (CAS 7446-09-5)	PEL	13 mg/m ³
		5 ppm

US ACGIH Threshold Limit Values

Byproducts	Type	Value	Form
Sulfur Dioxide (CAS 7446-09-5)	TWA	0.2 mg/m ³	Thoracic fraction.

Impurities	Type	Value
Sulfur Dioxide (CAS 7446-09-5)	STEL	0.25 ppm



US NIOSH: Pocket Guide to Chemical Hazards

Byproducts	Type	Value
Sulfuric Acid (CAS 7664-93-9)	TWA	1 mg/m ³

Impurities	Type	Value
Sulfur Dioxide (CAS 7446-09-5)	STEL	13 mg/m ³
		5 ppm
	TWA	5 mg/m ³
		2 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection: Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other: Wear appropriate chemical resistant clothing.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards: Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations: Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Viscous.

Physical state: Liquid.

Form: Liquid.

Color: Brown.

Odor: Sulfurous.

Odor threshold: Not available.

pH: < 2

Melting point/freezing point: Not available.

Initial boiling point and boiling range: Not available.



Flash point: Cleveland Open Cup, None to decomposition

Evaporation rate: Not available.

Flammability (solid, gas): Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower: Not available.

Flammability limit - upper: Not available.

Explosive limit - lower (%): Not available.

Explosive limit - upper (%): Not available.

Vapor pressure: Not available.

Vapor density: Not available.

Relative density: Not available.

Solubility (water): Soluble; may gel

Partition coefficient (n-Octanol/water): Not available.

Auto-ignition temperature: Not available.

Decomposition temperature: Not available.

Viscosity (25°C, estimated): 1260 cPs

Other information

Density: 8.81 lbs/gal

Molecular weight: 320

Specific gravity: 1.06

10. STABILITY AND REACTIVITY

10.1 Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2 Chemical stability

Material is stable under normal conditions.

10.3 Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Contact with incompatible materials.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation: May cause irritation to the respiratory system.

Skin contact: Causes severe skin burns.

Eye contact: Causes serious eye damage.



Ingestion: Causes digestive tract burns. Harmful if swallowed.

Symptoms related to the physical, chemical, and toxicological characteristics:

Burning pain and severe corrosive skin damage. Causes serious eye damage.

Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity: Harmful if swallowed.

Benzenesulfonic Acid, C10-16 alkyl Derivatives (CAS 68584-22-5)

Dermal LC50 - Rabbit: > 2000 mg/kg

Oral LD50 - Rat: 1470 mg/kg

Sulfuric Acid (CAS 7664-93-9)

Inhalation LC50 - Rat: 375 mg/m³, 4 h

Oral LD50 - Rat: 2140 mg/kg

Sulfur Dioxide (CAS 7446-09-5)

Inhalation LC50 - Hamster: 50 ppm, 4 h

Benzene, C10-16-alkyl Derivatives (CAS 68648-87-3)

Dermal LD50 - Rabbit: > 5000 mg/kg

Oral LD50 - Rat: > 5000 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation: Causes severe skin burns and eye damage.

Serious eye damage/eye irritation: Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization: Not a respiratory sensitizer.

Skin sensitization: This product is not expected to cause skin sensitization.

Germ Cell Mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity: IARC has concluded that "occupational exposure to strong inorganic mists containing sulfuric acid is carcinogenic for humans (Group 1)".

IARC Monographs. Overall Evaluation of Carcinogenicity

Sulfuric Acid (CAS 7664-93-9): 1 - Carcinogenic to humans.

Sulfur Dioxide (CAS 7446-09-5): 3 - Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.



US National Toxicology Program (NTP) Report on Carcinogens: Sulfuric Acid (CAS 7664-93-9) Known To Be Human Carcinogen.

Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure: Not classified.

Specific target organ toxicity - repeated exposure: Not classified.

Aspiration hazard: Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Aquatic Toxicity

Benzenesulfonic Acid, C10-16-alkyl Derivs. (CAS 68584-22-5)

Acute Toxicity

Algae EC50 - Algae: 0.91 mg/L (96h)

Crustacea EC50 - Daphnia: 7.6 mg/L (48h)

Fish LC50 - Bluegill (*Lepomis macrochirus*): 1.67 mg/L (96h)

Chronic Toxicity

Algae NOEC - Algae: 3.1 mg/L (15d)

Crustacea NOEC - Daphnia: < 3.4 mg/L (28d)

Fish NOEC - Fish: 0.25 mg/L (90d)

Sulfuric Acid (CAS 7664-93-9)

Acute Toxicity

Algae EC50 - Algae: > 100 mg/L (72 h)

Crustacea EC50 - Daphnia: > 100 mg/L (48 h)

Fish LC50 - Bluegill (*Lepomis macrochirus*): 16 - 28 mg/L (96 h)

Chronic Toxicity

Crustacea NOEC - Daphnia: 0.15 mg/L (35 d)

Fish NOEC - Fish: 0.025 mg/L (65 d)

Benzene, C10-16-alkyl Derivs. (CAS 68648-87-3)

Acute Toxicity

Algae EC50 - Algae: > 0.1 mg/L (72 h)

Crustacea EC50 - Daphnia: 0.009 mg/L (48 h)

Fish LC50 - Fathead minnow (*Pimephales promelas*): > 0.041 mg/L (96 h)

Chronic Toxicity

Fish NOEC - Fish: > 0.0578 mg/L

* Estimates for product may be based on additional component data not shown.

Persistence and degradability: This product is expected to be readily biodegradable.



Bioaccumulative potential

Mobility in soil: No data available.

Other adverse effects: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

14. TRANSPORT INFORMATION

DOT

UN number: UN2586

UN proper shipping name: Aryl sulfonic acids, liquid

Transport hazard class(es)

Class: 8

Subsidiary risk: -

Label(s): 8

Packing group: III

Special precautions for user Read safety instructions, SDS, and emergency procedures before handling.

Special provisions: IB3, T4, TP1

Packaging exceptions: 154

Packaging non bulk: 203

Packaging bulk: 241

DOT NON-BULK

UN number: UN2586

UN proper shipping name: Aryl sulfonic acids, liquid

Transport hazard class(es)

Class: 8

Packing group: III

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

IATA

UN number: UN2586

UN proper shipping name: Arylsulfonic acids, liquid

Transport hazard class(es)

Class: 8

Subsidiary risk: -

Packing group: III



Environmental hazards: No.

ERG Code: 8L

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft: Allowed.

Cargo aircraft only: Allowed.

IMDG

UN number: UN2586

UN proper shipping name: Arylsulfonic Acids, Liquid

Transport hazard class(es)

Class: 8

Subsidiary risk: -

Packing group: III

Environmental Hazards

Marine pollutant: No.

EmS F-A, S-B

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not Established

15. REGULATORY INFORMATION

US Federal Regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sulfuric Acid (CAS 7664-93-9): Listed.

SARA 304 Emergency release notification

Sulfuric Acid (CAS 7664-93-9): 1000 LBS

Sulfur Dioxide (CAS 7446-09-5): 500 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories

Immediate Hazard: Yes

Delayed Hazard: No

Fire Hazard: No

Pressure Hazard: No

Reactivity Hazard: No



SARA 302 Extremely Hazardous Substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity
Sulfuric Acid	7664-93-9	1000	1000 lbs
Sulfur Dioxide	7446-09-5	500	500 lbs

SARA 311/312 Hazardous Chemical: No

SARA 313 (TRI reporting)

Sulfuric Acid (CAS-No. 7664-93-9): <1.5% wt.

Other Federal Regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Sulfuric Acid (CAS 7664-93-9)

Sulfur Dioxide (CAS 7446-09-5)

Safe Drinking Water Act (SDWA): Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Sulfuric Acid (CAS 7664-93-9): 6552

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Sulfuric Acid (CAS 7664-93-9): 20 %WV

DEA Exempt Chemical Mixtures Code Number

Sulfuric Acid (CAS 7664-93-9): 6552

US State Regulations

US California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100): Not listed.

US California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Sulfuric Acid (CAS 7664-93-9)

Sulfur Dioxide (CAS 7446-09-5)

US Massachusetts RTK - Substance List

Sulfuric Acid (CAS 7664-93-9)

Sulfur Dioxide (CAS 7446-09-5)

US New Jersey Worker and Community Right-to-Know Act

Sulfuric Acid (CAS 7664-93-9)

Sulfur Dioxide (CAS 7446-09-5)

US Pennsylvania Worker and Community Right-to-Know Law

Sulfuric Acid (CAS 7664-93-9)

Sulfur Dioxide (CAS 7446-09-5)

US Rhode Island RTK

Sulfuric Acid (CAS 7664-93-9)

Sulfur Dioxide (CAS 7446-09-5)



International Inventories

Country(s) or region	Inventory name	On inventory
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory (NZIoC)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements

administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on

the inventory administered by the governing country(s).

NFPA Rating

Health: 3

Flammability: 1

Reactivity: 0

16. OTHER INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall AUCO be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if AUCO has been advised of the possibility of such damages.