Material Safety Data Sheet
Sodium Lauryl Ether Sulfate

Section 1 - Product Identification

Synonyms : Sodium Alkyl Ethoxy Sulphate, Sodium C10-16 Alkyl Ethoxy Sulphate (Predominantly C12-C14)

Molecular Weight : 496.69 g/mol

Chemical Formula : $C_{24}H_{50}Na_2O_5S$

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Recommended use of the chemical and restrictions on use

The product is used in surfactant manufacturing, in particular in :

- Surface active agents
- Laundry and dishwashing products

Section 2 – Composition/Information on Ingredients

The product contains greater than 70 percent (%) Sodium Lauryl Ether Sulfate

Chemical Name	EC No/CAS No	Purity, %
Sodium Lauryl Ether Sulfate	68585-34-2	min. 70

Section 3 – Hazards Identification

3.1 Classification of the substance according to GHS

Skin Irritant, Category 2

H315: Causes skin irritation

Eye irritant, Category 1

H318: Causes serious eye irritation.

Acute Hazard to the Aquatic Environment, Category 2

H401: Toxic to aquatic life

Acute toxicity (Oral), Category 4

H303: May be harmful if swallowed

Long-term hazard to the Aquatic Environment, Category 3

H401: Toxic to aquatic life

3.2. GHS Label elements, including precautionary statements

Danger

H303: May be harmful if swallowed.

H313: May be harmful if contact with skin.

H315: Causes skin irritation

H318: Causes serious eye irritation.

H401: Toxic to aquatic life

H303: May be harmful if swallowed

P264: Wash hands thoroughly after handling.

P273: Avoid release to the environment.

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

P302 + P352: IF ON SKIN: Wash with plenty of soap and water

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a POISON CENTER or doctor/physician

P313: Do NOT induce vomiting

P333+P313: If skin irritation or rash occurs: Get medical advice/attention.

P362: Take off contaminated clothing and wash before reuse

P501 : Dispose of contents/container in accordance with local / regional / national / international regulations.

3.3. Other hazards which do not result in classification

Potential health effects

Swallowed

Accidental ingestion of Sodium Lauryl Ether Sulfate may be harmful; ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

Eye contact

Sodium Lauryl Ether Sulfate is a serious eye irritant.

Skin contact

Sodium Lauryl Ether Sulfate may cause irritation to skin after prolonged or repeated exposure.

Potential ecological effects

Large amounts of Sodium Lauryl Ether Sulfate can be harmful to plants and other species. Therefore releases to the environment should be minimised.

Section 4 – First-Aid Measures

4.1. Description of first aid mesaures

Skin contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Eye contact

Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

Inhalation

Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Note to physicians

Treat symptomatically

4.2. Most important symptoms and effects, both acute and delayed

Causes severe eye damage.

4.3. Indication of any immediate medical attention and special treatment needed

N.A.

Section 5 – Fire Fighting Measures

5.1. Suitable Extinguishing media

In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions.

5.2. Specific hazards arising from the chemical

Upon decomposition, this product may yield sulfur dioxide and oxides of sulphur. Carbon oxides (COx).

5.3. Special protective actions for fire-fighters

In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions.

Section 6 – Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Eliminate all sources of ignition. Increase ventilation. Avoid walking through spilled product as it may be slippery. Use clean, non-sparking tools and equipment. Avoid contact with spilled or released material. Immediately remove all contaminated clothing. Keep animals off contaminated vegetation. Stay upwind and keep out of low areas. Be ready for fire or possible exposure.

6.2. Environmental precautions

Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination. Ventilate contaminated area thoroughly.

6.3. Methods and material for containment and cleaning up(Land spill)

Stop leak if safe to do so.

6.4 Spillage into water

Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.

Section 7 – Handling and Storage

7.1. Precautions for safe Handling

Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures

against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Avoid breathing vapours or contact with material. Only use in well ventilated areas. Do not empty into drains. Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Bulk storage tanks should be diked (bunded). Vapours from tanks should not be released to atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. Storage Temperature: 40 deg C maximum. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.

Section 8 – Exposure Controls/Personal Protection

8.1. Control parameters

No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC).

8.2. Appropriate engineering controls

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Local exhaust ventilation is recommended.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection

RESPIRATOR: Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65 deg C (149 deg F)] (AS1715/1716). EYES: Chemical splash goggles (gas-tight monogoggles) and face shield (AS1336/1337). HANDS: Wear nitrile rubber gloves where contact may occur (AS2161). CLOTHING: Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing) (AS3765/2210).

Eyes and hands protection

Wash hands before eating, drinking, smoking and using the toilet. Eye washes and showers for emergency use. Launder contaminated clothing before re-use.

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance : White to yellowish paste

Odour : Characteristic odor

pH @ 20°C : 7.0~9.5

Melting point : 5°C

Boiling point : 100°C

Flash point : >93°C

Evaporation rate : N.A.

Flammability : N.A.

Upper/lower flammability or explosive limits : Non explosive

Vapour pressure : N.A.

Vapour density : N.A.

Relative density : N.A.

Solubility in water : ca. 450 g/l 25°C

Partition coefficient: n-octanol/water : N.A

Auto-ignition temperature : N.A.

Decomposition temperature : Hydrolyses at elevated temperatures. - Stable up to 40 deg C.

Viscosity : 500mm2/s (@ 25 °C)

9.2. Other information

Molecular weight : 496.69 g/mol

Specific gravity : N.A.

Section 10 – Stability and Reactivity

10.1. Reactivity

Borax pentahydrate is a stable product.

10.2. Chemical stability

Product is stable under normal conditions of use, storage and temperatures up to 40'C. Hydrolyses at elevated temperatures.

10.3. Possibility of hazardous reactions

N.A.

10.4. Conditions to avoid:

Temperatures above > 50 deg C, acidic (pH<5)

10.5. Incompatible materials

Copper. Copper alloys. Strong oxidising agents.

10.6. Hazardous decomposition products

Upon decomposition this product may yield sulfur dioxide and oxides of sulfur, Carbon oxides (COx)

Section 11 – Toxicological Information

11.1. Information on toxicological effect

11.1.1. Substances

Acute toxicity(2)

Acute oral toxicity LD50 : 1700~5000 mg/kg, Rat

Acute toxicity of the dust LC50 : 1.5-8 mg/l, Pimephales promelas

Skin Corrosion / irritation

Irritating to skin. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance.

Serious eye damage/ irritation

Sodium Lauryl Ether Sulfate is a serious eye irritant.

Respiratory or skin sensitization

Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

Germcell mutagenicity

Testing has shown this product to be non-mutagenic when rats exposed in 100mg/ml for 24 hours.

Carcinogenicity

Sodium Lauryl Ether Sulfate is not carcinegenic

Reproductive toxicity

N.A.

STOT-single exposure

N.A.

STOT-repeated exposure

N.A.

Aspiration Hazard

Sodium Lauryl Ether Sulfate has no aspiration hazard.

Section 12 – Ecological Information

12.1.Toxicity

Boron occurs naturally in sea water at an average concentration of 5 mg B/l and fresh water at 1 mg B/l or less. In dilute aqueous solutions the predominant boron species present is undissociated boric acid.

Phytotoxicity

Boron is an essential micronutrient for healthy growth of plants, however, it can be harmful to boron sensitive plants in higher quantities. Care should be taken to minimise the amount of borate product released to the environment.

Algal toxicity[9]

Green algae, Pseudokirchneriella subcapitata (Hansveit and Oldersma, 2000)

72-hr EC50 –biomass = 40 mg B/L, or 353 mg disodium tetraborate decahydrate/L

Invertebrate toxicity[10]

Daphnia, Daphnids, Daphnia magna (Gersich, 1984a)

48-hr LC50 = 133 mg B/L or 1,173 mg disodium tetraborate decahydrate/L

Fish toxicity[11]

Fish, Fathered minnow, Pimephales promelas (Soucek et al., 2010)

96-hr LC50 = 79.7 mg B/L or 703 mg disodium tetraborate decahydrate/L

12.2. Persistence and degradability

Boron is naturally occurring and ubiquitous in the environment. Borax decahydrate decomposes in the environment to natural borate.

12.3. Bioaccumulative potential

Not significantly bioaccumulative.

12.4. Mobility in soil

The product is soluble in water and is leachable through normal soil.

12.5. Other adverse effects

No Data Available

Section 13 – Disposal Considerations

13.1. Disposal methods

Small quantities of Borax pentahydrate can usually be disposed of at landfill sites. No special disposal treatment is required, but local authorities should be consulted about any specific local requirements. Tonnage quantities of product are not recommended to be sent to landfills. Such product should, if possible, be used for an appropriate application.

Section 14 – Transport Information

Borax pentahydrate has no UN Number, and is not regulated under international rail, road, water or air transport regulations.

14.1. UN number : N.A.

14.2. UN proper shipping name : N.A

14.3. Transport of hazard classes : N.A

14.4. Packing group : N.A

14.5. Environmental hazards : N.A.

14.6. Special precautions for user : N.A

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: N.A.

Section 15 – Regulatory Information

15.1. Safety, health and environmental regulations

It should be noted that borates are safe under conditions of normal handling and use, besides, they are essential nutrients to plants, and research shows that they play a beneficial role in human health. CLP classification has been solely based on animal tests where animals were exposed to high doses of boric acid over long periods of time. These doses were many times higher than humans are exposed to under conditions of normal handling and use. Consequently, a precautionary decision was taken by the European Commission. Although we will comply with the body of legislation triggered by that decision, we are in process of all possible legal actions.

Clean Air Act (Montreal Protocol)

Borax pentahydrate was not manufactured with and does not contain any Class I or Class II ozone depleting substances.

Chemical inventory listing

U.S. EPA TSCA Inventory	1330-43-4
Canadian DSL	1330-43-4
EINECS	215-540-4
South Korea	1-760
Japanese MITI	(1)-69

Ensure all national/local regulations are observed.

Section 16 : Additional Information

16.1. Mainly changes made to the previous version of this Material Safety Data Sheet (MSDS):

• This MSDS complies with ISO 11014; the requirements of UN-GHS

Revision No	Revision content
05	• This SDS is updated in accordance with the GHS (Rev.6) (2015)-Guidance on the

	Compilation of Safety data Sheets. • This SDS is updated in line with Eti Maden Corporate identity.

16.2. List of abbreviation and acronyms used in this MSDS

SDS : Safety Data Sheets

Index N° : atomic number of the element most characteristic of the properties of the substance

CAS No : Chemical Abstracts Service number

EC No : EINECS Number : European Inventory of Existing Commercial Substances

Repr. Cat. 2 : Substance presumed human reproductive toxicant

Acute Oral Cat. 5 : Substance which is of relatively low acute oral toxicity.

GHS : Globally Harmonised System of Classification and Labelling

LD_{50} : Median Lethal Dose

LC_{50} : Lethal Concentration, 50%

N.A. : Not Applicable

OSHA : Occupational Safety & Health Administration

Cal OSHA : The State of California Division of Occupational Safety and Health (DOSH)

PEL : Permissible Exposure Limits

ACGIH : American Conference of Governmental Industrial Hygienists

TLV : Threshold Limit Value

Japanese MITI : Japanese Ministry of International Trade and Industry

EC_{50} : Half maximal effective concentration

UN : United Nations

U.S. EPA TSCA Inventory: Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the autority of the Environmental Protection Agency

Canadian DSL: Canadian Domestic Substances List

16.3. List of relevant hazard statements and precautionary statements used in this MSDS

Hazard Statement

H361 d: Suspected of damaging the unborn child

H319: Causes serious eye irritation

H303: May be harmful if swallowed

Precautionary Statements

Prevention

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P281: Use personal protective equipment as required.

P264: Wash eyes thoroughly after handling.

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P308 + P313: If exposed or concerned: get medical advice/attention.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

Storage

P405: Store locked up.

Disposal

P501: Dispose of contents/container to in accordance with local regulations.

16.4. References

1. Litovitz T L, Norman S A, Veltri J C, Annual Report of the American Association of Poison Control Centers Data Collection System. Am. J. Emerg. Med. (1986), 4, 427-458

2. Denton SM (1996). Acute oral toxicity study in the rat: anhydrous boric acid. Final report. Report no.: 1341/7-1032.

3. National Toxicology Program (NTP) – Technical Report Series No. TR324, NIH Publication No. 88 2580 (1987), PB88 213475/XAB

4. Fail et al., Fund. Appl. Toxicol. (1991) 17, 225-239

5. Heindel et al., Fund. Appl. Toxicol. (1992) 18, 266-277

6. Birge W J, Black J A, EPA-560/-76-008 (April 1977) PB 267 085

7. Scialli AR, Bonde JP, Brüske-Hohlfeld I, Culver D, Li Y, Sullivan FM; ELSEVIER 2009

8. Robbins WA, Xun L, Jia J, Kennedy N, Elashoff DA, Ping L. ;ELSEVIER 2009;(Reproductive Toxicology)

9. Hansveit and Oldersma, 2000; TNO Nutrition and Food Research Institute. Report No. V99.157.

10. Gersich, FM (1984a). Environ.Toxicol.Chem., 3 #1, 89-94 (1984)

11. Soucek et al., 2010. Illinois Natural History Survey, University of Illinois.

For general information on the toxicology of borates see ECETOC Technical Report No. 63 (1995); Patty's Industrial Hygiene and Toxicology, 4th Edition Vol. II, (1994) Chap. 42, 'Boron'.

16.5. Disclaimer of Liability

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