

LINEAR ALKYL BENZENE (LAB)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

LAB — LINEAR ALKYL BENZENE
Dodecylbenzene; Detergent Alkylate
CAS: 67774-74-7

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Aromatic hydrocarbon feedstock used as the raw material for the manufacture of Linear Alkylbenzene Sulphonic Acid (LABSA)/acid slurry and downstream anionic surfactants; also used as a base fluid in some industrial/dielectric fluid applications. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

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1.4 Emergency phone number:

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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), based on the well-established hazard profile of Linear Alkylbenzene (CAS 67774-74-7):

Asp. Tox. 1	Aspiration hazard, Category 1, H304
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic hazard, Category 1, H410

2.2 GHS label elements, including precautionary statements:

GHS: Danger

Hazard statements:

Asp. Tox. 1: H304 – May be fatal if swallowed and enters airways.
Aquatic Chronic 1: H410 – Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P273: Avoid release to the environment.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.
P391: Collect spillage.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local regulations on industrial waste.

2.3 Other hazards which do not result in classification:

Combustible liquid – keep away from open flames/hot surfaces at elevated temperature (see Section 9 flash point). Prolonged/repeated skin contact may cause defatting/mild irritation.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Linear Alkylbenzene – a mixture of C10-C13 linear alkyl chains attached to a benzene ring
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration (%)
CAS: 67774-74-7	Linear Alkylbenzene (Benzene, C10-13-alkyl derivs.) – Asp. Tox. 1: H304; Aquatic Chronic 1: H410 – Danger	≥ 99.5
CAS: 71-43-2	Benzene (trace, unreacted) – Carc. 1A: H350; Muta. 1B: H340; Flam. Liq. 2: H225 – Danger	Max 0.05 (trace, per typical detergent-alkylate specification)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable – supplied as a single-substance hydrocarbon feedstock (with trace residual benzene as noted, controlled to industry-standard specification).

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Take off immediately all contaminated clothing. Self-protection of the first aider is advised.

By inhalation:

Remove to fresh air and keep at rest. Seek medical attention if irritation or discomfort persists.

By skin contact:

Wash immediately with plenty of water and soap. Remove contaminated clothing and wash before reuse.

By eye contact:

Flush immediately with plenty of water for at least 15 minutes, holding eyelids apart. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

By ingestion/aspiration:

Do NOT induce vomiting – risk of aspiration into the lungs, which can cause chemical pneumonitis. Rinse mouth with water (only if the person is conscious). Seek immediate medical attention.

4.2 Most important symptoms/effects, acute and delayed:

Skin contact: may cause mild irritation/defatting with prolonged or repeated contact. Eye contact: may cause mild irritation. Ingestion: low oral toxicity, but if swallowed and aspirated into the lungs during swallowing or vomiting, can cause chemical pneumonitis, lung damage and may be fatal. Inhalation: vapour/mist may cause irritation of the nose and throat; high concentrations may cause dizziness/headache (narcotic-type effects typical of aromatic hydrocarbons).

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Aspiration hazard – if swallowed, do not induce vomiting; seek immediate medical attention and monitor for signs of aspiration pneumonitis. Show this SDS to the treating physician.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Water spray/fog, foam (alcohol-resistant), dry chemical powder, carbon dioxide (CO₂).

Unsuitable: Do not use a solid/jet water stream, which may spread the fire.

5.2 Specific hazards arising from the chemical:

Combustible liquid with a relatively high flash point (see Section 9); does not ignite readily at ambient temperature but can burn once heated above its flash point. Vapours are heavier than air and may travel to an ignition source. Combustion produces oxides of carbon and irritant smoke.

5.3 Special protective actions for fire-fighters:

Fight fire from a safe distance/protected location. Wear self-contained breathing apparatus and full protective clothing when involved in a fire. Cool fire-exposed containers with water spray.

Additional provisions:

Do not allow fire-fighting water/runoff to enter drains, surface water or ground water – contain and dispose of as contaminated waste.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Wear suitable protective equipment (see Section 8) to prevent contamination of skin, eyes and personal clothing. Eliminate ignition sources. Note that spilled material is slippery underfoot.

For emergency responders:

Wear protective equipment described in Section 8. Keep unprotected persons away.

6.2 Environmental precautions:

Keep away from drains, surface water and ground water. Retain and dispose of contaminated washing/rinse water as waste; avoid uncontrolled discharge to the environment.

6.3 Methods and materials for containment and cleaning up:

Contain the spill. Absorb with an inert absorbent material (sand, earth, diatomaceous earth). Collect with a clean shovel, place in suitable closed containers, and remove for disposal or recovery. Prevent entry to sewers/waterways due to high aquatic toxicity.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Provide adequate ventilation. Avoid contact with skin and eyes and avoid breathing vapour/mist. Handle with care – spilled material is slippery.

B. Technical recommendations for the prevention of fires and explosions:

Keep away from open flames, sparks and hot surfaces. Ground/bond containers and equipment during transfer to control static electricity.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke in work areas. Wash hands and exposed skin before breaks and after work.

D. Technical recommendations to prevent environmental risks:

Prevent release to drains, surface water and groundwater. See subsection 6.2.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Recommended storage temperature	Ambient, below 40°C, away from direct sunlight
Container	Keep tightly closed, in original packaging

B. General conditions for storage:

Store away from strong oxidising agents and sources of ignition. Store in a well-ventilated area, in line with flammable/combustible liquid storage practice. For additional information see subsection 10.5.

7.3 Specific end use(s):

No additional information available beyond the uses listed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Linear Alkylbenzene (CAS 67774-74-7): no specific occupational exposure limit established under the Factories Act, 1948; general good-practice ventilation limits for aromatic hydrocarbon vapour/mist should be applied.

8.2 Appropriate engineering controls:

Provide sufficient general/local ventilation as a collective protection measure, in addition to individual PPE as needed.

B. Respiratory protection:

Not normally required in well-ventilated areas; use a suitable organic-vapour respirator if vapour/mist is generated in poorly ventilated spaces.

C. Specific protection for the hands:

Wear suitable chemical-resistant gloves (e.g. nitrile or Viton).

D. Eye and face protection:

Use chemical safety goggles with side protection; wear a face shield where splashing may occur.

E. Bodily protection:

Wear suitable protective clothing and chemical-resistant footwear/apron for prolonged or repeated contact.

F. Additional emergency measures:

Emergency shower and eyewash stations should be available near the work area.

Environmental exposure controls:

Avoid environmental spillage of both the product and its container. See subsection 6.2.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Liquid
Appearance	Clear, oily liquid
Color	Colorless to pale yellow

Odor	Mild aromatic
Odour threshold	Not available
Volatility	
Boiling point at atmospheric pressure	Approx. 285 – 315°C (boiling range, literature value)
Vapour pressure at 20°C	< 0.01 mmHg (low)
Evaporation rate	Slow (low volatility)
Product Description	
Density / Relative density at 15°C	Approx. 0.855 – 0.868 g/cm³
Assay	≥ 99.5%
pH	Not applicable (water-insoluble)
Vapour density	> 1 (heavier than air)
Partition coefficient n-octanol/water (log KOW)	Approx. 8 – 9 (literature value, high)
Solubility in water at 20°C	Practically insoluble; miscible with most organic solvents
Melting point/freezing point	Below –20°C (pour point, literature value)
Flammability	
Flash Point	Approx. 130 – 140°C (closed cup, literature value)
Flammability (solid, gas)	Not applicable (liquid); combustible at elevated temperature
Autoignition temperature	Approx. 380 – 400°C (literature value)
Lower / Upper flammability limit	Approx. 0.6 – 6% v/v (literature range for alkylbenzenes)

* Values are well-established literature/handbook values for Linear Alkylbenzene of average molecular weight approx. 240 g/mol; batch-specific certificates of analysis are available on request.

9.2 Other information:

Explosive properties	Not relevant
Oxidising properties	Not relevant
Dynamic viscosity	Approx. 5 – 7 cSt at 20°C (literature value)

SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity:**
No particular reactivity hazard under normal conditions of storage and use. Reacts exothermically with strong oxidising agents (e.g. concentrated sulphuric acid/oleum, used deliberately in the controlled sulphonation process to make LABSA).
- 10.2 Chemical stability:**
Stable under normal conditions of storage and handling.
- 10.3 Possibility of hazardous reactions:**
Hazardous polymerisation will not occur under normal conditions.
- 10.4 Conditions to avoid:**

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Keep away from heat, sparks and open flame	Not applicable	Not critical

- 10.5 Incompatible materials:**
Strong oxidising agents (e.g. concentrated sulphuric acid, oleum, nitric acid), strong acids.
- 10.6 Hazardous decomposition products:**
None under normal use and storage conditions. Combustion/thermal decomposition may release oxides of carbon and irritant smoke.

SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1 Information on toxicological effects:**
In case of exposure that is repetitive, prolonged, or at concentrations higher than recommended, adverse health effects may result depending on the means of exposure. The dominant recognised hazard for this substance class is aspiration toxicity if swallowed:
- A. Ingestion (acute effect):**
Low acute oral toxicity, but may be fatal if swallowed and aspirated into the lungs (Asp. Tox. 1, H304) due to its low viscosity and surface tension.
- B. Inhalation (acute effect):**
Low volatility limits inhalation exposure under normal ambient conditions; vapour/mist from heated material may cause irritation and, at high concentration, central nervous system effects (dizziness, headache) typical of aromatic hydrocarbons.
- C. Contact with skin and eyes (acute effect):**
May cause mild irritation on prolonged/repeated contact; defatting of the skin with repeated exposure.
- D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):**
Linear Alkylbenzene itself is not classified as a germ cell mutagen, carcinogen, or reproductive toxicant based on available data. Note the controlled trace benzene content described in Section 3 (benzene itself is a well-established Category 1A carcinogen/1B mutagen), which is why this feedstock is subject to controlled residual-benzene specification limits.
- E. Sensitizing effects:**
Not classified as a respiratory or skin sensitiser based on available data.
- F. Specific target organ toxicity (STOT) – single/repeated exposure:**
Not classified based on available data.
- H. Aspiration hazard:**
May be fatal if swallowed and enters airways (H304) – well-established hazard class for low-viscosity hydrocarbons of this type.

Product-specific toxicological information (literature values for Linear Alkylbenzene):

Exposure route	Effect rate / concentration	ATE value
Acute Oral (rat)	LD50	> 5000 mg/kg (low acute oral toxicity)
Acute Dermal (rabbit)	LD50	> 2000 mg/kg
Acute Inhalation	LC50	Not established for this grade (low volatility)

SECTION 12: ECOLOGICAL INFORMATION

Very toxic to aquatic life with long lasting effects.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: < 1 mg/L (96h) – literature range for linear alkylbenzenes (low water solubility, high intrinsic toxicity to aquatic organisms)	Freshwater fish	Fish
EC50: < 1 mg/L (48h) – literature range	Daphnia	Crustacean

12.2 Persistence and degradability:

Inherently biodegradable under aerobic conditions, though biodegradation is slower than for the sulphonated (LABSA) surfactant derived from it.

12.3 Bioaccumulative potential:

High log Kow (approx. 8–9) indicates significant bioaccumulation potential in aquatic organisms; not established quantitatively (BCF) for this specific grade.

12.4 Mobility in soil:

Practically insoluble in water; expected to adsorb strongly to soil/sediment/organic matter (low leaching potential, high Koc expected).

12.5 Results of PBT and vPvB assessment:

Not formally assessed as PBT/vPvB for this grade; the high bioaccumulation potential and aquatic toxicity noted above warrant careful containment.

12.6 Other adverse effects:

Very toxic to aquatic organisms; avoid any release to surface water, groundwater or soil.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Do not empty into drains; avoid uncontrolled release to the environment. Classified as hazardous waste due to aquatic toxicity/aspiration hazard. Dispose of via a licensed waste disposal contractor in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and applicable local, state and central regulations.

Contaminated packaging should be emptied as completely as possible and may then be handled in the same way as the product; uncleaned packaging should be disposed of as hazardous/industrial waste.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Linear Alkylbenzene)
14.3 Transport hazard class(es)	9 (Miscellaneous, environmentally hazardous)
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Available on request for bulk/tanker consignments

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Linear Alkylbenzene)
14.3 Transport hazard class(es)	9 (Miscellaneous, environmentally hazardous)
14.4 Packing group	III
14.5 Marine pollutant	Yes
14.6 Special precautions for user	EmS Codes: F-A, S-F
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Available on request for bulk/tanker consignments

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Linear Alkylbenzene)
14.3 Transport hazard class(es)	9 (Miscellaneous, environmentally hazardous)
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable (air transport)

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product. Trace residual benzene content is controlled to industry-standard detergent-alkylate specifications; downstream sulphonation to LABSA further reduces any free aromatic hydrocarbon content in the finished surfactant.

Other legislation:

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

H225: Highly flammable liquid and vapour (applies to trace benzene component only, see Section 3).
H304: May be fatal if swallowed and enters airways.
H340: May cause genetic defects (applies to trace benzene component only).
H350: May cause cancer (applies to trace benzene component only).
H410: Very toxic to aquatic life with long lasting effects.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

Well-established public GHS classification and literature toxicological/ecotoxicological/physicochemical data for Linear Alkylbenzene (CAS 67774-74-7); no product-specific third-party source PDF was used for this document.

Abbreviations and acronyms:

GHS: Globally Harmonized System of Classification and Labelling of Chemicals | ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ATE: Acute Toxicity Estimate | CMR: Carcinogenic, Mutagenic or toxic for Reproduction | STOT: Specific Target Organ Toxicity | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log Pow: Octanol-water partition coefficient | PBT: Persistent, Bioaccumulative and Toxic | vPvB: Very Persistent and very Bioaccumulative

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET