



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 1 / 10

MATERIAL SAFETY DATA SHEET**1. IDENTIFICATION**

| | |
|---|--|
| Substance or mixture name (commercial name): | Linear Alkylbenzene |
| Internal code product identification: | DetenLAB®240 |
| Major recommended uses for the substance or mixture: | Intermediate basic petrochemical for the production of Linear Alkylbenzene Sulphonic Acid - LAS, which is the most used surfactant in the world in the production of liquid and powder detergents. |
| Company name: | Deten Química S.A. |
| Address: | Rua Hidrogênio, 1744 - Polo Industrial de Camaçari. Camaçari - Bahia. CEP: 42810-010. |
| Telephone number: | +55 71 3634-3207 / 3208 |
| Emergency telephone number: | +55 71 3634-3333 / 0800-284-8474 |
| Fax number: | +55 71 3634-5155 |
| E-mail: | fala@deten.com.br / comercial@deten.com.br |

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

| | |
|---------------------------|------------|
| Aspiration hazard: | Category 1 |
|---------------------------|------------|

GHS label elements:

Pictograms:



Word of warning:

| |
|--------|
| Danger |
|--------|

Hazard Statement:

| |
|---|
| May be fatal if swallowed and enters airways. |
|---|

Precaution Statement:



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 2/ 10

MATERIAL SAFETY DATA SHEET

IF SWALLOWED: If you feel unwell, contact a TOXICOLOGICAL INFORMATION CENTER / doctor.

Other hazards which not result in a classification:

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS**MIXTURE****Common chemical name or technical name:**

Linear Alkylbenzene

Ingredients or impurities which contribute to hazards:

| Chemical name or common | CAS registry number | Concentration or concentration range |
|---|---------------------|--------------------------------------|
| Benzene, C ₁₀₋₁₃ - alkyl derivatives | 67774-74-7 | 99,9% |

4. FIRST-AID MEASURES**First-aid measures:**

| | |
|----------------------|--|
| Inhalation: | Remove victim to fresh air and keep at rest in a comfortable position for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel Loosen tight clothing such as a collar, tie, belt or waistband If the person is unconscious, place in recovery position and seek medical help immediately Seek medical attention immediately |
| Skin Contact: | Remove contaminated clothing and shoes. Wash exposed areas with plenty of water for at least 15 minutes. If irritation develops, seek medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| Eye Contact: | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue rinse for at least 15 minutes. Seek the assistance of an ophthalmologist. |
| Ingestion: | Rinse mouth with water. Remove dentures, if any. Remove victim to fresh air and keep at rest in a comfortable position for breathing. If material has been swallowed and the exposed person is conscious, give small |



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 3/ 10

MATERIAL SAFETY DATA SHEET

quantities of water to drink. Stop if the exposed person feels sick.
Do not induce vomiting unless under a doctor's recommendation.
If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
If the person is unconscious, place in recovery position and seek medical help immediately

Most important symptoms and effects, both acute or delayed:

| | |
|----------------------------|--|
| Symptoms: | Dizziness and headache. Irritation or dryness of the skin. Eye irritation. Stomach pain, nausea and vomiting. |
| Effect: | Prolonged exposure to high vapor concentrations can cause dizziness and headaches. Prolonged or repeated contact may cause irritation or dryness of the skin, progressing to dermatitis. Contact with liquid or high vapor concentrations may cause irritation. Ingestion of small amounts may cause nausea and vomiting. |
| Notes to physician: | Treat symptomatically. Contact a poison treatment specialist immediately if large quantities have been ingested or inhaled. |

5. FIREFIGHTING MEASURES

| | |
|---|---|
| Extinguishing media: | Use dry chemical, CO ₂ , water spray fog or mechanical foam. |
| Extinguishing media not recommended: | Water jets directly over the burning liquid. |
| Specific hazards of the substance or mixture: | In a fire or if heated, a pressure increase will occur and the container may burst. |
| Protective measures for the firefighting team: | Full protective equipment for firefighters. Position themselves with their backs to the wind. Use respiratory protective equipment in fire fighting Define target zones (hot, warm, cold). Fire-fighting measures: Turn off all sources of ignition; Apply the extinguishing agent set properly; If the fire cannot be extinguished, cool the facilities nearby and let the fire burn in a controlled manner |



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 4/ 10

MATERIAL SAFETY DATA SHEET**6. SPILL AND LEAK CONTROL MEASURES****Personal precautions, protective equipment and emergency procedures:**

| | |
|-------------------------------------|--|
| For non-emergency personnel: | Use personal protective equipment. Avoid inhalation, contact with eyes and skin. |
| For emergency responders: | Use resistant protective clothing to chemicals, PVC gloves and boots. Safety glasses against dripping. If occur respiratory discomfort during handling the product, wear respirator for organic vapors, gases and mists. |

Environmental precautions:

| | |
|------------------|--|
| On land: | Prevent the flow of product to rivers, streams, water courses or low-lying areas, underground sewers, wells, soil and vegetation. Soak up with absorbent material (sand or earth). Collect all the waste in suitable containers and labelled and dispose in accordance with local legislation. Communicate the authorities and alert the neighborhood if necessary. |
| In water: | Report to the port, relevant authorities and other vessels. Block the spill area and avoid ecological damage. Remove the product from the contaminated surface with suitable absorbent. |

| | |
|---|---|
| Methods and materials for containment and cleaning up: | Absorb the material with sand or earth. Place in appropriate container for recycling or disposal. The material can be incinerated under normal conditions controlled in accordance with official regulations and local. |
|---|---|

7. HANDLING AND STORAGE

| | |
|---|--|
| Precautions for safe handling: | Handle the product in a cool and well-ventilated place. In the loading/ unloading operations shall be avoided packaging falls, downhill on ramps without protection, bearing in rugged terrain to avoid holes, dents or disappearance of product identification. Heavier packages must be transported by forklift. Label the packaging. |
| Conditions for safe storage, including any incompatibilities | Appropriate conditions: Store at temperatures below 40°C. Store in a dry, cool and well-ventilated place on trays or strips of wood. Keep container closed when not in use. Use carbon steel tanks. Conditions to be avoided: |



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 5/ 10

MATERIAL SAFETY DATA SHEET

Exposure of drums under the sun, rain and high temperatures.
Coating of natural or butyl rubber.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION**Control parameters**

| | |
|--------------------------------------|-----------------|
| Occupational exposure limits: | Not established |
| Biological indicators: | Not established |
| Other limits and values: | Not established |

| | |
|--|---|
| Appropriate engineering controls: | Provide ventilation/ exhaust systems in the places of storage and handling. |
|--|---|

Individual protection measures

| | |
|----------------------------------|---|
| Eye/ face protection: | Splash goggles and face shield. |
| Skin and body protection: | Full clothing (pants and long sleeve), PVC gloves and boots. |
| Respiratory protection: | If during handling of the product there is respiratory distress, use respirator for organic vapors, acid gases and mists. |

| | |
|-----------------------------|---|
| Thermal Hazards: | Not applicable. |
| Special precautions: | Chemicals should only be handled by trained people; Install shower and eyewash emergency on the desktop; Strictly follow the operating procedures and safety when working with chemicals. |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|------------------------------------|
| Appearance (physical state, color, shape, etc.): | Colorless liquid, clear and bright |
| Odor and odor threshold: | Odorless |
| pH: | Not available |
| Melting point/freezing point: | < -50° C |
| Initial boiling point and boiling range: | 285-308°C [ASTM D86-82] |



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 6/ 10

MATERIAL SAFETY DATA SHEET

| | |
|--|--|
| Flashpoint: | Closed vessel: 140-145°C [Pensky-Martens] Open vessel: 128°C [ASTM D93] |
| Evaporation rate: | Not available |
| Inflammability (solid, gas): | Not applicable |
| Upper/lower flammability or explosive limits: | Not applicable |
| Vapour Pressure: | <0,13 kPa [20°C] |
| Vapour density: | 8,1 [Air=1] |
| Relative density: | 0.858 a 0.868 g/cm ³ [15°C] |
| Solubility (ies): | Easily soluble in hot or cold water |
| Partition coefficient: n-octanol/ water: | 7.9 |
| Auto-ignition temperature: | 323°C |
| Decomposition temperature: | Not available |
| Viscosity: | Kinematic: 0.0415 cm ² /s@40°C [ASTM D 445] |

10. REACTIVITY

| | |
|--|--|
| Reactivity: | No specific test data related to reactivity available for this product or its ingredients. |
| Chemical stability: | Stable under normal conditions of temperature and pressure. |
| Possibility of hazardous reactions: | Under normal conditions of storage and use, hazardous reactions will not occur. |
| Conditions to avoid: | Not applicable |
| Incompatible materials: | Not applicable |
| Hazardous decomposition products: | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

11. TOXICOLOGICAL INFORMATION

| | |
|------------------------|--|
| Acute toxicity: | LD50 (oral, rats): >5000 mg/kg LD50 (dermal, rabbit): >2000 mg/kg |
|------------------------|--|



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 7/ 10

MATERIAL SAFETY DATA SHEET

| | |
|--|--|
| | Very low toxicity to humans or animals |
| Corrosion / irritation of the skin: | Moderate irritant (Rabbit/ Exposure: 4 hours) |
| Serious eye damage/ eye irritation: | Irritating (Rabbit / Score: 0.7) |
| Respiratory or skin sensitization: | Not sensitizing. |
| Germ cell mutagenicity: | It is not mutagenic in a battery of genetic toxicology tests. |
| Carcinogenicity: | Not available. |
| Toxicity to reproduction: | No known significant effects or critical hazards. |
| Specific target organ toxicity - Single exposure: | Not available. |
| Specific target organ toxicity - Repeated exposure: | Not available. |
| Aspiration Hazard: | Category 1. Kinematic viscosity: 0.0415 cm ² /s@40°C [ASTM D 445] |

Main symptoms

| | |
|----------------------|------------------------------------|
| Inhalation: | Dizziness and headache. |
| Ingestion: | Stomach pain, nausea and vomiting. |
| Eye Contact: | Eye irritation. |
| Skin Contact: | Irritation or dryness of the skin. |

Specific effects

| | |
|----------------------|--|
| Inhalation: | No known significant effects or critical hazards |
| Ingestion: | May be fatal if swallowed and enters airways. |
| Eye Contact: | No known significant effects or critical hazards |
| Skin Contact: | No known significant effects or critical hazards |

12. ECOLOGICAL INFORMATION

| | |
|---------------------|---|
| Ecotoxicity: | CE50 (Daphnia - Daphnia magna, fresh water, 48h): >0.041 mg/L CE50 (Algae - Scenedesmus subspicatus, fresh water, 72h): >0.1 mg/L NOEC (Fish - Danio rerio, fresh water, 48h): 0.01mg/L |
|---------------------|---|



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 8/ 10

MATERIAL SAFETY DATA SHEET

| | |
|---------------------------------------|--|
| | No known significant effects or critical hazards. |
| Persistence and degradability: | Biodegradation %CO ₂ : 61 [OCDE 301B] log ₁₀ Kow > 5 Biodegradation in soil - Half Life: Approximately 15 days |
| Bioaccumulative potential: | BCF: 35 Low potential for bioaccumulation. |
| Mobility in soil: | Soil/ water partition coefficient (KOC): 22000 Mobility: Not available. |
| Other adverse effects: | No known significant effects or critical hazards. |

13. CONSIDERATIONS ON TREATMENT AND DISPOSAL**Recommended methods for disposal**

| | |
|--|--|
| Product: | Significant amounts of residual waste product should not be removed by channeling wastewater, but processed in a treatment plant effluent. Disposal of this product, solutions and any by-products must meet the requirements of environmental protection and legislation for the protection and waste disposal requirements of local regional authorities. Do not mix with strong oxidizing agents. |
| Product waste: | Keep the product remains in their original containers and properly sealed. The waste may be incinerated under controlled conditions as the (national and/ or local) official regulations. |
| Used packaging: | Empty containers or liners may retain some product residues. |
| PPE required for treatment and disposal of waste: | Same mentioned in item 8. |

14. TRANSPORT INFORMATION**National and international regulations****Land:**

UN - "United Nations"
Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations, 16th Edition, 2009.

| | |
|--|---------------------|
| UN number | Not classified |
| UN proper shipping name | Linear Alkilbenzene |
| Class/subclass of main risk | Not classified |
| Class/subclass of subsidiary risk | Not classified |



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 9/ 10

MATERIAL SAFETY DATA SHEET

| | |
|----------------------------------|--|
| Risk number | Not dangerous |
| Packing group | III |
| Danger to the environment | No known significant effects or critical hazards |

Sea:

IMO - "International Maritime Organization"
International Maritime Dangerous Goods Code (IMDG Code) - Incorporating Amendment 34-08; 2008 Edition.

| | |
|--|--|
| UN number | Not classified |
| UN proper shipping name | Linear Alkilbenzene |
| Class/subclass of main risk | Not classified |
| Class/subclass of subsidiary risk | Not classified |
| Risk number | Not dangerous |
| Packing group | III |
| Danger to the environment | No known significant effects or critical hazards |

Air:

IATA - "International Air Transport Association"
Dangerous Goods Regulation (DGR) - 51th Edition, 2010.

| | |
|--|--|
| UN number | Not classified |
| UN proper shipping name | Linear Alkilbenzene |
| Class/subclass of main risk | Not classified |
| Class/subclass of subsidiary risk | Not classified |
| Risk number | Not dangerous |
| Packing group | III |
| Danger to the environment | No known significant effects or critical hazards |

15. REGULATORY INFORMATION

Globally Harmonized System of Classification and Labeling of Chemicals (GHS), UN.

16. OTHER INFORMATION



PRODUCT:

LINEAR ALKYL BENZENE

SDS NUMBER: DT-0001

VERSION: 05

DATE: 12/18/2013

PAGE: 10/ 10

MATERIAL SAFETY DATA SHEET**Important information, but not specifically described at the previous sections:**

If necessary, or in case of doubts, contact Deten Química or visit our web site at: www.deten.com.br.

Additional information available by formal request.

Required documents:

- Certificate of qualification for the transport of dangerous goods in bulk from the vehicle and equipment. (Shipped by INMETRO or entity accredited by him);
- Emergency data sheet, appropriate to the requirements of ABNT;
- Envelope for shipment as NBR7504 ABNT;
- Tax document must describe the goods, their packaging, weight, value, tax if there was, name and address of the shipper, the consignee name or address, conditions of sale or transfer, transportation and departure date, appropriate for each type of movement of goods. (see Order No. 261/89 MT);
- Drivers: category meet the specifications of the vehicle (A, B, C, D or E), the minimum age of 21 years is required.

References:

Not applicable.

Legend and abbreviations:

ABNT: Brazilian Association of Technical Standards;
ASTM: American Society for Testing and Materials;
BCF: Bioconcentration Factor;
CAS: Chemical Abstracts Service;
CL50: Lethal Concentration 50%;
DL50: Lethal Dose 50%;
EC50: Effective concentration of the substance causing 50% maximal response;
GHS: Globally Harmonised System;
INMETRO: National Institute of Metrology, Quality and Technology;
NBR: Designation of ABNT;
NOEC: No Observed Effect;
OCDE: Organisation for Economic Co-operation and Development;
PPE: Personal Protective Equipment;
PVC: Polyvinyl chloride;
UN: United Nations.

NOTE TO THE READER:

Although the information and recommendations set forth herein are presented in good faith and believed to be correct at the time, Deten Chemical makes no representations as to the completeness or accuracy thereof. Information is provided on the condition that the persons receiving adopt their own criteria regarding safety and ability to adapt to their purposes prior to use. In any case, Chemistry Deten liable for damages of any kind arising from the use or reliance on the information. No representation or express or implied warranty of merchantability or fitness for a particular purpose with respect to the product information provided herein.