

MATERIAL SAFETY DATA SHEET**1. IDENTIFICATION**

Substance or mixture name (commercial name):	Linear AlkylBenzene Sulphonic Acid
Internal code product identification:	DetenLAS®320
Major recommended uses for the substance or mixture:	Surfactant most used worldwide in the production of detergent powders and liquids used in household cleaning and detergent formulations in other institutional and industrial application.
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
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E-mail:	fala@deten.com.br / comercial@deten.com.br

2. HAZARDS IDENTIFICATION**Classification of the substance or mixture:**

Acute toxicity:	Category 4 (Oral), H302
Skin corrosion/ irritation:	Category 1C, H314
Eye damage/ irritation:	Category 1, H318

GHS label elements:**Pictograms:****Word of warning:**

Danger



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MATERIAL SAFETY DATA SHEET**Hazard Statement:**

- Harmful if inhaled.
- H314 - Causes severe burns to skin and eye damage.
- H318 - Causes serious eye damage.

Precaution Statement:Prevention:

- P270 - Do not eat, drink or smoke when using this product.
- P264 - Wash hands thoroughly after handling.

Response:

- P301 + P312 - IF SWALLOWED: If you feel unwell, contact a TOXICOLOGICAL INFORMATION CENTER / doctor.
- P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
- P303 + P361 + P353 - IN CASE OF SKIN CONTACT (or hair): Remove immediately all contaminated clothing. Rinse skin with water/ take a shower.
- P304 + P340 + P311 - IF INHALED: Remove person to fresh air and keep at rest in a comfortable position for breathing. Contact immediately TOXICOLOGICAL INFORMATION CENTER/ doctor.
- P305 + P351 + P338 - IN CASE OF CONTACT WITH EYES: Rinse cautiously with water for several minutes. In case of contact lenses, remove them, if it is easy. Continue rinsing.

Storage:

- P405 - Store locked up.

Disposal:

- P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which not result in a classification:

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS**MIXTURE****Common chemical name or technical name:** Linear AlkylBenzene Sulphonic Acid**Ingredients or impurities which contribute to hazards:**

Chemical name or common	CAS registry number	Concentration or concentration range
Benzenesulfonic acid, 4C ₁₀₋₁₃ sec Alkylderivs	85536-14-7	96%

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



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Inhalation:	<p>Remove victim to fresh air and keep at rest in a comfortable position for breathing.</p> <p>If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel</p> <p>Loosen tight clothing such as a collar, tie, belt or waistband</p> <p>If the person is unconscious, place in recovery position and seek medical help immediately</p> <p>Seek medical attention immediately</p>
Skin Contact:	<p>Remove contaminated clothing and shoes.</p> <p>Wash exposed areas with plenty of water for at least 15 minutes.</p> <p>If irritation develops, seek medical attention.</p> <p>Wash clothing before reuse.</p> <p>Clean shoes thoroughly before reuse.</p>
Eye Contact:	<p>Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.</p> <p>Check for and remove any contact lenses.</p> <p>Continue rinse for at least 15 minutes.</p> <p>Seek the assistance of an ophthalmologist.</p>
Ingestion:	<p>Drink a neutralizing agent (eg: magnesia) dissolved in milk.</p> <p>Remove dentures, if any.</p> <p>Remove victim to fresh air and keep at rest in a comfortable position for breathing.</p> <p>If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick.</p> <p>Do not induce vomiting unless under a doctor's recommendation.</p> <p>If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.</p> <p>If the person is unconscious, place in recovery position and seek medical help immediately</p>

Most important symptoms and effects, both acute or delayed:

Symptoms:	<p>May cause burns to mouth, throat and stomach.</p> <p>Causes respiratory tract irritation (very irritating gases or vapors), severe skin burns and eye damage.</p>
Effect:	<p>Stomach pains.</p> <p>Pain or irritation, redness, blistering of the skin.</p> <p>Pain, tearing, and redness of eyes.</p>
Notes to physician:	<p>Treat symptomatically.</p> <p>Provocative measures of vomiting and gastric lavage are contraindicated.</p> <p>Dilute the acid by administering large amounts of water or milk.</p> <p>Following administer soft neutralizing, such as milk of magnesia, lime water, aluminum hydroxide gel or soap solution.</p>



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The use of neutralizing more energetic is not appropriate due to release of heat during the chemical reaction with the acid, which can aggravate the extent or severity of injury.

Also do not use sodium carbonate or bicarbonate, which react with the acids producing carbon dioxide.

Contact a poison treatment specialist immediately if large quantities have been ingested or inhaled.

In case of more pronounced and severe burns, apply symptomatic treatment.

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:	<p>During firing can be release toxic gases, SO₂ and H₂S.</p> <p>In a fire or if heated, a pressure increase will occur and the container may burst.</p> <p>In combustion releases toxic and corrosive gases such as carbon monoxide, carbon dioxide and oxides of sulfur.</p>
Protective measures for the firefighting team:	<p>Full protective equipment for firefighters.</p> <p>Position themselves with their backs to the wind.</p> <p>Use respiratory protective equipment in fire fighting</p> <p>Define target zones (hot, warm, cold).</p> <p>Fire-fighting measures:</p> <p>Turn off all sources of ignition;</p> <p>Apply the extinguishing agent set properly;</p> <p>If the fire cannot be extinguished, cool the facilities nearby and let the fire burn in a controlled manner</p>

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

For non-emergency personnel:	<p>Use personal protective equipment.</p> <p>Avoid inhalation, contact with eyes and skin.</p>
For emergency responders:	<p>Use resistant protective clothing to chemicals, PVC gloves and boots. Safety glasses against dripping. If you suspect the presence of vapors, the rescuer should wear an appropriate mask or self-contained breathing apparatus.</p> <p>It can be dangerous to the one who applies artificial respiration.</p> <p>Wash contaminated clothing thoroughly with water before removing it, wear gloves during the entire operation clothes.</p>



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MATERIAL SAFETY DATA SHEET**Environmental precautions:**

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

Methods and materials for containment and cleaning up:	<p>Absorb the material with absorbent material (sand, acid binder, universal binder, sawdust).</p> <p>Place in appropriate container for recycling or disposal.</p> <p>The material can be incinerated under normal conditions controlled in accordance with official regulations and local.</p>
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7. HANDLING AND STORAGE

Precautions for safe handling:	<p>Handle in a ventilated area or with general ventilation system / local exhaust.</p> <p>Avoid formation of vapors / mists.</p> <p>Avoid contact with incompatible materials.</p> <p>Use appropriate protective equipment.</p> <p>Handle the product in a cool and well-ventilated place.</p> <p>Do not handle in metal containers.</p> <p>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.</p> <p>Heavier packages must be transported by forklift.</p> <p>Do not mix with incompatible products, when diluting always add water and then the product, never the other way around.</p> <p>Label the packaging.</p> <p>Wash hands and face after handling and before eating and drinking.</p> <p>Remove contaminated clothing and protective equipment before entering in eating areas.</p> <p>Do not eat, drink or smoke in areas where this material is handled, stored and processed.</p>
Conditions for safe storage, including any incompatibilities	<p>Store at temperatures below 40°C.</p> <p>Store in a dry, cool and well-ventilated place on trays or strips of wood.</p> <p>Keep container closed when not in use.</p>



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Keep away from alkaline oxidizing agents, and metals.

Keep away from heat and sources of ignition.

Never add water to this product.

Use stainless steel for the construction of tanks and pipes. Alternatively, one may use carbon steel tanks coated (for example with epoxy or polyester resins).

Avoid exposure of drums under the sun, rain and high temperatures.

If stored in carbon steel tanks, corrosion can extract a small amount of iron, which affects the product.

Plastic containers, 316L stainless steel tanks and carbon steel coated tanks with epoxy resins or polyester.

Steel drums with double layer polymer coating and free of weld points to prevent reaction of the sulfonic acid with metal.

Equipment for handling, storage or transport, must not be made of: iron, carbon steel, aluminum and its alloys, copper and its alloys and titanium.

Confirm the suitability of any material before use.

Do not store in unlabeled containers.

Confirm suitability of any material before using.

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:	In a confined space, the storage tanks can accumulate toxic gases (SO ₂ / H ₂ S). In this case, provide ventilation/ exhaust systems in the places of storage and handling and continuously analyzed the oxygen content.
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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 (acid-resistant).
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.
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MATERIAL SAFETY DATA SHEET**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.):	Brown viscous liquid
Odor and odor threshold:	Spicy
pH:	<1
Melting point/freezing point:	< -7°C
Initial boiling point and boiling range:	190°C
Flashpoint:	> 93.3°C (closed vessel)
Evaporation rate:	Not available
Inflammability (solid, gas):	Not applicable
Upper/lower flammability or explosive limits:	Not applicable
Vapour Pressure:	Not available
Vapour density:	Not available
Relative density:	1.030 a 1.035 g/cm ³ [25°C]
Solubility (ies):	Easily soluble in hot or cold water
Partition coefficient: n-octanol/ water:	3.32
Auto-ignition temperature:	380°C
Decomposition temperature:	Not available
Viscosity:	Kinematics: 13.148 cm ² /s [ASTM D 7042-04]

10. STABILITY AND REACTIVITY



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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:	Is reactive with alkaline bases and oxidizing agents. The reaction with sulfides, phosphides, cyanide, carbides and silicides release poisonous gases.
Conditions to avoid:	Contact with metals, oxides, carbides and carbonates.
Incompatible materials:	Metals, oxides, carbides, carbonates and hydroxides.
Hazardous decomposition products:	In the burning, gases and partial and total combustion vapors are produced, such as carbon monoxide and carbon dioxide. The smoke can also contain sulfur oxides and hydrogen sulphide, which may be toxic.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	LD50 (oral, rats): 775 mg/kg LD50 (dermal, rabbit): 2000 mg/kg
Corrosion / irritation of the skin:	Corrosive. Visible necrosis (Rabbit/ Exposure: 3minutes/ Observation: 3hours)
Serious eye damage/ eye irritation:	Irritating. Edema of the conjunctiva (Rabbit / Exposure: 3 hours / Observation: 3 hours)
Respiratory or skin sensitization:	Respiratory: not present significant effects or critical hazards. Skin: corrosive to the skin.
Germ cell mutagenicity:	It is not mutagenic in a battery of genetic toxicology tests.
Carcinogenicity:	Not available.
Toxicity to reproduction:	Not available.
Specific target organ toxicity - Single exposure:	Not available.
Specific target organ toxicity - Repeated exposure:	Not available.
Aspiration Hazard:	Not available.

Main symptoms

Inhalation:	Not available.
Ingestion:	Stomach pain



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Eye Contact:	Pain, tearing, redness
Skin Contact:	Pain or irritation, redness, blistering of the skin may occur.

Specific effects

Inhalation:	Gases and vapors very irritating to the airways
Ingestion:	Harmful if swallowed. Can cause burns to the mouth, throat and stomach.
Eye Contact:	Causes severe eye injury.
Skin Contact:	Causes severe burns.

12. ECOLOGICAL INFORMATION

Ecotoxicity:	LC50 (<i>Daphnia magna</i> , 48h): 9,3 – 11,6 mg/L
Persistence and degradability:	Aerobic biodegradation is the main mechanism of removal. Removal of the hydrophilic sulphonate alquilsulfatase by a preceding oxidation beta, which results in sulfate groups and sulfite-free. Some <i>Pseudomonas</i> strains can completely degrade the surfactant without prior desulfurization. Photochemical degradation was also reported to 215 nm, resulting in formic acid and formaldehyde. (HSDB, 2002)
Bioaccumulative potential:	The extract did not bioconcentrate in aquatic organisms.
Mobility in soil:	The extract is soluble in water, showing high mobility in the soil. Not easily vaporized from the surface of the soil or water. The adsorption in aqueous medium is not relevant. In the atmosphere, is in the particulate phase, wet deposition suffering. (HSDB, 2002)
Other adverse effects:	No 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. Remove any excess products and non-recyclable products through an authorized waste disposal company. Disposal of this product, solutions and any by-products must meet the
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	requirements of environmental protection and legislation for the protection and waste disposal requirements of local regional authorities.
Product waste:	Keep the product remains in their original containers and properly sealed. The disposal must be carried out according to the established for the product. Do not mix with hydroxides (bases).
Used packaging:	Because it's corrosive is recommended to use stainless steel tank or carbon steel coated. Use of drums must have double layer polymer coating and free of weld points to avoid the reaction of the sulfonic acid with metal.
PPE required for treatment and disposal of waste:	Use safety chemistry goggles. Use impervious gloves, rubber boots and protective clothing to prevent skin contact. Respiratory protection with filter for protection of organic vapors and acid gases.

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	2586
UN proper shipping name	Alkyl sulphonic acid, liquid
Class/subclass of main risk	8
Class/subclass of subsidiary risk	Not applicable
Risk number	80
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	2586
UN proper shipping name	Alkyl sulphonic acid, liquid
Class/subclass of main risk	8



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Class/subclass of subsidiary risk	Not applicable
Risk number	80
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	2586
UN proper shipping name	Alkyl sulphonic acid, liquid
Class/subclass of main risk	8
Class/subclass of subsidiary risk	Not applicable
Risk number	80
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**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.



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[HSDB] HAZARDOUS SUBSTANCES DATA BANK. Sodium Dodecylbenzenesulfonate. In: TOMES CPS tm SYSTEM. Toxicology; Occupational Medicine and Environmental Series. Englewood: Micromedex; 2002.

HERA-LAS: <http://www.heraproject.com>.

Legend and abbreviations:

ABNT: Brazilian Association of Technical Standards;
ASTM: American Society for Testing and Materials;
CAS: Chemical Abstracts Service;
CL50: Lethal Concentration 50%
DL50: Lethal Dose 50%;
GHS: Globally Harmonised System;
HERA: Human & Environmental Risk Assessment;
HSDB: Hazardous Substances Data Bank;
INMETRO: National Institute of Metrology, Quality and Technology;
NBR: Designation of ABNT;
PPE: Personal Protective Equipment;
PVC: Polyvinyl chloride;
UN: United Nations.

NOTE TO THE READER:

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