

## 1. - IDENTIFICATION OF PRODUCT AND COMPANY

**Product name:** SULPHONIC ACID, 90%.

**Internal Code of product identification:** 107.23.1

**Company name:** USIQUÍMICA DO BRASIL LTDA.

**Address:** Rua da Lagoa, 431 - Cumbica - Guarulhos - SP.

**Company Phone:** (11) 3821-7000 (PBX system) - (11) 2481-3355.

**Emergency call numbers:** SUATRANS - COTEC - Environmental Emergency.

DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.

193 - Firefighters.

**Main recommended uses for the substance:** Formulation of liquid, pasty and powder detergents, thickeners, disinfectants (such as anionic surfactants), automotive shampoos, emulsifying agent for pesticides and manufacture of asphalt, textile auxiliaries and leathers, degreasers when combined with organic solvent.

## 2. - HAZARDS IDENTIFICATION

### Substances classification

#### Exposure effects:

Corrosive to metals - Category 1.

Acute toxicity - Oral - Category 4.

Acute toxicity - Dermal - Category 1.

Corrosion/irritation of skin- Category 2.

Serious eye damage / eye irritation - Category 1.

Acute toxicity - inhalation - Category 1.


Toxicity to organs - specific targets - Single Exposure - Category 3.

Dangerous to the aquatic environment- Acute - Category 1.

Dangerous to the aquatic environment- Chronic- Category 1.

**Emergency Overview:** Depending of the proportions, isolate and evacuate the area in case of leakage and / or spill. Try to block the leak, contain the spilled liquid or transfer the product. Keep the wind blowing on your back during emergency care. Access to people in contaminated areas must only be allowed if they are using specific clothing and appropriate respiratory protection, with filters for acidic (or combined) gases, autonomous mask or with air supply.

### GHS labeling classification, including precautionary phrases:

LABELING ELEMENTS	DATA
Product identification and supplier emergency phone.	<b>Technical Name:</b> LINEAR ACID ALKYL ALKYL-BENZENE SULPHONIC. <b>Commercial Name:</b> SULPHONIC ACID, 90%. Emergency call number: SUATRANS - COTEC - Environmental Emergency. DDG (0800) 0111-767 - (0800) 7071-767 - 24 HOURS.
Chemical composition	CnH2nSO3H, 90% actives.
Hazard pictogram	
Warning words	<b>DANGER</b>
Hazard phrase	- H290 May be corrosive to metals. - H302 Harmful if swallowed. - H315 Causes irritation to the skin. - H318 Causes serious eye damage. - H335 May cause irritation to the respiratory tracts.



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	- H401 Toxic to aquatic organisms.
Caution Phrases	- P261 Avoid inhaling dusts/fumes/gases/vapors/fumes/aerosols. - P273 - Avoid to release for the environment. - P280 Use protective gloves/protective clothing/eye protection/face shield. - P302 IN CASE OF SKIN CONTACT: Wash with plenty soap and water. - P340 IN CASE OF INHALATION: Remove the person to a ventilated area and keep the person in a rest position that does not make it difficult to breathe. - P305 IN CASE OF EYES CONTACT: Rinse thoroughly with water for several minutes. If contact lenses are used, remove them if it is easy. Continue rinsing. - P390 Absorb spilled material in order to avoid material damage. - P406 Store in a corrosion resistant container, with a resistant internal cover.

Other hazards which do not result in classification: Unknown

### 3. - COMPOSITION AND INFORMATION ON THE INGREDIENTS:

**Substance:** SULPHONIC ACID, 90%.

**Common chemical name or generic name:** LINEAR SULPHONIC ACID.

**Synonym:** Linear alkylbenzene sulfonic acid, sulfonic acid from alkylbenzene mixtures, lauryl benzenesulfonic acid, dodecyl benzenesulfonic acid.

**Chemical Abstract Service (CAS No.):** 27176-87-0.

**Ingredients that contribute to the hazard:** 5.0% free sulfuric acid (CAS No: 7664-93-9).

### 4. - FIRST AID MEASURES:

**Inhalation:** Remove the victim to an uncontaminated and ventilated area and manage oxygen, if available. Apply resuscitation maneuvers in case of cardiorespiratory arrest. To seek medical care quickly.

**Skin contact:** Quickly remove contaminated clothing and shoes and wash affected parts with running water in abundance for at least 15 minutes. Do not rub the area. To seek medical care quickly.

**Eye contact:** Wash your eyes under running water for 15 minutes, lifting the eyelids to allow maximum product removal. After these precautions, immediately refer to the ophthalmologist.

**Ingestion:** Never give anything by mouth to people unconscious or in a convulsive condition. The conscious victim can drink water or milk. If vomiting occurs spontaneously, the victim shall be lying on his side to avoid pulmonary aspiration. To seek medical care quickly.

**Symptoms and effects most important, acute and delay:** May cause redness, pain, skin dryness; burning, lacrimation and pain in the eyes; burning sensation, cough, shortness of breath and sore throat.

**Notes to the physician:** If necessary, symptomatic treatment should include, above all, supportive measures such as correction of hydro electrolytic, metabolic disorders, as well as respiratory assistance.

### 5. - FIRE FIGHTING MEASURES

**Extinguishing measures appropriate:** Carbon dioxide (CO<sub>2</sub>), foam, water fog, dry chemical.

**Not recommended:** Direct water jet.

**Specific mixture or substance hazards:** Poisonous gases can be produced during burning, such as sulfur oxides and hydrogen sulfide.

**Firefighting team protection measures:**

Self-contained breathing apparatus with positive pressure and complete protective clothing that offers protection from the heat. Containers and tanks involved in the fire can be cooled with water fog.



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## 6. - MEASURES OF CONTROL FOR SPILL OR LEAK

**Personal precautions, protective equipment and emergency procedures:**

**Staff that is not part of the emergency services:** Do not breathe vapor or aerosols. Avoid to contact with the substance. Ensuring adequate ventilation. Evacuating the hazard area, observe emergency procedures. If necessary, consult a specialist.

**For the staff of the emergency department:** Use protective waterproof and resistant to chemicals clothing. Arrange the grounding of all equipment that will be used in the handling of the spilled product. Eliminate all possible ignition sources, such as, open flames, hot elements without isolation, electric or mechanical sparks, cigarettes, electrical circuits, etc. To prevent the use of any action or proceeding that results in the generation of sparks or flames.

**Removal ignition sources:** Keeping away from sources of heat and ignition.

**Prevention of inhalation and contact with skin, mucous membranes and eyes:** Please see Section 8, Field: "Appropriate personal protective equipment".

**Precautions to the environment:** Isolate the area of the accident. To prevent the spread of the spilled product, avoiding the contamination of rivers and water springs. Seal the leak, if possible, to avoid contact with the skin and with the clothes. Never dispose the spilled material to sewage systems. Leaks must be reported to the manufacturer and/or the environmental agencies.

**Methods and materials for containment and cleaning:** Treat the area with a lime solution and wash with water hose jets. If large quantities of foam are formed, remove them with a silicone based anti-foam compound.

**Disposal:** The waste must be disposed in according with the current environmental legislation. Keep chemicals in their original containers. Do not mix with other wastes. The handling of dirty containers must be conducted in the same way as the product itself. An MSDS must be generated from the generated waste.

**Differences in the measures of large and small leaks:** There is no differentiation.

## 7. - HANDLING AND STORAGE

**Handling:**

**Technical measures:** Use only in areas provided with adequate exhaust ventilation. Providing the product handling area with emergency shower set and eye wash. Handling must only be done with the indicated PPEs and under safe conditions.

**Prevention of worker's exposure:** Avoid a formation of vapors / aerosol. Working with exhaust / chimney. Do not inhale the substance / mixture. Wear specific PPEs - splashes glasses, face shield, PVC gloves and protective clothing. To avoid inhaling vapors.

Washing after handling and decontaminate PPEs after use. The PPEs must be approved for use only with the respective CAs - Certificates of Approval.

**Precautions and guidelines for safe handling:** Use personal protective equipment (PPE) to avoid direct contact with the product. Handling the product in a well-ventilated place. Forms a slippery layer with water.

**Storage:**

**Appropriate:** Keep the container hermetically sealed in a dry, cool and well-ventilated area. Storing in a cool, dry place in unopened original packaging. Avoid to humid, wet and slightly wet conditions, extremes of temperature and sources of ignition.

**To be avoided:** Strong oxidizing agents.

**Hygiene measures:**

**Appropriate:** Always sanitize the hands before handling any food, as there is a risk of contamination of the food. Contaminated clothing must be washed and sanitized before the use. Keeping gloves free from moisture and decontaminated.

**Inappropriate:** Direct contact with the product and / or its residues.

**Technical measures:**

**Adequate conditions:** Keeping containers closed and in a well-ventilated place. Keep containers protected from heat and direct sunlight. Avoid extreme temperatures. Avoid to moisture.

**Remediation of fire and explosion:**

Keep away from heat, spark, open flame/hot surfaces Do not smoke.

Adequate conditions: Store in a corrosion resistant container or with a resistant internal cover.



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To conserve only in the original container.

**Packaging Materials:**

Type 304 or AISI 316 stainless steel or in carbon steel tanks coated with glass fiber reinforced antacid resin. Do not use as packaging: Carbon steel or aluminum. Do not use as packaging: Carbon steel or aluminum.

## 8. - EXPOSURE CONTROLS AND INDIVIDUAL PROTECTION

**Control parameters.** Occupational exposure limits not established.

**Biological indicators:** Not established.

**Other limits and values:** Not established.

**Measures of engineering control:**

Promote mechanical ventilation and a direct exhaust system to the outside environment. These measures help to reduce product exposure. It is recommended to make emergency showers and eye washers available in the work area.

**Personal protection measures**

**Protection for the eyes/face:** Eye protector (safety glasses with wide vision), which must be impact resistant and offer protection against splashes.

**Protection of the skin and body:** PVC or neoprene apron, including safety shoes. Protective gloves made of natural rubber, nitrile, latex or any other material available.

**Respiratory protection:** Protective mask with filter against vapors and mists.

**Thermal hazards:** Does not present.

## 9. - PHYSICAL AND CHEMICAL PROPERTIES

**Aspect (physical condition, form and color):** Viscous liquid amber.

**Odor and odor limit:** sulfur.

**pH:** Not available.

**Melting point / freezing point:** -10°C.

**Initial boiling point and boiling temperature range:** 315°C

**Flash point:** 200°C (closed vessel).

**Evaporation rate:** Not available.

**Flammability (solid, gas):** Not applicable.

**Lower/upper flammability or explosiveness limit:** Not available.

**Vapor pressure:** 0.5 mmHg 20°C.

**Vapor density:** 11,0 (air = 1).

**Relative density:** 1.04 - 1.05 to 20°C.

**Solubility:** Soluble in water. Miscible in aromatic and aliphatic hydrocarbons, ketones and ethanol.

**Partition coefficient n-octanol / water, log Kow:** 4.780.

**Autoignition temperature:** Not available.

**Decomposition temperature:** Not available.

**Viscosity:** Not available

**Other information:** Average molecular weight of 321 g / mol. Hygroscopic.

## 10. - STABILITY AND REACTIVITY

**Stability and reactivity:** Stable under normal conditions of temperature and pressure. **Possibility of hazardous reactions:**

Reacts with bases and generates heat and explosion with strong oxidizing agents. In contact with strong acids (sulfuric, nitric and hydrochloric acid) emits highly toxic sulfur oxides.

Contact with metals can release flammable hydrogen gas.

**Conditions to be avoided:**

High temperatures. Contact with incompatible materials.

**Incompatible materials:** Strong acids, oxidizing agents, strong oxidizing agents, aluminum, strong bases and metals.

**Hazardous decomposition products:**

Not dangerous decomposition products are known.

## 11. - TOXICOLOGICAL INFORMATION

**Acute toxicity:** Harmful if swallowed.



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DL<sub>50</sub> (oral, mouse): 1000 - 2000 mg / kg body weight.

**Corrosion/irritation of skin:** Causes skin irritation with redness, pain, dryness skin.

Animal studies by OECD 404 and BPL (Good Laboratory Practice) have shown that the substance is irritating to the skin.

**Severe ocular injury/eye irritation:**

Causes serious eye damage with burning, lacrimation and eye pain.

Animal testing by OECD 405 and GLP (Good Laboratory Practice) has shown that the substance is irritating and poses a serious risk of damage to the eyes.

**Respiratory or skin sensitization:**

The product is not expected to present sensitization : to skin.

The product is not expected to present respiratory sensitization.

**Germ cell mutagenicity:**

The product is not expected to present germ cell skin. **Carcinogenicity:** The product is not expected to present carcinogenicity.

**Reproductive toxicity:** Not classified for reproductive toxicity.

In an in vitro testing using fertilized frog eggs, sodium dodecylbenzene sulfonate at a concentration of 50 ppm resulted in the inhibition of cell division in all concepts.

This exposure is not likely to be relevant to the common human exposure to these detergents.

**Toxicity to the organs - specific targets - single exposure:**

May cause irritation of the respiratory tract if inhaled and may cause a burning sensation, cough, shortness of breath and sore throat.

**Information regarding smoldering sulfuric acid:**

Ingestion causes severe burns on the mucous membranes of the mouth, throat, esophagus and stomach.

Digestive perforations, nausea and vomiting (sometimes with blood), diarrhea, deep thirst, respiratory collapse with humidification of the skin, weak and rapid pulse, wheezing, scanty urine. Respiratory shock can cause death. Exposure to acid vapors causes immediate irritation to the mucous membranes (nose, throat, eyes), difficulty breathing.

**Toxicity to the organs - specific targets - repeated exposure:**

The product is not expected to present toxicity for the organs - specific targets - repeated exposure.

**Information regarding smoldering sulfuric acid:**

Frequent skin contact with diluted solutions can cause dermatitis. Chronic exposure can also be associated with changes in pulmonary function, chronic bronchitis, gastritis, stomatitis, erosion of tooth enamel, conjunctivitis, increased frequency of infection and cancer of the respiratory tract.

**Aspiration hazard:** The product is not expected to present aspiration hazard.

**Other toxicological information:**

After a single oral dose of S-demarcated sodium dodecylbenzene sulfonate (35) in rats, the substance was 64% excreted in the urine and 24% in the feces. A similar study of repeated doses of C-demarcated alkyl benzenesulfonate (14) (average molecular weight 349, one of the main constituents of detergents) in rhesus monkeys showed that radioactivity does not accumulate in tissues.

## 12. - ECOLOGICAL INFORMATION

**Ecotoxicity:** Toxic to aquatic organisms.

CE<sub>50</sub> (Green algae, 96h): 29 mg/L.

CL<sub>50</sub> (Brachydanio rerio, 96h): 3.5 - 10 mg/L.

CE<sub>50</sub> (Daphnia magna, 48h): 5.88 mg/L.

**Persistence to degradability:**

The product has no persistence and is considered to be rapidly degradable.

Test with 76 mg / L of the substance in industrial activated sludge demonstrated a 92% degradation after 90 hours, with degradation products (identified by GLC and GC-MS spectroscopy) such as 1-tetralone, 1-indanones, 4-methyl-1 - tetralone and naphthalene's.

**Bio accumulative potential:** The product is expected to have bio accumulative potential.

log K<sub>ow</sub>: 4.780.

**Mobility in soil:** Not determined.

**Other adverse effects:** Large spills can acidify watersheds and affluent in timely



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manner. They can cause damage to the environment, burns on plants and living things in general in the first layer of soil. If it is not removed or neutralized, it can further It is made.

### 13. - CONSIDERATION ON THE DISPOSAL

**Recommended methods for final destination:**

The treatment and disposal of product wastes must be carried out in an appropriate environment, by people trained with the use of special equipment and the recommended PPE's to avoid contact with the product, its vapors or mists. Leaks must be contained and collected for later disposal after neutralization.

**Product:**

Ensure that all Federal, State and local agencies receive appropriate notices of spills and disposal methods. CONAMA Resolution 005/1993, Law No. 12,305, of as August 2, 2010 (National Policy on Solid Waste).

**Waste of products:**

Please consult environmental regulatory agencies for counselling on the acceptable disposal practices. Please contact the relevant local authorities. It can be incinerated when in compliance with local regulations. Or dispose of at an approved chemical waste landfill.

**- Used Package:**

Empty packages must be drained and covered before handling and transport operations. If the packaging is not conveniently washed and decontaminated, it is considered to contain product.

### 14. - TRANSPORT INFORMATION

**National and International Regulations**

**Land:**

Resolution No. 5232 of as December 14, 2016 of the National Land Transportation Agency (ANTT), *Approves the Complementary Instructions to the Regulation of Land Transportation of Dangerous Products and its amendments.*

**UN Number:** 2584.

**Appropriate name for shipment:** ALKYL SULPHONIC ACIDS, LIQUIDS or ARYL SULPHONIC ACIDS, LIQUIDS, with more than 5% free sulfuric acid.

**Risk class:** 8.

**Subsidiary risk:** NA.

**Risk number:** 80.

**Packaging group:** II -

**Waterway:**

DPC - Directorate of Ports and Coasts (Transport in Brazilian waters) Maritime Authority Standards (NORMAM) NORMAM 01 / DPC: Vessels Employed in Open Sea Navigation

**UN Number:** 2584.

**Appropriate name for shipment:** ALKYL SULPHONIC ACIDS, LIQUIDS or ARYL SULPHONIC ACIDS, LIQUIDS, with more than 5% free sulfuric acid.

**Risk class:** 8.

**Subsidiary risk:** NA.

**Risk number:** 80.

**Packaging group:** II -

**EmS:** F-A,S-B

**Air:**

ANAC - Civil Aviation National Agency - Resolution No. 129 of as 8 January, 2009

RBAC No. 175 - (BRAZILIAN CIVIL AVIATION REGULATION) - TRANSPORT OF DANGEROUS MATERIALS IN CIVIL AIRCRAFT

IS No. 175-001 - SUPPLEMENTARY INSTRUCTION - IS

ICAO - "International Civil Aviation Organization" - Doc 9284-NA / 905

IATA - "International Air Transport Association" Dangerous Goods Regulation (DGR)

**UN Number:** 2584.

**Appropriate name for shipment:** ALKYL SULPHONIC ACIDS, LIQUIDS or ARYL SULPHONIC ACIDS, LIQUIDS, with



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more than 5% free sulfuric acid.

**Risk class:** 8.

**Subsidiary risk:** NA.

**Risk number:** 80.

**Packaging group:** II -

## 15. - INFORMATION ON THE REGULATIONS

### Specific regulations for the chemicals:

Federal Decree No. 2,657 of as July 3, 1998;

Standard ABNT-NBR 14725:2014;

Ordinance No. 229, of as May 24, 2011 - Amends Regulatory Standard No. 26.

## 16. - OTHER INFORMATION

The information in this sheet corresponds to the current status of our knowledge and our product experience and is not exhaustive. Applies to the product under the conditions specified, unless mention otherwise. In case of combinations or mixtures, make sure that no new hazards can appear. This information does not exempt, in any case, the user of the product from respecting the all legislative, regulatory and administrative texts related to the product, safety, hygiene and protection of human and environmental health.

### Bibliographical References:

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®: Based on the "Documentation" dos Limites de Exposição Ocupacional (TLVs®) for Chemical Substances and Physical Agents & Biological Exposure Indices (BEIs®). Brazilian Association of Occupational Hygienists Translation. São Paulo, 2016.

BRAZIL. MINISTRY OF LABOR AND EMPLOYMENT (MTE) Regulatory Standard (NR) No. 7: Programa de controle médico de saúde ocupacional. Brasília, DF. Jun. 1978.

BRAZIL. MINISTRY OF LABOR AND EMPLOYMENT (MTE) Regulatory Standard (NR) No. 15: Atividades e operações insalubres. Brasília, DF. Jun. 1978.

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Globally Harmonized System of Classification and Labelling of Chemicals (GHS). 7. rev. United Nations, 2017.

HSDB - HAZARDOUS SUBSTANCES DATA BANK. Available at: <<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>>. Access on: June, 2018.

IARC - INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Available at: <<http://monographs.iarc.fr/ENG/Classification/index.php>>. Access on: June, 2018.

IPCS - INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY - INCHEM. Available at: <<http://www.inchem.org/>>. Access on: June, 2018.

IUCLID - INTERNATIONAL UNIFORM CHEMICAL INFORMATION DATABASE. [S.I.]: European chemical Bureau. Available at: <<http://ecb.jrc.ec.europa.eu>>. Access on: June, 2018.

NIOSH - NATIONAL INSTITUTE OF OCCUPATIONAL AND SAFETY. International Chemical Safety Cards. Available at: <<http://www.cdc.gov/niosh/>>. Access on: June, 2018.

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