MATERIAL SAFETY DATA SHEET

(According to GHS rev. 5)

LAS REGIONAL

1.IDENTIFICATION

Company: YPF S.A. **Address: Av. Macacha Güemes n° 515** **CP C1106BKK** **Buenos Aires - ARGENTINA** **Tel# (+ 5411) 5441-2000** **Fax# (+ 5411) 5441-5796**	**Commercial name:** LAS REGIONAL **Chemical name:** Alkyl benzene sulfonic acid.
	Synonyms: Alkyl benzene sulfonic acid.
	Emergency Telephone: **Argentina: 0800-222-2933** **Other countries: (+5411) 4611 2007**

2.HAZARD IDENTIFICATION

2.1 LABEL ELEMENTS

Pictograms			
Warning word	Peligro		
Hazard statement	H314 - Causes severe skin burns and eye damage.	H302 - Harmful if swallowed.	H412 - Harmful to aquatic life with long lasting effects.
Classification criteria	Skin corrosion/irritation (Category 1) – Serious eye damage/eye irritation (Category 1)	Acute toxicity, oral (Category 4)	Long-term (chronic) aquatic hazard (Category 3)
Other regulations	-		

OTHER HAZARDS

At high temperatures or in presence of fire, it may emit toxic fumes.

3.COMPOSITION/INFORMATION ON INGREDIENTS

General composition:

Main components	**Range %**	**Classification**	**S Phrases**
4-C10-C13-sec-alkylbenzenesulphonic Acid CAS # 85536-14-7	100		

4. FIRST-AID MEASURES

Inhalation:

For those providing assistance, avoid exposure. Use proper protection if necessary. Move victim and get fresh air. Keep calm. If not breathing, give artificial respiration. If having difficulty breathing, give oxygen. Get medical advice.

Ingestion/Aspiration:

DO NOT INDUCE VOMITING. Give water to drink. Never give anything by mouth to an unconscious person. Get medical advice.
If vomiting occurs spontaneously, place victim on side to reduce the risk of aspiration.

Contact skin/eyes:

Skin contact: Wash immediately after contact with soap and water for at least 20 minutes. Remove contaminated clothing and wash before reuse.
Eye contact: Immediately flush with water for at least 20 minutes, holding eyelids apart to ensure that all eye and lid tissues rinsed. Washing eyes within several seconds is essential to achieve maximum effectiveness. If you have contact lenses, remove them after the first 5 minutes, then continue rinsing eye. Get medical advice.

General measures:

Avoid exposure to the product, taking appropriate protective measures.
Medical advice: Symptomatic treatment. For more information, contact a Poison Center.

5. FIRE-FIGHTING MEASURES

Extinguishing agents:

Dry chemical, foam, CO_2 or water spray. Use the product according to the surrounding materials.

Non suitable extinguishing agents: WATER SHOULD NEVER BE USED DIRECTLY.

Combustion products:

In case of fire may release fumes and gases irritating and / or toxic gases, such as carbon monoxide, sulfur oxides and other substances from incomplete combustion.

Special measures:

Evacuate the area. If a leak or spill has not ignited, use water spray to disperse vapours and protect personnel attempting to stop leak. Move containers from fire area if you can do it without risk. Do not put water inside containers or areas of leakage. Spray containers with water to keep them cool. Cool containers with flooding quantities of water until well after the fire is out. Fight fire from maximum distance or use unmanned hose holders or regulators.

Special hazards:

In case of fire may release fumes and gases irritating and / or toxic gases, such as carbon monoxide, sulfur oxides and other substances from incomplete combustion.

Protective equipment:

Use self-contained breathing apparatus. Structural protective clothing provides limited protection in fire in fire situations ONLY; It may not be effective in spill situations. For large spills wear protective clothing against chemicals, which is specifically recommended by the manufacturer. It may provide little or no thermal protection.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions: Contain liquid with a dike. Prevent entry into waterways, sewers, basements or confined areas.	**Personal precations:** Avoid sources of ignition. Evacuate personnel to a ventilated area. Use SCBA and skin and eye protection. Wear impervious gloves. Ventilate immediately, especially in low areas where vapours may accumulate.
Cleanup methods: Collect the product through sand, vermiculite, or inert absorbent and clean or thoroughly wash the contaminated area. Neutralization: A solution slightly basic with sodium carbonate can be used to cleaning the product. Provide water and waste collected in marked for disposal as chemical waste containers.	**Personal protection:** We recommend the use of breathing apparatus and impervious suits and gloves or other suitable protective clothing and goggles.

7. HANDLING AND STORAGE

Handling:

General precautions:

Do not eat, drink or smoke during handling.
Avoid contact with eyes, skin and clothing. Wash arms, hands, and nails after handling. Use of gloves is recommended. Avoid inhalation of vapors. Keep container closed. Use with adequate ventilation. Handle containers carefully. Keep the product in properly sealed and labelled containers in cool and well-ventilated place. Keep them away from heat and sources of ignition. Do not smoke, weld or do any work that can produce flames or sparks in storage area.

Specific conditions: Good local exhaust ventilation.

Specific Use: Industrial use.

Storage:

Temperature and decomposition products:

Storage, use or heating does not produce dangerous products. In case of fire, see Section V.

Dangerous reactions:

Contact with acids, it can emit highly toxic fumes of SOx. Reacts with metals, oxides and carbonates, generating heat in aqueous dilution.

Storage conditions:

Store in a clean, dry, well-ventilated area. Protect from sun light.
NFPA Code: 3 0 0

Incompatible materials:

Strong oxidizing agents and strong bases.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protection:

Eye protection:

Should wear safety glasses, chemical splash-proof (complying with EN 166).

Respiratory protection:

Where necessary, use a organic vapor (A or AX) respirator. Special attention to oxygen levels in the air should be paid. If large releases occur, wear self-contained breathing apparatus (SCBA).

Skin protection:

When handling this product should wear impermeable protective PVC, nitrile or neoprene gloves (complying with standards EN 374), clothes and safety footwear resistant to chemicals.

Other protective equipment:

Provide emergency showers and eyewash in work areas.

General precautions:

Keep workplace ventilated. The normal routine ventilation is usually adequate. Local hoods should be used for operations that produce or release large amounts of product. In low or confined areas should be provided mechanical ventilation.

Specific hygiene measures:

Good work practices and the adoption of hygienic measures reduce unnecessary exposures. Showers should be available with hot soapy water (non-solvent). Using skin creams after work is recommended.

Exposure controls: Not established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Viscous liquid.	**pH:** NP
Colour: Máximum 60 (KLETT)	**Odour:** Characteristic of disulphide.
Boiling point: 189 °C (372,2 °F)	**Melting/Freezing point:** 6,5 °C (43,7 °F)
Flash point: 197,4°C (387,3°F)	**Autoignition temperature:** No information available.
Explosive properties: No information available.	**Oxidizing properties:** No information available.
Vapour pressure: No information available.	**Density:** 1050 kg/m^{3}at 30ºC
Surface tension: No information available.	**Viscosity:** (Marlon viscosity at 25ºC) 1.6 Ns/m2 (Marlon viscosity at 40ºC) 0.6 Ns/m2
Vapour density:	**Partition coefficient (n-octanol/water):**
Water solubility: Emulsifies.	**Solubility:**

Other data: Specific heat: 1.6 kj/kgºC
Termic conductivity:0.13 w/mºC
Molecular weight: 326 g/mol
Free sulphuric acid content: 1.30%

10. STABILITY AND REACTIVITY

Stability: Unstable: Moderate corrosive.	**Conditions to avoid:** Contact with acids, it can emit highly toxic fumes of SOx. Reacts with metals, oxides and carbonates, generating heat in aqueous dilution.

Materials to avoid: Oxidizers and acids. Metals, oxides and carbonates.

Hazardous decomposition/combustion products:

Storage, use or heating does not produce dangerous products. In case of fire, see Section V.

Polymerizations risk: Material is not expected to produce dangerous polimerization.	**Conditions to avoid:** NP

11. TOXICOLOGICAL INFORMATION

Routes of exposure:

Inhalation, skin and eye contact.

Acute and chronic effects:

Inhalation: may cause irritation.
Skin contact: contact can irritate the skin.
Eye contact: irritating to eyes.
Ingestion: may cause gastrointestinal discomfort.

Animal data:

ATE - LD50 oral (rat, OECD 425): 1470 mg/kg
ATE - LD50 der (rabbit, OECD 402): > 2000 mg/kg
ATE - LC50 inh. (rat, 4hs., OECD 403): > 10 mg/l
Dermal irritation (rabbit, estimated): corrosive
Eye irritation (rabbit, estimated): corrosive
Dermal sensitization (Guinea pig, OECD 406): not sensitizing
Resp. sensitization (human, epidemiological): not sensitizing

Carcinogenicity:

There is no information on any component of this product present at levels greater than or equal to 0.1% as probable, possible or confirmed by the IARC (International Agency for Research on Carcinogens) human carcinogen.

Reproductive toxicity: No data available.

Medical conditions wich increase hazard to exposure: Respiratory diseases and dermatological problems.

12. ECOLOGICAL INFORMATION

Pollatant potential:

Persistence and degradability:

BIODEGRADABILITY (OECD 301): 94% en 28 días - easily biodegradable.
PNEC (water): 0,287 mg/l
PNEC (sea water): 0,0287 mg/l (F=10)
PNEC-STP: 3,43 mg/l

Mobility/bioaccumulative potential:

Log Ko/w: No information available.
FISH BIOACCUMULATION FACTOR – BCF (OCDE 305): BCF (OECD 305E): 2 - 1000 L/Kg.
This mixture contains no substance considered to be persistent, bioaccumulative and toxic (PBT).

Ecotoxicological effects:

ATE - LD50 (*Pimephales promelas*, OECD 203, 96hs.): 1,67 mg/l
ATE - EC50 (*Daphnia magna*, OECD 202, 48hs.): 7,6 mg/l
ATE - LD50 (*Pseudokirchnerella subcapitata*, OECD 201, 72hs.): 0,91 mg/l
ATE - LL50 (*Tetrahymena pyriformis*, QSAR, 72 hs.): > 100 mg/l
ATE - NOEL (*Oncorhynchus mykiss*, QSAR, 28d.): 0,25 mg/l
ATE - NOEC (*Daphnia magna*, OECD 211, 21d.): 3,40 mg/l

13. DISPOSAL CONSIDERATIONS

Disposal methods (surplus): Recycling when possible.

Waste: Liquids from industrial processes.

Disposal: Consult with authorized environmental regulatory agencies for guidance on acceptable disposal practices.

Handling: Contaminated materials should be regarded as toxic and dangerous waste and have the same risk and need the same precautions as the product. Do not run off the product to sewers.

Provisions: Companies that recover, dispose, store, transport or handle waste should comply with local and/or national provisions in force on waste management.

14. TRANSPORT INFORMATION

Special precautions: Transport in properly closed and labelled containers.

Additional Information:

LAND TRANSPORT:	
Proper shipping name :	ALKYLSULPHONIC ACIDS, LIQUID
UN Number :	2586
Hazard class :	8
Hazard identification number :	80
Packing group :	III
Exempt amount :	5L / E1
AIR TRANSPORT (ICAO/IATA) :	
Proper shipping name :	ALKYLSULPHONIC ACIDS, LIQUID
UN Number :	2586
Hazard class :	8
Packing group :	III
CRE :	8L
Passenger and cargo aircraft :	Y841, 1L / 852, 5L
Cargo aircraft only :	856, 60L
MARITIME TRANSPORT (IMDG/IMO) :	
Proper shipping name :	ALKYLSULPHONIC ACIDS, LIQUID
UN Number :	2586
Hazard class :	8
Packing group :	III
Marine pollutant :	NO
Stowage and segregation :	Category B
Ems :	F-A, S-B

15.REGULATORY INFORMATION

CLASIFICATION: **LABELLING**

Symbols:

C

Phrases R:

R34 - Causes burns.
R51 - Toxic to aquatic organisms.
R53 - May cause long-term adverse effects in the aquatic environment.

Phrases S:

S 23 - Do not breathe gas/fumes/vapour/spray. S 36/37/39 - Wear suitable protective clothing, gloves and eye/face protection. S 29 - Do not empty into drains S 61 - Avoid release to the environment. Refer to special instructions/safety data sheet S 62 - If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label S 27 - Take off immediately all contaminated clothing S 63 - In case of accident by inhalation: remove casualty to fresh air and keep at rest

Other regulations:

16. OTHER INFORMATION

Data Bases consulted

EINECS: European Inventory of Existing Commercial Substances.
TSCA: Toxic Substances Control Act, US Environmental Protection Agency
HSDB: US National Library of Medicine.
RTECS: US Dept. of Health & Human Services

R phrases show in the document:

Legislation consulted:

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Dir. 67/548/EEC about classification, labelling and packaging of dangerous substances (including amendments and adaptations in force).
Dir. 1999/45/EC about classification, labelling and packaging of dangerous preparations (including amendments and adaptations in force).
Dir. 91/689/EEC dangerous waste; Dir. 91/156/EEC waste management.
Royal Decree 363/95: Regulation about notification of new substances and classification, packaging and labelling of dangerous substances.
Royal Decree 255/2003: Regulation about classification, packaging and labelling of dangerous preparations.
European Agreement concerning the international carriage of dangerous goods by road (ADR).
Regulation on the international transport of dangerous goods on the railway. (RID)
International maritime code of dangerous goods. (IMDG)
International Air Transport Association (IATA) regulation pertaining to air shipment.

Glossary:

CAS: Chemical Abstract Service
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists.
TLV: Threshold Limit Value
TWA: Time Weighted Average
STEL: Short-term Exposure Level
REL: Recommendable Exposure Limit
PEL: Permissible Exposure Limit
INSHT: Instituto Nal. de Seguridad e Higiene en el Trabajo

VLA-ED: Valor Límite Ambiental – Exposición Diaria
VLA-EC: Valor Límite Ambiental – Exposición Corta
LD_{50}: Lethal Dose Medium
LC_{50}: Lethal Concentration Medium
EC_{50}: Effective Concentration Medium
NP: Not Pertinent
| : Changes from the last revision
[1410.010]

The information given in this document has been compiled based on the best existing information sources, latest available knowledge and according to the current requirements on classification, packaging and labelling of hazardous substances. It does not imply the information is exhaustive or accurate in all cases. It is the user's responsibility to determine the validity of the information contained in this Material Safety Data Sheet to apply depending on the case.