

# Clore Automotive

## MATERIAL SAFETY DATA SHEET

PRODUCT NAME: ES2500/ES5000 - Sealed Lead Acid Batteries

DATE: 02/22/10

ISSUED BY: Engineering

## EMERGENCY TELEPHONE NUMBERS:

US: CHEMTREC 1-800-424-9300

CAN: CHEMTREC 1-800-424-9300

OUTSIDE US: +1-202-483-7616

NON-EMERGENCY: 913-310-1050

## HAZARDOUS COMPONENTS

| COMPONENTS                                       | %WEIGHT   | TLV                 | LD50 ORAL     | LC50 INHALATION | LC50 CONTACT |
|--------------------------------------------------|-----------|---------------------|---------------|-----------------|--------------|
| Lead (Pb, PbO <sub>2</sub> , PbSO <sub>4</sub> ) | About 70% | N/A                 | (500) Mg/Kg   | N/A             | N/A          |
| Sulfuric Acid                                    | About 20% | 1 mg/m <sup>3</sup> | (2.140) Mg/Kg | N/A             | N/A          |
| Fiberglass Separator                             | About 5%  | N/A                 | N/A           | N/A             | N/A          |
| Styron R 478 (Polystyrene)                       | About 5%  | N/A                 | N/A           | N/A             | N/A          |

## PHYSICAL DATA

| COMPONENTS      | DENSITY   | MELTING POINT         | SOLLUBILITY (H <sub>2</sub> O) | ODOR   | APPEARANCE             |
|-----------------|-----------|-----------------------|--------------------------------|--------|------------------------|
| Lead            | 11.34     | 327.4°C (Boiling)     | None                           | None   | Silver-Gray Metal      |
| Lead Sulfate    | 6.2       | 1070°C (Boiling)      | 40mg/l (15°C)                  | None   | White Powder           |
| Lead Dioxide    | 9.4       | 290° (Boiling)        | None                           | None   | Brown Powder           |
| Sulfuric Acid   | About 1.3 | About 114°C (Boiling) | 100%                           | Acidic | Clear Colorless Liquid |
| Fiberglass Sep. | N/A       | N/A                   | Slight                         | Toxic  | White Fibrous Glass    |
| 478 Polystyrene | N/A       | N/A                   | None                           | None   | Solid                  |

## FLAMMABILITY DATA

| COMPONENTS      | FLASHPOINT | EXPLOSIVE LIMITS | COMMENTS                                                                                                                                      |
|-----------------|------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Lead            | None       | None             | -                                                                                                                                             |
| Sulfuric Acid   | None       | None             | -                                                                                                                                             |
| Hydrogen        | N/A        | 4%-74.2%         | Sealed batteries can emit hydrogen only when overcharged.<br>(Floal voltage> 2.4 VPC)                                                         |
| Fiberglass Sep. | None       | N/A              | Toxic vapors may be released. In case of fire: wear self-contained breathing apparatus.                                                       |
| 478 Polystyrene | None       | N/A              | Temperatures over 300°C (572°F) may release combustible gases.<br>In case of fire: wear positive pressure self-contained breathing apparatus. |

## FIRST AID

### SULFURIC ACID PRECAUTIONS

**SKIN CONTACT:** Flush with water; see physician if contact area is large or if blisters form.

**EYE CONTACT:** Call physician immediately and flush with water until physician arrives.

**INGESTION:** Call physician. If patient is conscious, flush mouth with water, have patient drink milk or sodium bicarbonate solution.

**DO NOT GIVE ANYTHING TO AN UNCONSCIOUS PERSON.**

## REACTIVITY DATA

|                               |                                                                                            |
|-------------------------------|--------------------------------------------------------------------------------------------|
| <b>COMPONENT</b>              | Sulfuric Acid                                                                              |
| <b>STABILITY</b>              | Stable at all temperatures                                                                 |
| <b>POLYMERIZATION</b>         | Will not polymerize                                                                        |
| <b>INCOMPATIBILITY</b>        | Reactive metals, strong bases, most organic compounds                                      |
| <b>DECOMPOSITION PRODUCTS</b> | Sulfuric dioxide, trioxide, hydrogen sulfide, hydrogen                                     |
| <b>CONDITIONS TO AVOID</b>    | Prohibit smoking, sparks, etc. from charging area. Avoid mixing acid with other chemicals. |

## SPILL OR LEAK PROCEDURE

**STEPS TO TAKE IN CASE OF LEAKS OR SPILLS:** If sulfuric acid is spilled from a battery, neutralize the acid with sodium bicarbonate (baking soda), sodium carbon (soda ash), or calcium oxide (lime). Flush the area with water discard to the sewage systems. Do not allow unneutralized acid into the sewage system.

**WASTE DISPOSAL METHOD:** Neutralized acid may be flushed down the sewer. Spent batteries must be treated as hazardous waste and disposed of according to local state and federal regulations. A copy of this material safety data must be supplied to any scrap dealer or secondary smelter with battery.

## PROTECTION

| EXPOSURE    | PROTECTION                  | COMMENTS                                                                      |
|-------------|-----------------------------|-------------------------------------------------------------------------------|
| Skin        | Rubber gloves, Apron        | Protective equipment must be worn if battery is cracked or otherwise damaged. |
| Respiratory | Respirator (for lead)       | A respirator should be worn during reclaim operations if the TLV exceeded.    |
| Eyes        | Safety goggles, Face shield | -                                                                             |

## ELECTRICAL SAFETY

Due to the battery's low internal resistance and high power density, high levels of short circuit can be developed across the battery terminals. Do not rest tools or cables on the battery. Use insulated tools only. Follow all installation instruction and diagrams when installing or maintaining battery systems.

## HEALTH HAZARD DATA

**LEAD:** The toxic effects of lead are accumulative and slow to appear. It affects the kidneys, reproductive, and central nervous system. The symptoms of lead overexposure are anemia, vomiting, headache, stomach pain (lead colic), dizziness, loss of appetite, and muscle and joint pain. Exposure to lead from a battery most often occurs during lead reclaim operations through the breathing or ingestion of lead dusts and fumes. **THIS DATA MUST BE PASSED TO ANY SCRAP OR SMELTER WHEN A BATTERY IS RESOLD.**

**SULFURIC ACID:** Sulfuric acid is a strong corrosive. Contact with acid can cause severe burns on the skin and in the eyes. Ingestion of sulfuric acid will cause GI tract burns. Acid can be release if the battery case is damaged or if the vents are tampered with.

**FIBERGLASS SEPARATOR:** Fibrous glass is an irritant of the upper respiratory tract, skin and eyes. For exposure up to 10F/CC use MSA Comfoll with type H filter. Above 10F/CC up to 50F/CC use Ultra-Twin with type H filter. This product is not considered carcinogenic by NTP or OSHA.

## I.A.T.A. UN2800 CLASSIFICATION

We hereby certify that all ES Series and Clore Proformer Rechargeable Lead-acid Batteries conform to the UN2800 classification as "Batteries, Wet, Non-Spillable, and Electric Storage" as a result of passing the Vibration and Pressure Differential Test described in D.O.T., 49 CFR 173.159(d), and IMO/IMDG, and ICAO/IATA packing instruction 806 and note A67.

ES Series and Clore Proformer Batteries, having met the related conditions, are EXEMPT from hazardous goods regulations for the purpose of transportation by DOT, and IATA/ICAO, and therefore are unrestricted for transportation by any means. For all modes of transportation, each battery outer package is labeled "NON-SPILLABLE." All our batteries are marked non-spillable.