

Sulfation Removal Solution

Additive for lead-acid batteries



- » Cost savings of at least 50% of the cost of purchasing new batteries
- » Up to 30% lower electricity bills
- » Less frequent charges for forklift batteries
- » Benefits for the environment
- » Protection in time for the battery

SRS is a patented organic polymer, invented and manufactured in Japan. SRS is the world's first successfully developed additive for prolongation of lead battery life. Its performance has been proved by over 2000 verification tests made by independent labs and companies like Mitsubishi and Toyota. Because of its properties, SRS was awarded in 2000 the Japanese equivalent of the Nobel prize.

Battery Sulfation

Sulfation occurs during normal battery operation. A layer of lead sulfate forms on the battery plates during discharge and dissolves back into the battery electrolyte during charging. Problems occur when the sulfate forms a hard crystalline shell that isn't dissolved during charging. Over time, the sulfate crystals grow to cover most of the surface area of the lead plates, reducing capacity. Eventually, the sulfate crystals expand and crack the plates, destroying the battery. Before complete sulfation occurs, the capacity of the battery is reduced and the battery is discarded before it is mechanically destroyed. It is estimated that 90% of all lead-acid batteries are prematurely discarded because of sulfation.

SRS working principle

Added to a battery, SRS adheres immediately to the plates, forming a protective colloidal layer that removes and dissolves the lead sulfate from the electrodes, reversing the sulfation process. As a result, specific gravity of the electrolyte will increase visibly after injecting SRS. Another role of the protective coating is to prevent newly generated lead sulfate crystals to deposit on the plates, extending the life of the battery.

Types of batteries that can be restored

All types of lead-acid batteries: Flooded, AGM, Gel.

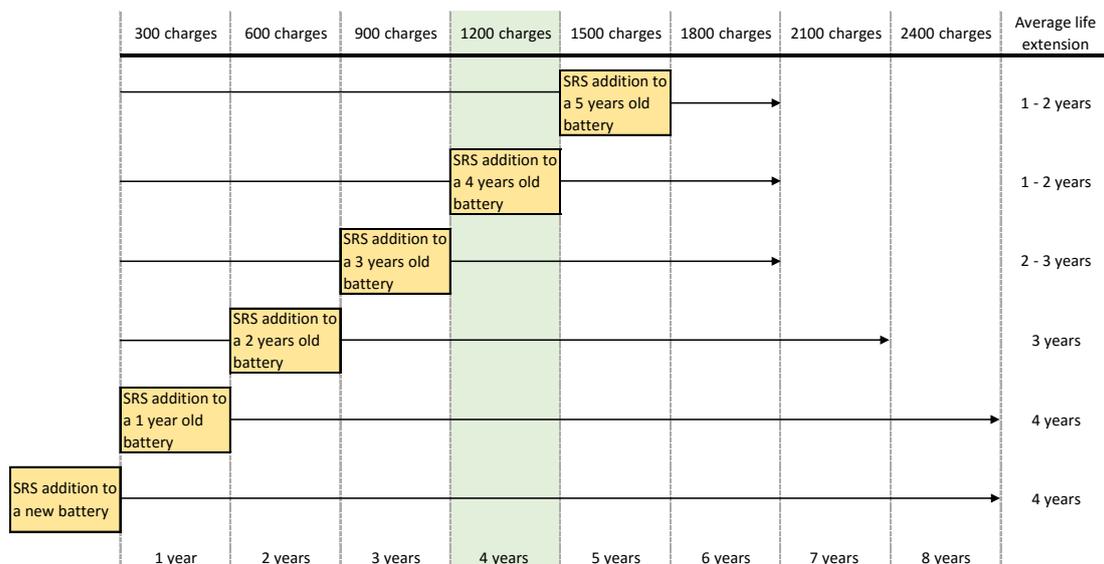
Advantages over other desulfation methods

- The battery plates will not be damaged by shedding (loss of material from the plates) because they are not forced in any way. Methods like equalising, high current or pulse charging do this.
- Protection in time against further sulfation.
- Fast results. SRS starts acting immediately and results can be seen after the first charge - discharge cycle.
- Simple procedure that can be performed on-site.
- No need for any special devices or equipment.

Results

- Adding SRS to a new battery will multiply its life by a factor of 2 or 3.
- SRS addition to a used sulfated battery will make it quickly recover and add 1-3 years to its life, depending on how it is maintained. One week after adding SRS and regular usage, 80 - 90% of the initial capacity will be restored. After two weeks, the muddy sulfuric acid in the battery will become crystal clear. We can guarantee results for any old battery that is passing the qualification criteria. Please contact us for details.
- SRS will be less effective on batteries with low electrolyte gravity (<1.21), big gravity difference between cells (>0.05), muddy electrolyte.
- SRS will not work on batteries with shorted or damaged electrodes (due to physical shock or electrolyte evaporation). These problems must be solved before adding SRS to a battery.

Average results after adding SRS to a forklift battery



Average forklift battery lifetime 1200 charges / 300 days = 4 years

The procedure

