Use of battery additive for battery maintenance.

Sulphation – No. 1 cause of battery failure.

No matter how new or old your battery may be, it builds up sulphation constantly…even when not in use.

Lead acid battery is made up of lead coated plates immersed in electrolyte containing 35% sulfuric acid and 65% water solution. During discharging, PbSO4 (lead sulphate), a soft spongy compound forms on the battery plates. With proper maintenance and correct charging current applied to recharge the battery, the chemical process can be reversed and the sulphuric acid content is reverted back to the electrolyte. Under such ideal conditions, technically, the battery can be used over and over as long as it is in mechanically sound condition.

In reality, however, these conditions are seldom met and residual of the soft spongy lead sulphate on the plates harden over time and clog the battery plates. This reduces the free outflow of power and gradually choked off the life of the battery. **This process called Sulphation accounts for 75% of battery failures.** (Remainder of 25% due to damaged plates, split separators, faulty volt regulator or wiring circuits, short circuit, etc…)

Causes of sulphation are numerous and include the following:

- Undercharging of batteries.
- Batteries left idle for too long between charges.
- Low electrolyte level – battery plates exposed to air will immediately sulphate.
- Incorrect charging levels and settings.
- Batteries are stored without some type of energy input.
- Parasitic drain such as clock, engine management circuitry, alarm systems, etc…

Battery Testing

The most popular way of battery testing is measurement of specific gravity and battery voltage. To measure specific gravity buy a temperature compensating hydrometer at an auto parts store. To measure voltage, use a digital D.C. Voltmeter.

State of Charge	Specific Gravity	Voltage 12V	Voltage 6V
100%	1.265	12.7	6.3
*75%	1.225	12.4	6.2
50%	1.19	12.2	6.1
25%	1.155	12	6
Discharged	1.12	11.9	6

*Sulphation of Batteries starts when specific gravity falls below 1.225 or voltage measures less than 12.4 (12v Battery) or 6.2 (6 volt battery). Sulphation hardens the battery plates reducing and eventually destroying the ability of the battery to generate Volts and Amps.

Load testing is another way of testing a battery. **Load test removes amps from a battery much like starting an engine would.**

How *EcoBatt™* works.

EcoBatt™ **battery additive works by chemically by reversing the sulphated compound back into usable active materials, thereby recovering capacity lost due to sulphation.**
Used correctly, ***EcoBatt™*** cannot cause damage to a battery in any way.

Directions:

For new and used batteries installed in vehicles.
1 bottle (120ml) of ***EcoBatt™*** for batteries up to 80AH capacity.
2 bottles for batteries of higher capacity (100AH and above)

Effect of ***EcoBatt™*** will take place when battery undergoes charging and discharging
EcoBatt™ will prevent sulphation build up and remove sulphation from battery plates.
Results
- Maintain battery at higher charge state
- Optimize battery life
- More powerful and easier start, brighter lights
- Reduce fuel consumption by reducing load on alternator (Due to faster rate of charging)
- Extend period which car can remain idle

For industrial batteries (deep cycle batteries) used in forklift, stackers, buggies, etc.
Amount of ***EcoBatt™*** to be used - about 5% of volume of electrolyte per cell.
Frequency of use – 9 to 15 months per application.

For "dead" sulphated batteries which cannot be recharged to level sufficient to start a car engine - (Revival of battery).
EcoBatt™ will enable battery to receive charge to usable state as it reduces the level of sulphation on battery plates while it is being recharged. It may take more than one charge to bring battery back to usable state (i.e. can accept enough charge to start engine}. This may depend on battery's level of sulphation. **Batteries MUST be recharged after treatment with *EcoBatt™***

Revival of mechanically sound sulphated batteries not recommended for batteries near end of expected life span.

For Emergency Start
EcoBatt™ is effective when battery current output falls just below cranking level due to sulphation build up. (Wait for about 15mins, switch-off air-con and radio before attempting restart. If not successful, problem might be one of the cell faulty).

EcoBatt™ is not recommended in the following cases:

- Do not use ***EcoBatt™*** on batteries of mechanically unsound condition such as those having loose plates or split separators.
- Do not use ***EcoBatt™*** on batteries that are near the end of usable life.
- Do not remove electrolyte from batteries.
- Do not overfill. Add ***EcoBatt™*** prior to topping up of water level in each cell. Use only distilled water (battery water) for topping up.