



Battery Additive

Treats One Automotive Battery 90ml



Fact: New lead acid batteries on average, last about 3.1 years in Australia.

Fact: 75% of all lead acid batteries fail prematurely due to hard sulphation build-up.

Fact: New and operational batteries treated with only one dose of Max Life can more than double their life.

Introduction – how a lead acid battery functions

A battery is an electrochemical device. It stores chemical energy which can be released as electrical energy when it is needed.

When two dissimilar metals are immersed in an electrolyte, a battery is created and a voltage is developed.

In a lead acid battery the two unlike metals are:

Lead Dioxide [PbO₂] – for the positive plate

and

Sponge Lead [Pb] – for the negative plate

and the electrolyte is:

Sulphuric Acid [2H₂SO₄] diluted in water [H₂O].

A typical lead acid battery cell produces about 2.1Volts per cell. Therefore a 12Volt battery comprises six cells connected in series. Each cell is made up of several positive plates with an equal number of negative plates, which are sandwiched with separators and immersed in electrolyte.

During discharge, electrical energy is released; causing both the negative and positive plates to slowly convert to lead sulphate [PbSO₄] and the electrolyte loses its acidity to become water [2H₂O].

The sulphuric acid [H₂SO₄] combines with the positive plate [PbO₂] converting it to lead sulphate [PbSO₄] and displaces oxygen [O₂] and hydrogen [H₂] which combine to form water [H₂O].

The sulphuric acid [H₂SO₄] combines with the negative plate [Pb] converting it to lead sulphate [PbSO₄] and displaces hydrogen [H₂] which combines with the oxygen [O₂] liberated from the positive plate to form water [H₂O]. Tiny amounts of hydrogen and oxygen gases are also released.

During charging, the process is reversed. Electrical energy now flows into the battery, the lead sulphate on both plates convert back to lead dioxide and sponge lead. The sulphate ions returns back into the electrolyte making sulphuric acid.

The Main Cause of Battery Failure

If the battery is left discharged for any period of time, the lead sulphate on the plates begins to crystallise. This crystallised [or 'hard'] lead sulphate build-up on the plates cannot be broken down just by re-charging. This in turn reduces the amount of sulphate ions [SO₄] which can return to the electrolyte during re-charging, limiting the amount of charge the battery can store.

The crystalline [or 'hard'] lead sulphate will build up over time [the rate of build-up varies with the way each battery is used, i.e., charged, discharged, stored], gradually reducing its efficiency to the point where it will no longer be able to hold its charge. It is at this point that the battery is replaced.

The World Battery Council has stated that 84% of lead acid batteries are scrapped due to hard sulphation.

What Max Life can do for your battery

Max Life is a non-hazardous, safe to use liquid formulation, developed specifically for use in lead acid batteries.

The formulation is proven and used throughout the world.

Max Life is designed to remove hard sulphation in one or two charge/discharge cycles, allowing the plates to accept more charge and re-strengthens the electrolyte, resulting in the battery returning to full working condition.

Max Life can be added to new or old [but still usable] batteries.

Max Life makes new batteries last longer!

Max Life adds new life to old batteries!

Max Life:-

- Controls battery failure. Providing powerful protection against formation and reformation of degenerating hard sulphation.
- Preserves new batteries. Converting them to long life batteries
- Reduces internal heating and prevents damage from overcharging
- Restores mechanically sound batteries
- Faster starts in freezing conditions

There is nothing that works faster, surer and easier than Max Life – the unique and best selling formula.

Get more life out of your battery.....Use Max Life.....Save money on expensive replacement batteries!



Battery Additive
Treats One Automotive Battery
90ml
Instructions for Use



Safety Measures for Max Life

Handling and Storage:

- Keep container tightly closed.
- Store away from children.

Spills:

- Max Life is not harmful to the environment, wash surfaces with water.

First Aid:

- After contact with eyes: carefully cleanse with plenty of fresh water
- Skin contact: wash with water
- If ingested: give large quantities of water, contact physician if there is any gastrointestinal irritation.

Safety Measures that must be taken when working with lead acid batteries

1. Batteries are dangerous and extremely toxic. They contain sulphuric acid and lead. They may also have explosive mixtures of hydrogen and oxygen. When charging or working on batteries: ensure the area is well ventilated and is not exposed to sparks or flames.
2. Wear suitable protective equipment: Gloves, eye protection and protective clothing must be worn. If skin or eyes are exposed to electrolyte, flush eyes and/or exposed area with plenty of water for 15 minutes and immediately seek medical help.
3. Do not tip the battery over. Keep level and ensure caps are tightened once work on the battery is completed. In case of spills or splashes of electrolyte, neutralize immediately and rinse with water. A solution of baking soda and water may be used as a neutralizer [1tbsp to 1litre water].

Application of Max Life

In preparation to treat the battery with Max Life, it is recommended that it is partially discharged [i.e. leave headlights on for half an hour, or similar]

1. Ensure all safety measures are adhered to.
2. Disconnect battery from load and charging system, or, for treating a battery in a vehicle, whilst connected, ensure ignition and all accessories are switched off.
3. Do not treat batteries that have been stored for six months or more, or batteries that are more than 3 years old [Tas Battery Clinic can test these batteries and may be able to restore them].
4. Unscrew the vent caps. Make note of any cells with low electrolyte levels.
5. Dose the battery with Max Life. 15ml to each cell for 12 Volt batteries [or, 30ml to each cell for 6Volt batteries].
6. Top up any low cells with distilled water so the plates are covered by about 10mm. [Do Not overfill battery].
7. Re-connect battery and re-charge. Place vent caps loosely over holes whilst charging. [Or, for treating a battery in a vehicle, go to next step.]
8. Screw vent caps tight. [If treated battery in vehicle, take a drive with all accessories and lights switched off.]
9. Your battery is now ready for a new and longer life!

Battery Boosted for Max Life!

Getting the Most from your Batteries

Apart from using Max Life in your battery, proper care and maintenance will also contribute to giving you reliable service and a long life. Here are a few guidelines to follow.

Charging

- Charge the battery immediately after use.
- Always keep lead acid batteries in a charged condition.
- Charge at 2.4Volts/cell [total 14.4Volts], followed by a float charge held at 2.25V/cell [most commercially available chargers operate at these parameters].
- Have your vehicles' electrical system tested. Ensure that the battery and alternator are matched. They must be capable of meeting the full electrical load demand, and also capable of generating enough electricity to keep the battery charged.

Discharging

- Batteries live longer with partial rather than full discharges. Use to a maximum of 80% depth of discharge.
- If repeated deep discharges cannot be avoided, use a larger battery to ease the strain.
- Avoid sulphation. Never leave batteries in a discharged state.

Storage

- Always store batteries fully charged in a cool and dry place. Do not store below 2.1 volts per cell [or 12.6V per battery].
- Apply a topping-up charge every 6-8 weeks.

Electrolyte

- Use only distilled [demineralised] water to top-up electrolyte levels. Cover the plates by about 10mm or use the level indicators on the battery.
- Do not overfill.
- Never add sulphuric acid.

Terminals

- Chemical deposits can build up on and in between battery terminals and cable clamps. This will lead to poor connections and impede the flow of current, impacting greatly on the performance of the battery. Therefore, it is necessary to clean any build-up. Use a solution of baking soda and water to wash it away. Use a brass wire or nylon bristle brush to clean hard to remove deposits.

Battery Disposal

- Lead acid batteries contain highly toxic materials. Please ensure the battery is disposed of at a recycling facility.
- Alternatively, earn some cash for your old and/or scrapped batteries. Simply deliver them to Tas Battery Clinic.

Disclaimer: Tas Battery Clinic will not accept responsibility for any damages caused through misuse or abuse of this product, or from any spills or leakage of this product.