

BATCURE

The most trusted solution for rejuvenation of lead acid batteries

WHY DO YOU NEED BATCURE?

Most lead acid batteries pick up sulfation sooner or later which results in loss of cranking power or power storage capacity of a battery. If sulfation is not inhibited or removed well in time batteries will have premature failures. To save batteries from premature failure and to get maximum life and performance you need to use **BATCURE**.

WHEN CAN I USE THE BATCURE SOLUTION?

1. If you are a battery manufacturer, we recommend using **BATCURE** at the time of electrolyte filling. Use 5 ml **BATCURE** solution per liter of electrolyte. Or use **BATCURE** as a negative paste additive.
2. If you are a battery dealer or wholesaler and buying batteries without electrolyte then also you need to add **BATCURE** solution in electrolyte, 5 ml.per litre of electrolyte. This will ensure your batteries are sulfation free.
3. If you are using industrial traction batteries (Forklift batteries) and have installed an automatic watering system, add 5 ml.**BATCURE** solution per litre in distilled water and use this mixture for watering batteries. This will ensure Sulfation free batteries and optimize battery performance.

It is IMPORTANT to check the present health condition of the battery that is being subjected to BATCURE treatment.

Before you carry out **BATCURE** treatment on batteries that have lost power storage capacity or cranking ability, check the below units of the battery:

1. CHECKING BATTERY VOLTS

Note the battery volts first. For automotive 12V batteries the minimum volts should be above 11 Volts, for 6V batteries minimum 5.25Volts and for 2 volts batteries it should be 1.8 volts. These parameters are valid for a battery that has been removed from service within 30 days. If the batteries are removed from service for more than 30 days then the volts may be on the lower side, such batteries be charged for 2 to 3 hours and then disconnected from the charging

machine. Allowed to settle down for 2 to 3 hours and then check battery volts. If the volts are above the minimum requirement as mentioned above, the battery is selected for further treatment.

2. CHECKING THE SPECIFIC GRAVITY

Note the specific gravity in each cell with a hydrometer. You may find different gravity in different cells. However, heavily sulfated cells will show exceptionally low gravity as compared to other cells. Mark the low gravity cells.

3. CHECKING THE MECHANICAL FAULTS

It is the most difficult job to find a mechanical damage of a particular cell or cells. However, on the basis of our experience we have tried to enlist some important steps that can help you to find a mechanically damaged cell.

After you have noted the battery volts and specific gravity in each cell, connect the battery to a charging machine. Apply normal charging current that you use for different capacity batteries, normally it should be 8 to 10% of battery rated capacity. Carry out battery charging for 3 hours. After 3 hours observe the following while the battery is still being charged.

1. Is there a uniform bubbling or gassing reaction in each cell?
2. Is there any one or more cells giving high bubbles as compared to other cells?
3. Is there an exceptional rise in battery electrolyte temperature that is giving high bubbling.
4. Is the current passing in each cell? If there is no bubbling at all in a particular cell or cells then that cell has a permanent mechanical failure.

If all the cells are giving a uniform reaction and normal gassing is observed then the battery has a better chance of fixing with **BATCURE** solution.

If one or more cells are giving exceptionally high bubbles or gassing then it is possible that such cells have heavy shedding of active materials, separator puncture, mechanical short, or sludge formation at the bottom area. Such cells will not give any improvement in the gravity and will remain the same as it was before the battery was put to charge. Such batteries are discarded.

In the case of VRLA AGM batteries there is no free liquid electrolyte in the batteries but electrolyte dries out (poor oxygen recombination) and sulfation is observed. Most VRLA AGM batteries also have stratification. Most VRLA AGM batteries show more than 11.5 volts and due to AGM separators shading of active material is rare, no separator damage found unless batteries are bulged. Bulged VRLA BATTERIES can NOT be rejuvenated with **BATCURE**.

After you have made the above analysis, remove the battery from the charging machine. Let it come to room temperature and then measure the battery volts and gravity in each cell. Compare the volts and gravity reading with that taken before the battery was put to the charging machine for 3 hours.

If you find that there is an improvement in battery volts and gravity in each cell, such batteries are selected for **BATCURE** treatment.

Another simple method of finding the battery sulfation in a standby battery is to find out the power storage capacity left in the battery. Suppose your new battery gives 6 hours of power at a particular discharge current but due to sulfation it has now come down to 1 hour only. That means the battery has lost 5 hours of power storage capacity due to sulfation. Since the battery still has one hour of power storage capacity, it confirms that there is no mechanical damage and the battery can be treated with **BATCURE**.

PROCEDURE OF BATTERY REJUVENATION WITH BATCURE

1. Addition of BATCURE solution

How much BATCURE is required per cell?

- For 2 WHEELERS

BATCURE Solution Quantity	Battery Capacity
2 - 3 ml	2.5 - 7 ah
4 - 5 ml	9 - 12 ah
5 - 6 ml	20 - 26 ah

- **FOR 4 WHEELERS AND ABOVE**

BATCURE Solution Quantity	Battery Capacity
2 - 3 ml	2.5 - 7 ah
4 - 5 ml	9 - 12 ah
5 - 6 ml	20 - 26 ah
6 - 7 ml	32 - 50 ah
7 - 9 ml	65 - 100 ah
12 - 15 ml	120 - 150 ah
16 - 22 ml diluted	160 - 220 ah

- For 2 Volts traction batteries add 1ml. concentrated **BATCURE** solution for every 10ah. For example add 30 ml **BATCURE** for 300 ah 2 Volts cells.
- For wet batteries after addition of **BATCURE** mix it well with electrolyte using a hydrometer. Reddish color will be there in electrolyte. Leave the battery in idle condition for 2 to 3 hours. Carry out battery charging on any good quality battery charger. Charge the batteries till open circuit Volts reach 16 volts or above in case of automotive and standby batteries. As battery charging progresses, electrolytes will become colourless. Discoloration may be slow in heavily sulfated cells.
- *In case of VRLA AGM batteries after adding **BATCURE** as recommended, additional distilled water is added up to plate height. Quantity of water required to top up depends on drying up inside each cell and may vary from cell to cell.*

Fully charged battery is then removed from the charging machine and allowed to rest for 2 hours. When the battery has cooled to room temperature, note the volts and gravity in each cell. You will find that the battery is showing more than nominal volts. All the cells will show at least improvement in specific gravity in each cell.

2. DISCHARGING THE BATTERY

A charged battery is required to be discharged to know capacity improvement. Discharge can be carried using DC bulbs in case of automotive and standby batteries. Follow the discharge procedure as recommended by the battery manufacturer. In case of traction batteries standard battery discharge is recommended.

- Note the discharge back up time. This will be your 1st discharge test result.
- Recharge the discharged batteries after 30 minutes for the second cycle. Follow the procedure same as for 1st cycle.
- After the second full charge battery is ready for load test (cranking) for automotive batteries and discharge test for standby batteries. Note the discharge test results as 2nd cycle test results.
- After the battery has been given 3 to 4 charge/discharge cycles, you will find an increase in back up power in case of standard batteries and cranking power for automotive batteries.

We strongly recommend that once you find during the course of battery operations that the battery has gradually started to lose power storage capacity, you must immediately add **BATCURE** to each cell to longer the life of the batteries.

We also strongly recommend that you must add **BATCURE** in your healthy batteries as well so that you can protect the batteries from sulfation and corrosion. There is no battery in the world without sulfation since it is a part of battery electrochemistry and therefore you must add **BATCURE** in each and every battery.

HOW TO REJUVENATE VRLA AGM BATTERIES WITH BATCURE?

In the case of VRLA batteries, you will find a plastic strip or cover on the top of the battery case.

1. First remove this strip with the help of a screw driver or a knife.
2. Once you remove the strip, you will find that there are 3 or 6 (3 for 6 Volts and 6 for 12 Volts) small vents which are covered with a rubber cap. Remove the rubber caps from all vents.
3. Then add the required quantity of **BATCURE** in each cell.

4. After addition of **BATCURE** add distilled water up to plate height in each cell.
5. After water has been added, shake the battery to and fro for a few times for uniform mixing and then leave the battery for 30 minutes in idle condition during this time **BATCURE** will go to AGM separators.
6. After 30 minutes carry out normal charging of the battery.
7. A fully charged battery is then discharged.
8. Repeat 3 to 4 times charge/discharge cycles to remove the sulfation completely. In case there is any extra liquid electrolyte, suck out with a suitable syringe.
9. Once the battery has come to the required level of capacity, close the vents with rubber caps and reseal the top cover with the suitable adhesive.

We strongly recommend that all new batteries or in-service batteries be treated with **BATCURE** to inhibit sulfation for longer sulfation free battery life. For healthy in service batteries add only half the quantity of **BATCURE** that was used for sulfated batteries.

We have found that many people use higher than recommended amperes or charge the battery for a longer time than required to charge the battery when they find that battery capacity has been going down. We strongly advise not to do so because this practice will further damage the battery.

We have also found that many people use fast chargers to save battery charging time. We strongly advise not to use fast chargers since it will increase the internal temperature and water loss from the battery. Fast charging could also damage the positive plates and gas buildup in VRLA AGM batteries.

We welcome your questions and suggestions to improve the way we use batteries. For more information, please write to,

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