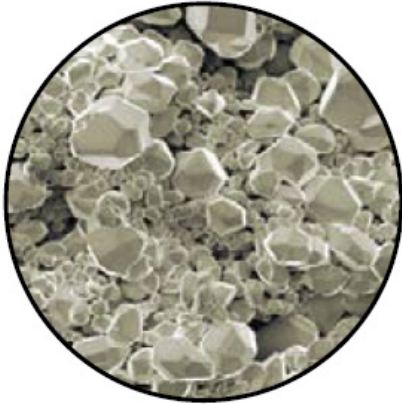


Battery Sulfation



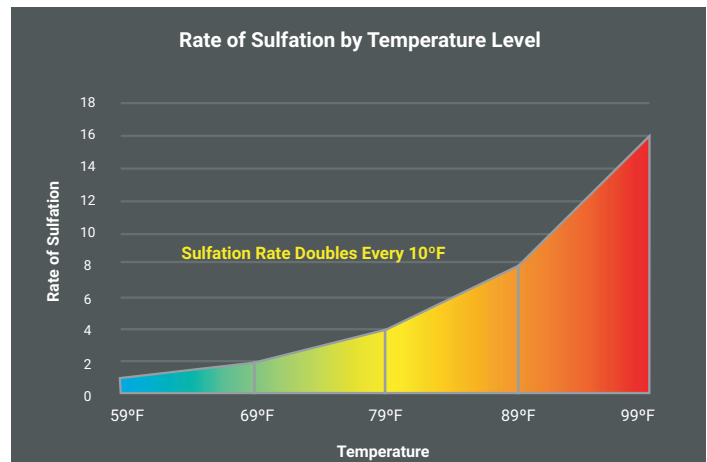
A battery plate covered in heavy sulfation buildup.

Sulfation is the creation of lead sulfates on battery plates. It's a natural and necessary part of a battery's life and occurs whenever the battery is in a state of discharge, i.e. whenever the battery is NOT charging. Over time as the battery discharges, the electrolyte solution inside the battery turns into water and the lead plates become covered with lead sulfate crystals.

If you notice a change in your battery's performance over time it is probably due to sulfation buildup. Sulfation acts as an insulation barrier around the battery plates restricting the energy exchange until it eventually 'kills' the battery if left untreated.

How Temperature Affects Sulfation

The rate of sulfation doubles for every 10° increase in ambient temperature. This means that if the outside temperature goes from 75° to 95°, sulfation can occur 400% faster than normal. Cold conditions can cause the vehicle's fluids to thicken. This means it will take even more power to start the vehicle, so the battery has to discharge even further and the result is a faster buildup of sulfates on the lead plates.



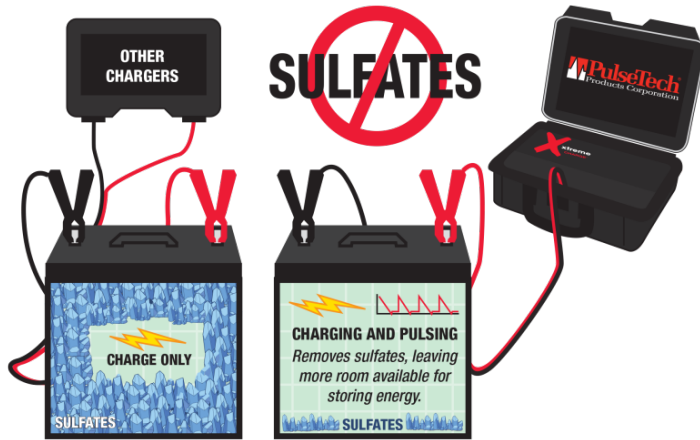
What activities increase or speed up the buildup of sulfation?

1. Extended storage prior to installation
2. Extended periods of vehicle inactivity
3. Short run times that don't allow the alternator to fully re-charge the battery
4. Temperature - Battery's sulfate at 1% a day in an ambient temperature of 77 degrees and faster in higher temperatures
5. An undercharging situation where the battery is maintained at less than maximum voltage
6. Corrosion of the battery terminal
7. Use of vehicle management equipment (GPS, etc.) that creates a parasitic drain that discharges your battery

Pulse Technology

PulseTech's patented Pulse Technology is the cure to the sulfation problem.

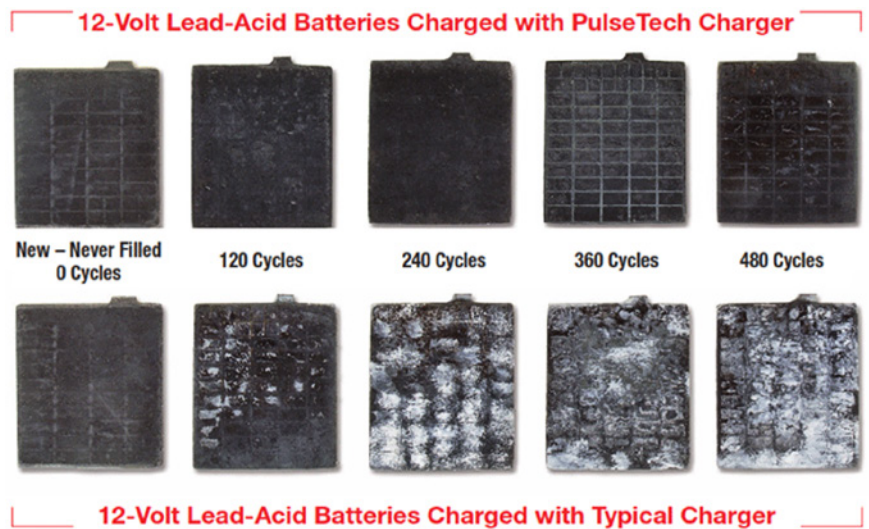
Proof Pulse Technology Works



We're often asked what makes our products better than other trickle or float chargers on the market. It's easy - our patented Pulse Technology! In addition to charging the battery, our patented Pulse Technology removes sulfates from the battery plates and prevents new ones from forming. **No other chargers on the market have this technology.** Our chargers have one circuit for charging PLUS a second separate circuit for our Pulse Technology providing a powerful one-two punch to the battery.

The battery plate photos on the right are from an independent study, conducted by TS products that compared Pulse Technology charging to conventional charging.

The top row of plates, charged with Pulse Technology, remain free from sulfates and ensure battery performance at maximum peak capacity. Note the development of battery-killing sulfates on the conventionally charged lower plates.



The US Air Force Management Equipment and Evaluation Program conducted studies of Pulse Technology and shared their findings:



"This evaluation indicates that many batteries previously condemned could be reclaimed if Pulse Technology were used extensively; assuming there is no internal damage to battery, i.e.: plates, etc." The report goes on to state: "In conclusion, Pulse Technology worked by removing sulfation from the battery plates as the manufacturer claimed. It is unknown exactly how long a battery will last with Pulse Technology connected, but it is estimated at least eight to ten years of life can be added."