

## The Dynapulse 248™ reverses the process of sulfation and dramatically increases useful life and capacity of your batteries.... Guaranteed!

**Lead-acid batteries:** Lead Acid batteries generate electricity through a double sulfate chemical reaction. Lead and lead dioxide, which are the active materials on the battery's plates react with sulfuric acid in an electrolyte solution to form lead sulfate. In a healthy battery, the lead sulfate can be easily converted back to lead, lead oxide and sulfuric acid when the battery is recharged.

**Sulfation** is the natural process that occurs in all lead-acid batteries. The battery loses its ability to fully accept a charge. There are many causes of sulfation, including over discharging, undercharging, and infrequent use. Sulfation clogs grids, impedes recharging and ultimately can expand and crack the plates as it accumulates, which will destroy the battery. Crystallized lead sulfate does not conduct electricity and cannot be converted back into lead and lead oxide under normal charging conditions. When batteries are "cycled" through discharge and charge sequences, the lead sulfate becomes more dense, crystallizing, and then develops a high electrical resistance. Increased resistance results in longer charging times, increased energy consumption, incomplete charging, and higher battery temperatures which causes damage to the internal plates. Higher charging temperatures can require hours and hours of cooling time for batteries. Excessive battery heat accelerates positive grid corrosion. Reduced battery capacity caused by sulfation means shorter operating periods for your electric powered equipment. Sulfation reduces the overall performance and life of your battery.

**The Dynapulse248™** utilizes a Power Products US patent pending method of sulfation removal that shatters the sulfate crystals without harming the battery plates. Using very high current pulses at a specific frequency allows the lead sulfate to be converted back into lead and lead oxide in the electrolyte solution. The Dynapulse248™ carefully controls the average voltage to prevent over gassing the battery. The 8 position selector switch lets you choose the specific voltage for the battery without guessing or needing any manual tuning. The Dynapulse248™ is able to produce high amplitude pulses while maintaining an average current of 25 amps. This technique not only breaks up sulfation in its various stages, but also prevents the process of sulfation from starting in the first place when the system is used from the start as part of your regular maintenance program. The current battery maintenance programs are becoming less effective which ultimately results in an increase in labor costs, and a loss of productivity from your electric powered equipment. The Dynapulse248™ reverses the process of sulfation and prevents it from occurring when the Dynapulse248™ is routinely used to maintain your batteries.

[www.dynapulse-products.com](http://www.dynapulse-products.com)



A DIVISION OF  
POWER PRODUCTS  
US

# The Dynapulse248™

Leading the industry with over 25 years of proven battery recovery systems and technology.



DYNAPULSE™

Power Products Inc. has been designing and developing battery recovery systems for the US Military and the Department of Defense for over 25 years now and today the entire US Military's aircraft carrier fleet is outfitted with our chargers and analyzers. We have also outfitted military bases around the world with special 'battery conditioner' units which have, once and for all, solved the endemic battery sulfation issue that causes most batteries to prematurely fail.

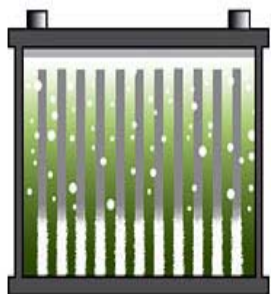
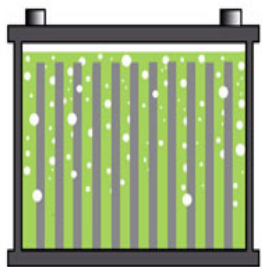
Almost 100 million batteries are recycled each year in North America alone. About 75%-80% of those batteries are prematurely sent through the recycling process due to sulfation related issues. Although recycling is about 90% effective the remaining 10% of inefficiency find its way into our land, air and water. The monetary cost to replace these batteries reaches far into the billions every year. As the average battery life becomes shorter as energy demands continue to increase, some 30% of all these lead-acid batteries actually reach their full intended life cycles.

One of the most common causes of battery failure is acid stratification. This is when the electrolyte in a battery is stratified and concentrates on the top, or bottom, causing the upper, or lower half of the battery cells to have low specific gravity readings. Acid stratification reduces the overall performance of a battery and induces sulfation to occur more rapidly draining the battery of its power. Regular conditioning and maintenance using the Dynapulse248™ will reverse the process of sulfation and

eliminate acid stratification.

This is a healthy battery with equally distributed acid levels at an 80% charge or higher. Regular maintenance with the Dynapulse248™ will keep your batteries healthy, operating at optimum capacities and able to reach their full cycles of life.

Next is a stratified battery that has induced sulfation on the lower sections of the battery plates (Forklift batteries stratify in the opposite manner). Even though open circuit voltage might read within range, it will not pass a load test. The capacity tests will also show a high resistance and low capacity. The CCA readings for auto and deep cycle batteries will also read low. The Dynapulse248™ restores batteries back to service life quickly, easy, and safely!



**Easy ROI!** Restoring and maintaining a single \$7K forklift battery within your lift truck fleet using the Dynapulse248™ will save you the battery replacement cost and pay for the Dynapulse248™ unit itself.

Prolonging the life of those batteries calculates into significant savings.

Companies with multiple facilities, or battery maintenance service providers will generate substantial savings and revenue for their businesses.



Forklift, and Battery Repair Companies can add a valuable battery desulfation and conditioning service to new and existing clients who are not yet ready to purchase new batteries or their own Dynapulse248™. This type of service will make your client's current power source last the 1500-2200 cycles they were designed to reach without costly repairs and vehicle down time. Providing desulfation services for your clients will put money in your pocket and keep you connected to your most valued client relationships.

The Dynapulse248™ is a portable self contained battery recovery unit that safely and effectively desulfates, charges, and conditions all types and voltages of lead acid batteries.



The US patent pending Dynapulse248™ technology has been military tested, accepted, and proven to safely recover even stage three sulfated lead acid batteries.

**DYNAPULSE™**

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**Free Demos!**  
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