Battery Services International

Battery Specialists

About Us

Battery Services International LLC it is our new name. We registered it in Florida in 2005 with the purpose of sharing with others our battery improvement technology for the recovery of all types of lead acid batteries, including those with gelatinized electrolyte, AGM, VRLA, and vented batteries. Prior to 2005 we had the name of *Mr. Battery*, whose purpose was battery recycling. It was during our battery recycling operation that we came up with the idea of creating a revenue stream by engaging in the recovery of the lost capacity of scrap batteries.

In 1999 we initiated experiments to improve and recover the lost potential of types scrap batteries. By 2003 we attained success with the recovery of the lost potential of any type of lead acid battery in any state of charge or state or health. During the year 2007 we expanded by selling our battery recovery technology. Here in the United States we have associates in Texas, Georgia, Colorado, Minnesota, North Carolina, and West Virginia. In foreign countries we have associates in Saudi Arabia, Trinidad and Tobago, Dominican Republic and Mexico.

Saudi Arabia Associate

Our technology works efficiently when applied to lead acid batteries of all sorts used in different environments, even those varied by climate and economic background.

Our Innovation

In order to appreciate the reach of our battery recovery technology one should get acquainted with the inherent problem of all lead acid batteries. Battery experts point out that the lead acid battery exhausts its useful life due to a constellation of problems. Hardening of the lead sulfates and mechanical problems tend to have the highest occurrences. Other problems are dehydration, decompression, manufacturing defects, lack of maintenance, paste shedding, improper charging, and vibrations.

Mechanical failure in lead acid batteries causes fractures of the electrical conductivity pathway in the battery. Grid plate degradation, broken connectors between cells and plates, terminal post deformation, shedding of the pastes (Pb & PbO_2), burnt cells, and others are considered mechanical failures. However, high mortality of lead acid battery is acknowledged as an occurrence of hardening of the soft lead sulfates ($PbSO_4$). This hardening or passivation of the lead sulfate is estimated to be the cause for mortality of 7 to 8 batteries out of every 10. Mechanical failure is attributed as the cause for every 2-3 batteries out of every 10. These statistics come from Battery Council International, the organization that represents battery manufacturers in United States.

Soft Lead Sulfate (PbSO4)

Hard lead Sulfate (PbSO4)

Our years of experience in the field of lead acid battery recycling and restoration suggest that the statistics mentioned above are real. However, in order to be able to recover the lost potential of 7-8 lead acid batteries out of 10 that fail, one needs access to a battery recovery technology that is reliable, efficient and effective. At the beginning we tried existing technologies for battery recovery such as Battery Doctors, Duo Regen, BattRecon, Pulse Technologies, China Depot, and others. We also tried other battery companies outside United States such as BatCure,

Battery Gurus, Pholon Technologies, and others. The outcome of all the trials we conducted with existing technologies in the market gave us unsatisfactory results. Something that kept occurring with every trial was that we were not able to recover the lost potential of every depolarized battery that was mechanically intact in zero voltage and zero amperage. Due to the lack of success with existing solutions we decided to develop our own battery recovery technology.

Our battery recovery technology is named "*Genesis Battery Recovery Process*". This process follows scientific understanding of the electrochemical functioning of a lead acid battery. It is also based on our theory of what causes passivation of the electrochemical potentials in a battery. At the core of it is our understanding that in order to dismantle hard lead sulfates ($PbSO_4$) one has to create an *electron fracturing process* that recovers the potential of the battery at the molecular level where the lead sulfates form. The *Genesis Battery Recovery Process* is our methodology based on four steps. In order to use it we had to develop technology in two dimensions: electronically and chemically. Electronically we developed the XCharger and the Genesis; chemically we also developed our battery desulfating compound, PowerPlus Automotive and PowerPlus Industrial.

Genesis Battery Recovery Process

This methodology was designed to follow strict scientific principles of electrochemistry of lead acid batteries. The overall purpose of the methodology is to recover the lost potential of any lead acid battery in any state of health, any state of charge, of any age, any make or brand, any application, any size, and in any work environment even if the battery is considered to be scrap or spent. The main characteristic required for success is that the batteries be mechanically intact inside. This Genesis method includes the following four steps:

1. Screening— identification of battery integrity or if it is in mechanical failure
2. Recovery— to regain the electrolytic potential of the battery
3. Charge— recovers full state of charge of the battery
4. Branding— quality control where full capacity is tested

The Genesis procedure requires the use of the XCharger or the Genesis and our battery desulfating additive PowerPlus. The XCharger is for batteries of 6, 8 and 12 volts. The Genesis is for industrial batteries used on forklifts and electric pallet jacks of any voltage and amperage. Please refer to our document "*BSI Technology*" to learn more about this.

It is not necessary to break apart a battery to use the Genesis Process. Its main feature is that the process can be used for maintenance, prevention, trouble shouting, and recovery of the lost potential of batteries considered scrap or out of service. The table below describes this in relation to labor and our equipment service time with batteries considered "scrap" or "spent":

GENESIS PROCESS FOR EVERY 16 CRANKING BATTERIES		
Genesis Procedure	**Time**	**Type of Intervention**
Screening	½ Hour	Labor
Reactivation	1 Hour	Labor
Charge	20 Hours	XCharger
Branding	1 Hour	Labor
GENESIS PROCESS FOR EVERY 30 DEEP CYCLE BATTERIES		
Genesis Procedure	**Time**	**Type of Intervention**
Screening	1 Hour	Labor
Reactivation	1 Hour	Labor
Charge	24 Hours	XCharger
Branding	1 Hour	Labor

GENESIS PROCESS ON INDUSTRIAL FORKLIFT BATTERIES OF ANY VOLTAGE AND STORAGE CAPACITY		
Genesis Procedure	**Time**	**Type of Intervention**
Screening	1 Hour	Labor
Reactivation	1 Hour	Labor
Charge	24 Hours	XCharger
Branding	1 Hour	Labor

PowerPlus Battery Desulfating Additive

We are the proprietary owners and developers of the compound PowerPlus Automotive and PowerPlus Industrial. This additive was designed to permanently combat the hardening of soft lead sulfates ($PbSO_4$). It is a biodegradable compound classified as non-hazardous and non-regulated that will not harm human health or the environment. It will not evaporate from inside the battery which stays in the battery until it is discarded due to mechanical failure. The shelf life of PowerPlus is 5 years. Below please find a listing of PowerPlus benefits:

- Disallows hardening of lead sulfates on both plates
- Reconverts hard lead sulfates to original state of softness
- Reduces duration of charging time
- Increases discharging efficiency
- Reduces auto discharge phenomena
- Reduces risk of thermal runaway events
- Reduces water loss due to overheating
- Improves recombination of gases
- Optimizes energy storage and retention in all batteries

The following tables allow you to appreciate how many batteries you can service with the PowerPlus Battery Enhancer:

PowerPlus Automotive (5 Gallons or 640 oz (19 liters)

Number of Batteries	Type of Batteries
210	12 volts cranking (autos/trucks/motorbikes)
142	6 volts deep cycle (gulf carts, solar, etc)
107	8 volts deep cycle (gulf carts, solar, etc)
71	12 volts deep cycle (gulf carts, solar, etc)

Dosage of 3 ounces per car battery; and 1.5 oz per cell of deep cycle battery.

PowerPlus Automotive (5 Gallons or 640 oz (19 liters)

Number of Batteries	Type of Froklift Batteries
1.1	48 volts (24 cells of 2 volts each)
1.42	36 volts(18 cells of 2 volts each)
2.13	24 volts (12 cells of 2 volts each)

Dosage is 5 ounces per cell of forklift battery.

Our Electronic Battery Conditioners

Our battery special charging conditioners are also propietary to our company. We developed them and we manufacture them. Designed to match our battery recovery process Genesis, the chargers are multi-batteries and multi-voltage because they can service more than one battery at the same time on different voltages (state of charge). They can also simultaneously serve different electrolyte potentials (specific gravity), different applications (cranking or deep cycle), and different makes (Gel, AGM, VRLA, Vented). We use microproccesor technology, making the equipment easy to use, automated and autoregulated for the recovery process or charge.

Let's look at the capabilities of each equipment:

XCHARGER

Amount Batteries	Type of Batteries	Sample Applications
10	24 volt cranking	Military vehicle use
16	12 volt cranking	Cars, trucks, motorcycles, Military
16	12 volt deep cycle	Golf carts, Marine, Solar, Military
24	8 volt deep cycle	Golf carts, Marine, Solar, Military
30	6 volt deep cycle	Golf carts, Solar, Military

GENESIS

Genesis-I can recover the lost power of forklift batteries:

- any 24 volts of any amperage
- any 36 volts of any amperage
- any 48 volts of any amperage

Genesis Max can recover the lost power of forklift batteries of any voltage from 2 to 120 volts and of any storage amperage.

For more information about our company and technology please feel free to contact us at:

USA Sales Unit
Barry Alexander
Tel: (800) 884-0690 Ext. 104
Cell: (703) 624-5668

International Sales Unit
Juan A. Rosado
USA Calls: (800) 884-0690 Ext. 102
INT Calls: (786) 317-7857

Technical Support Unit
Alexander Esparza
Tel: (800) 884-0690 Ext. 103
Cell: (915) 256-5649

Emails:

info@bsiopportunity.com

info@batteryrejuvenation.com

1642 SW 12 Street
Miami, FL 33135
www.bsiopportunity.com