

Battery Recycling

What is the Most Recycled Product in the U.S.?

According to the Scientific American: *“The most recycled product is not aluminum cans--only half are recycled. Or even office paper, at more than 70 percent. It's the lead acid batteries from your car. More than 99 percent of such batteries wind up recycled.”*

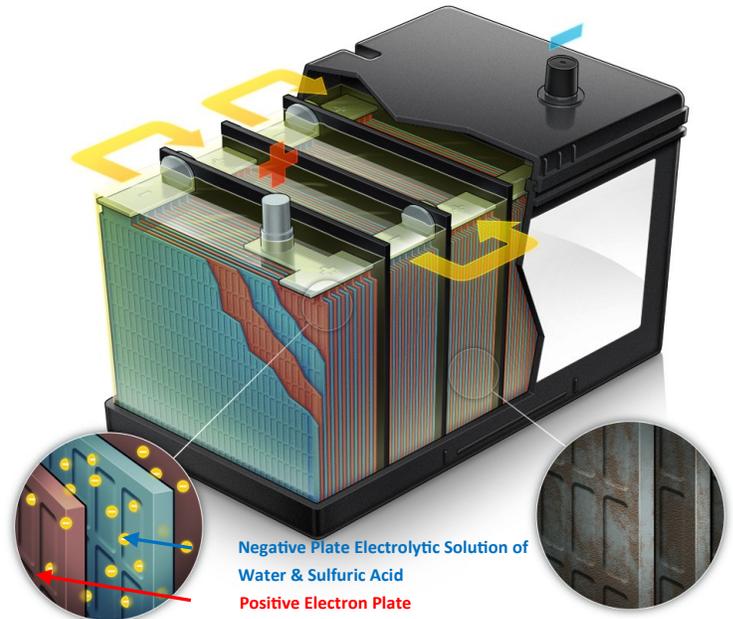
The US Environmental protection Agency states: *“Almost any retailer that sells lead-acid batteries collects used batteries for recycling, as required by most state laws.”* Reclaimers crush batteries into nickel-sized pieces and separate the plastic components. They send the plastic to a reprocessor for manufacture into new plastic products and deliver purified lead to battery manufacturers and other industries. A typical lead-acid battery contains 60 to 80 percent recycled lead and plastic.

What's the only component of the Battery not recycled?

“ACID?” The question is “WHY?” when technology exists to also recycle this component of the battery.



Automobile batteries contain sulfuric acid, which is commonly referred to as "battery acid". Sulfuric acid is highly corrosive, will burn skin and eyes if contact is made and is poisonous if swallowed.



When a battery is cracked, or crushed, during the recycle process, the sulfuric acid is collected. This acid contains several toxic heavy metals such as copper, zinc and lead.

According to AAA, the battery recycling industry has several options in dealing with the acid removed from batteries. *“It can be neutralized and tested before being released to the environment; or it can be converted to sodium sulfate, a product used in fertilizer, dyes and other products, or reused in new batteries.”*

The standard for most of the industries that recycle and/or produce batteries are to simply neutralize the sulfuric acid, and allow the heavy metals to fall out of solution as a solid. The majority of solids are removed from the solution and pressed into a soft cake like mass, which in turn is sent out to landfills for disposal. The remaining liquid is allowed to flow to the local towns waste treatment plant or streams and rivers, depending on which one is the permitted discharge point of the facility handling the waste sulfuric acid.

Recycling of batteries almost 100% complete:

This magnitude of waste acid does not need to be generated seeing there is technology today to remove the contaminants in the acid and reuse the sulfuric acid in the batteries.

Mech-Chem Associates, Inc. has worked with several recyclers and manufacturers over the last few years. Each using a lab unit to experiment on removal of contaminants in the acid as well as acid strength returned after passing through the dialysis process.

Based on the correspondences we had with these companies, after they had generated enough acid to Beta test batteries, it was noticed by both the sales team, management and engineers that there seemed to be no degradation in the performance or life of the batteries manufactured with the reclaimed acid versus there standard manufacturing practices using new Sulfuric Acid.

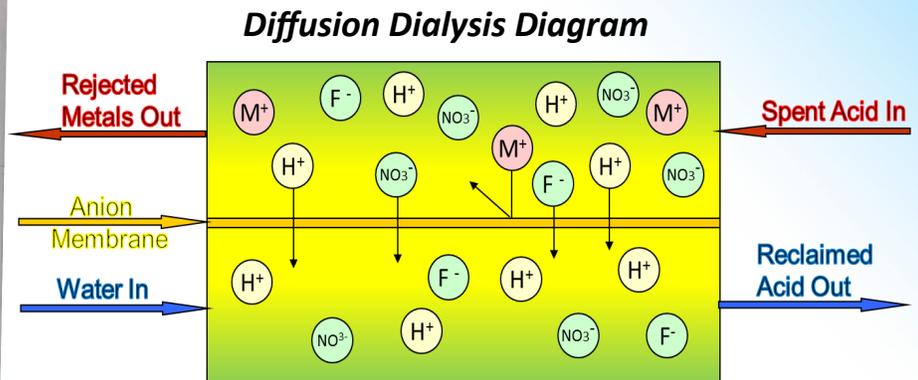
Battery Manufacturers stand to save significant money on not having to purchase new sulfuric acid and avoid treating and disposing of all the liquid waste. This would also benefit the environment.

The only item which seemed to stand in the way of implementing this technology is the potential concern by the battery manufacturers that the quality of the acid in the batteries would be effected. This however has not happened as the test batteries produced with recycled acid have demonstrated and proven to have the same quality.

Questions to ask yourself:

- ◆ How many batteries are recycled each year?
- ◆ How much acid is contained in those batteries?

I guess the “change of ways” sometimes comes slower than the “change and advancement of technology”.



The chart above shows how the membrane separates the molecules as part of the acid recovery process.

Acid Recovery Unit with a Diffusion Dialysis Membrane.



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