



Leading the charge for recycling.™

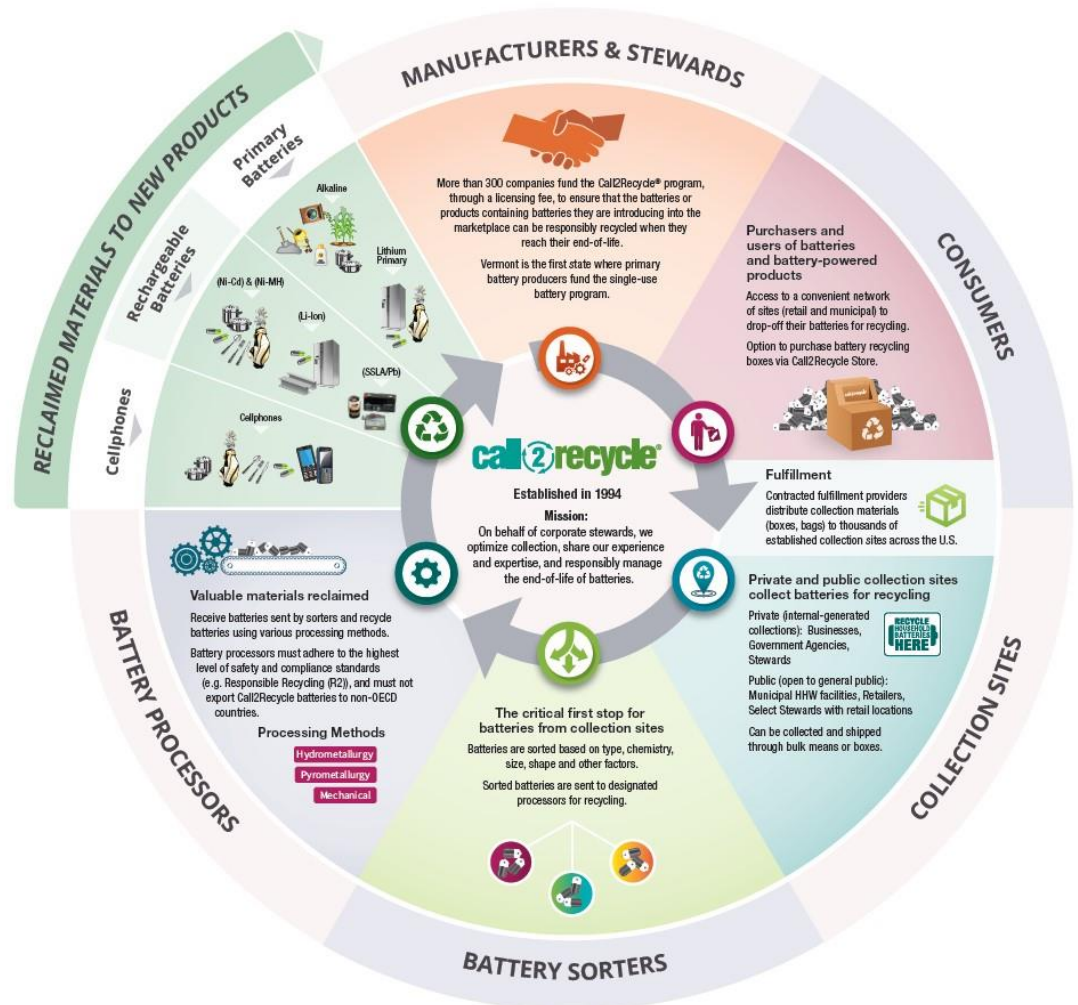


BATTERY RECYCLING 101

MCMUA MRC MEETING

October 31, 2023
Todd Ellis

About Call2Recycle



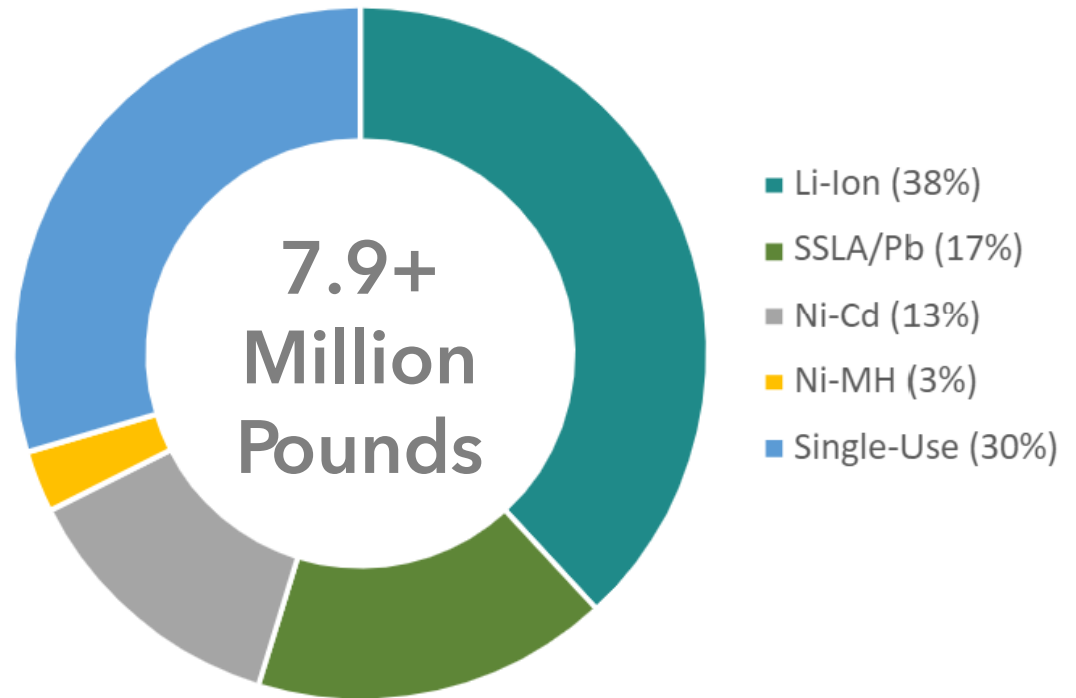


Current State of Battery Recycling

A look back - 2022 U.S. Battery Collections & Accessibility



84% of the U.S. population lives within 10-miles of an available Call2Recycle collection site



150+ million pounds
collected and recycled since inception



How Batteries are Collected & Recycled



- Call2Recycle partners with existing sites to collect used batteries.
- Call2Recycle has approximately 15,000 partner sites collecting used batteries for recycling.
- Call2Recycle's collection partners are spread throughout the U.S. and include –
 - Public Agencies
 - Retailers
 - Businesses
 - Municipalities



How Batteries are Collected & Recycled (Continued)



- Once collected at a partner site, batteries are first shipped to a “sorting” location.
- Call2Recycle has four “sorting” location partner sites.
- Once at the sorter, each box/shipment is weighed and recorded. The batteries are then consolidated and shipped in trailer loads to a Call2Recycle, vetted downstream recycler.



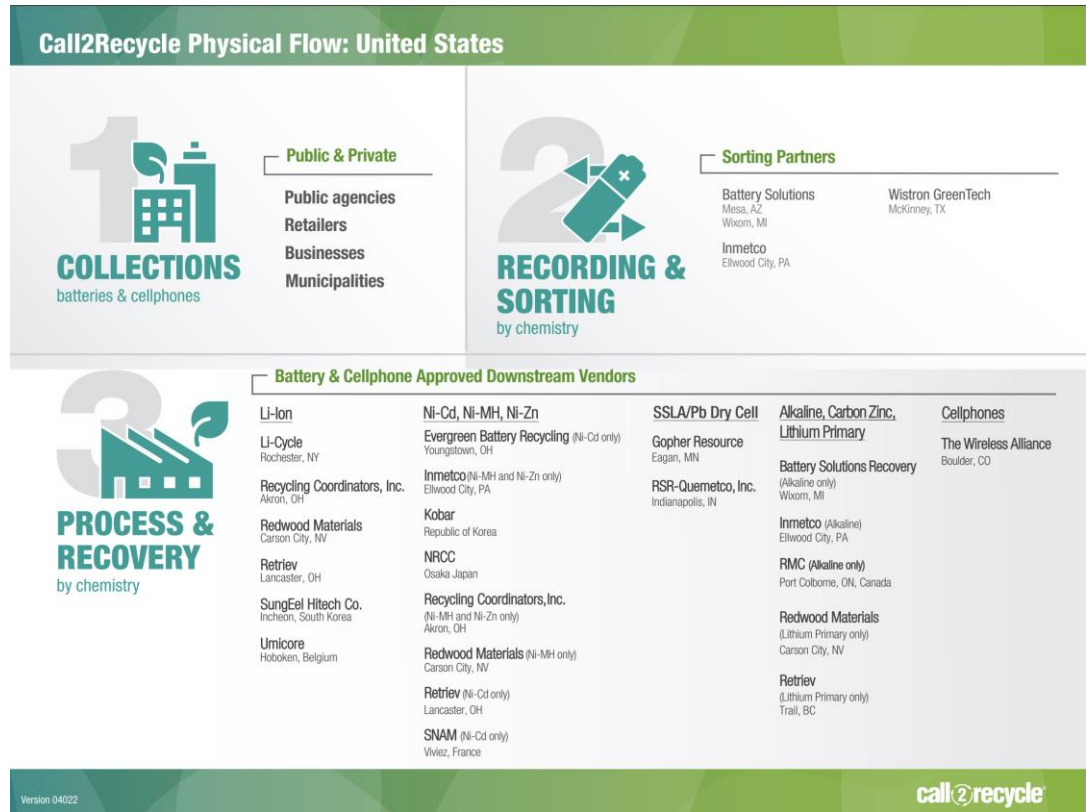
How Batteries are Collected & Recycled (Continued)



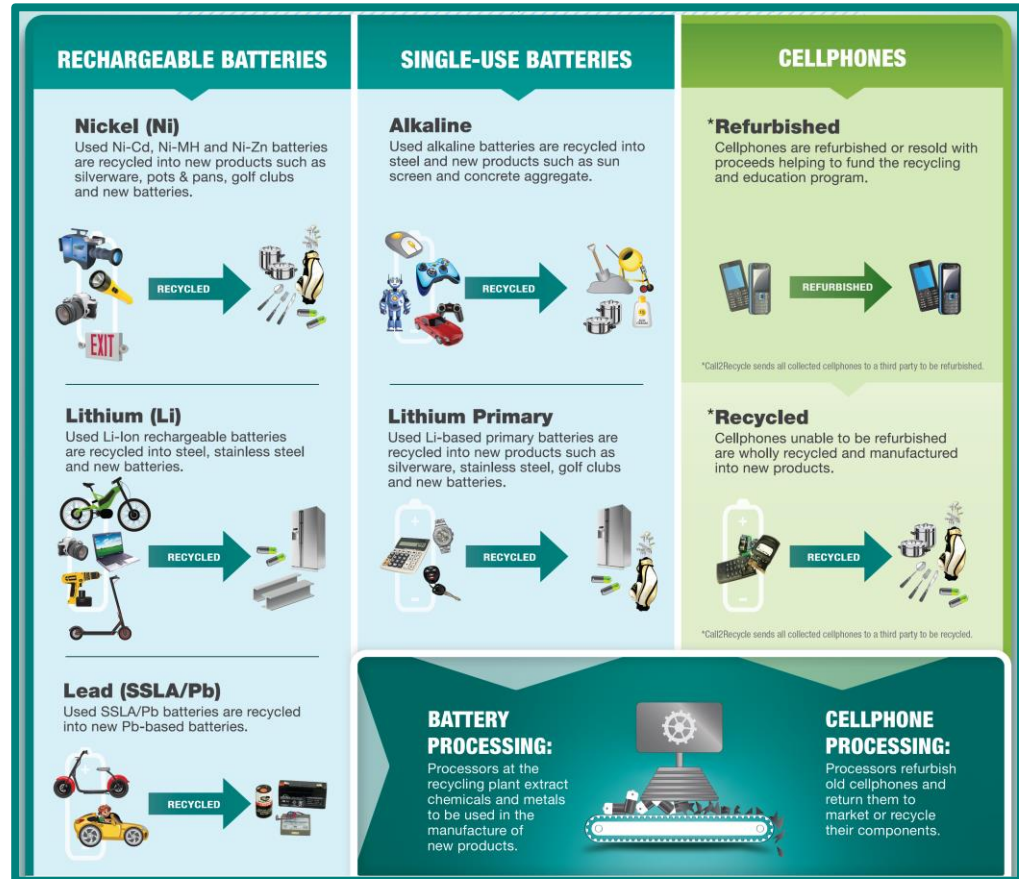
- Call2Recycle uses a network of more than a dozen material processes to recycle the collected batteries.
- These processes are vetted by Call2Recycle through internal and external audits and must be approved by Call2Recycle's Board of Directors.
- Batteries collected through the Call2Recycle program are not reused.
- Most battery packs/cells are recycled as is, but some may require dismantling prior to being recycled.



How Batteries are Collected & Shipped for Recycling



What Happens to the Batteries?



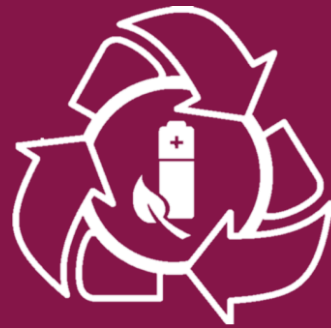
**But its NOT
without
Challenges!**

➔ Safety

➔ Education

➔ Things to KNOW





Safety

Safety



Battery Safety – Why Now?

- As more mobile products using batteries (e.g. toys, tools, electronics) are sold, batteries are **flooding the market**.
- Battery chemistries can be **hard to identify** making it difficult to know which are hazardous and require special handling.
- As the **power** of batteries increases and sizes shrink (energy density), damaged or defective batteries release more energy.
- Sales of **counterfeit batteries**, which are more likely to cause safety incidents, are increasing.
- The **design of products**, affixing a more powerful battery into a smaller product, creates a premium on design and, in some cases, increases risks.





Education

Batteries Can and Should be Recycled



Signage, Newsletters, Mailers, etc.

Batteries Require Special Handling (i.e. terminal protection)



Safety materials – training, videos, etc.

Should NEVER be Thrown in the Trash or Curbside Bin



**AVOID
THE SPARK™**
Be battery safety smart.

<https://www.call2recycle.org/avoid-the-spark/>





Battery Identification Guide for Common Household Batteries

Avoiding the spark keeps people and property safe. It's also good for the planet as trashed batteries can increase the risk for fires, leak potentially hazardous materials into the waste stream and increase the need to mine for virgin materials. Be battery safety smart by individually bagging or taping all used batteries before dropping at a convenient Call2Recycle® drop-off site.

Ni-MH

Nickel-Metal Hydride
Performs well in high drain devices and can be recharged up to 1,000 times.

Products that may use or contain Nickel-Metal Hydride batteries:



Type: Rechargeable
Name on battery: Ni-MH
Seal color: Orange

Ni-Cd

Nickel Cadmium
Can be recharged up to 1,000 times and contains Cadmium, which can be toxic to the environment and should be recycled.

Products that may use or contain Nickel Cadmium batteries:



Type: Rechargeable
Name on battery: Ni-Cd
Seal color: Green

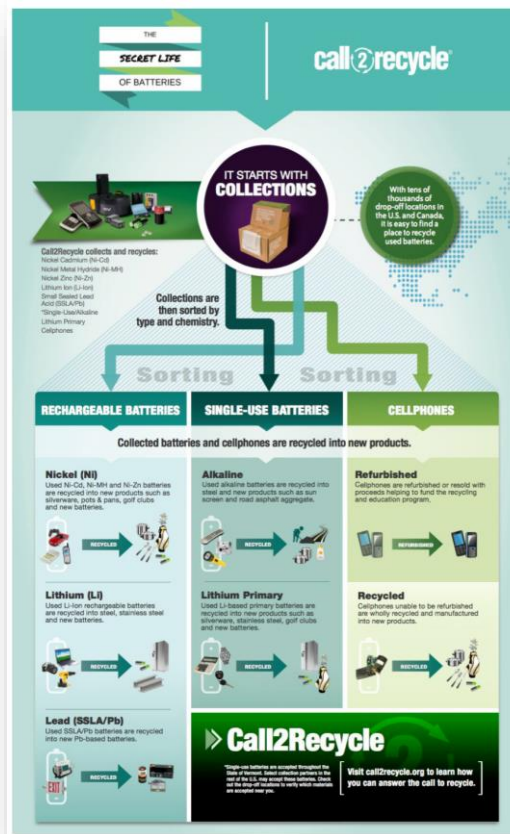
SSLA/Pb

Small Sealed Lead Acid
Simple to manufacture and have one of the lowest discharge rates of any rechargeable battery.

Products that may use or contain Small Sealed Lead Acid batteries:



Type: Rechargeable
Name on battery: SSLA/Pb
Seal color: Gray



Recycle Your Batteries HERE

Make a difference by recycling your used batteries today.

ITEMS ACCEPTED FOR RECYCLING:
Nothing over 4.8 single-use batteries weighing 1.1 lbs. or less each. No Ni-Cd, damaged or defective batteries accepted.

- Alkaline
- Lithium Primary
- Nickel Cadmium
- Small Sealed Lead Acid
- Nickel Metal Hydride
- Nickel Zinc
- Cellphones of any make, model or age

For more information
visit call2recycle.org or call 877.723.1227



Things to KNOW

Proper Handling of Batteries



- **Residual Charge.** Many batteries hold a residual charge even when they appear dead.
- **Battery Terminals MUST be Protected.** You must prepare batteries for shipment according to U.S. DOT & Program guidelines.
- **Bagging Individual Batteries.** The quickest and easiest way to protect battery terminals – ONE battery per bag.
- **Taping Battery Terminals.** Use tape (i.e., clear packaging tape) to cover the positive terminal (the one with the bump) or charging terminals.



Electrification Transformation

Call2Recycle's goal with the massive battery growth – across ALL sectors - is to make the safe disposal and responsible management as seamless as we have for consumer batteries for the past 28 years.



- Call2Recycle administers the first, voluntary industrywide e-bike battery recycling program in the U.S. - the first transportation sector united under one battery recycling solution.
- Supported by more than 50 e-bike brands with more than 1,900+ collection sites trained and actively accepting e-bike batteries for recycling.




- Facilitating pilots with OEMs to design programs to safely and compliantly get batteries to processors.
- Call2Recycle's battery logistics management software platform, GreenTraxEV, allows users to safely and compliantly get batteries from multiple end points to processors or re-purposers.



Damaged, Defective, Recalled Batteries



- Do **NOT** place damaged Lithium Ion or Lithium primary batteries in normal collection bins. Immediately place in absorbent, non-flammable material (sand or cat litter) in a cool, dry area.
- CANNOT be shipped in traditional Call2Recycle boxes – must be shipped as a hazardous material. 

The Path Forward



Batteries are key to the electrification of the economy ...

- Batteries will ONLY increase in volume, size and power.
- BE PREPARED – Have a plan to deal with batteries NOW.
- Have a proper incident response protocol ... one that doesn't stop with mitigating the issue.
- TRAIN, TRAIN, TRAIN your employees!







Leading the charge for recycling.™

thank you!

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