

LITHIUM-ION BATTERY RECYCLING PRIZE



U.S. DEPARTMENT OF ENERGY

Team Name:	Store Packs Umicore
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Submission Title:	Development of Four US Collection and Storage Sites for Lithium Ion Automotive Battery Packs
Submission Track:	Track 3: Safe of Inert Storage and Transportation

A Public Document



Concept

- Umicore, Phoenix Group Metals, dba Phoenix Automotive Cores (PAC), and Spiers New Technologies (SNT) partner to create a new material flow of end of life battery packs, modules, and cells.
- Currently, Umicore has the only industrial recycling process that allows for battery packs to be dismantled and tested for a second or alternative use prior to the recovery of the material value.
- This solution provides a reduced exposure to the potential environmental or safety hazards caused by large Li-ion battery packs while maintaining the integrity of the battery pack that can be reused in another functional application (i.e. automotive, grid storage, etc.).
- Obtain complete understanding of the federal, state, and municipal regulations required to transport and store lithium ion battery packs.

Approach

- Umicore will partner with Phoenix Group Metals, and Spiers New Technologies.
- PAC will become compliant with all EPA, NFPA, DOT and the IMDG Codes in order to properly handle, store, package, and transport lithium ion battery packs.
- PAC will set up collection sites for large lithium ion battery packs in the cities of Phoenix, Houston, and Atlanta which can serve the entire country.
- SNT will also be able to collect battery packs in their Oklahoma City location and then evaluate the second life value of the li-ion battery packs collected by PAC sites. They will determine which packs can be reused and those which will be recycled for their mineral value.
- Umicore will be shipped the end of life batteries for critical metal recovery.

Potential Impact

- Umicore, PAC, & SNT expect the volume of large end of life battery packs to grow and will soon flood the 12,000 - 15,000 automotive scrapyards nationwide.
- Automotive scrapyards are not properly equipped to safely store or transport these battery packs leading to a potential safety hazard. The scrapyards are already contacting the battery industry asking for guidance.
- PAC would be a safe place to store end of life li-ion battery packs before they have a second life or are recycled for critical metal recovery.
- Storage and dismantling sites around the country would create a positive economic impact in those cities.
- If there is sufficient supply of end of life batteries, Umicore would explore building a large (~75,000 mt yearly) recycling facility in the United States.