Technology Overview: Composite Recycling Ltd.'s RecEOL Recycling Reactor

A multipurpose recycling unit that is capable of processing a wide range of composite materials.

RecEOL build a multipurpose reactor for composite waste recycling. With this reactor the project finds new, efficient ways to recycle lithium-ion batteries, carbon and glass fibre and automobile shredder residue.

Lithium-ion batteries are difficult to recycle as they contain the valuable materials such as copper, aluminium and lithium mixed with hazardous materials all contained in either a steel container or an aluminium-laminated pouch. Whole, still charged batteries, can be treated with this technology.

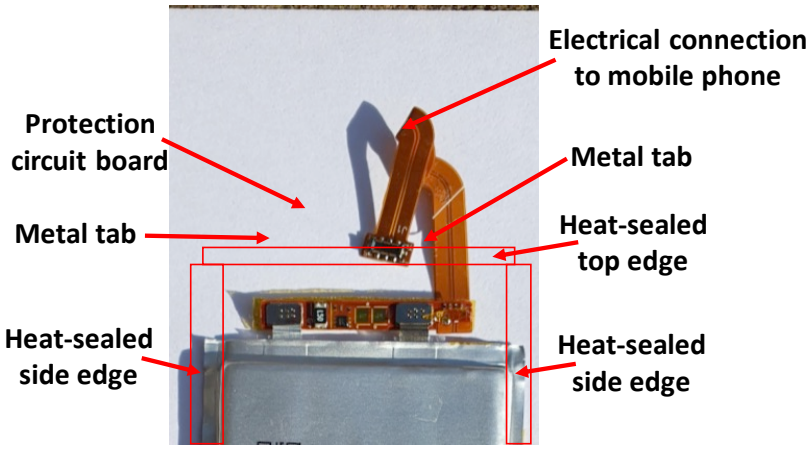

Figure 1 - *The back of the battery with the protection circuit board, the anode and cathode metal tabs, and the heat-sealed edges exposed.*

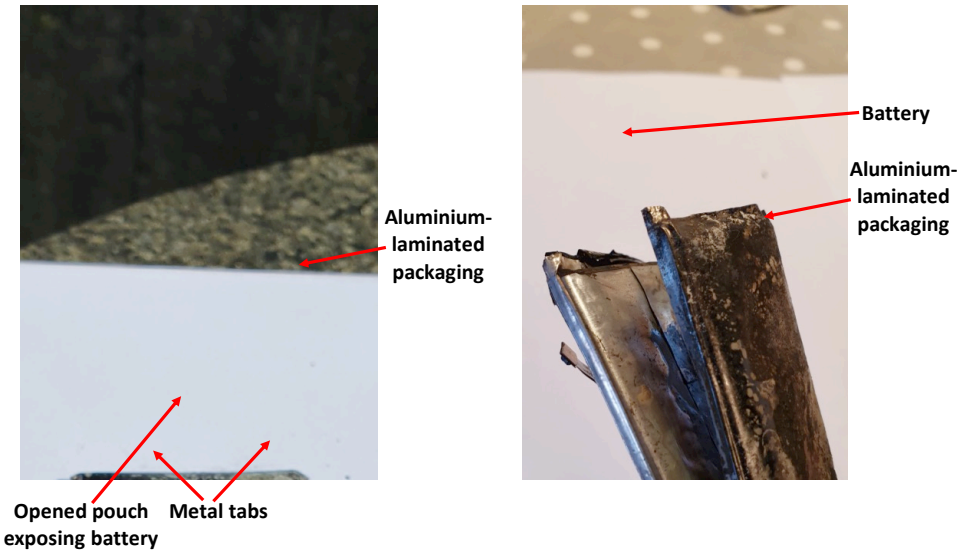

Figure 2 - *Lithium-ion pouch battery after recovery from the reactor making the various metallic materials available for recycling.* ***Left****: Battery as removed.* ***Right****: battery from the side with the aluminium housing slightly opened, showing the internals of the battery.*

Using the same RecEOL recycling technology, glass and carbon fibre and automobile shredder residue can be recycled.

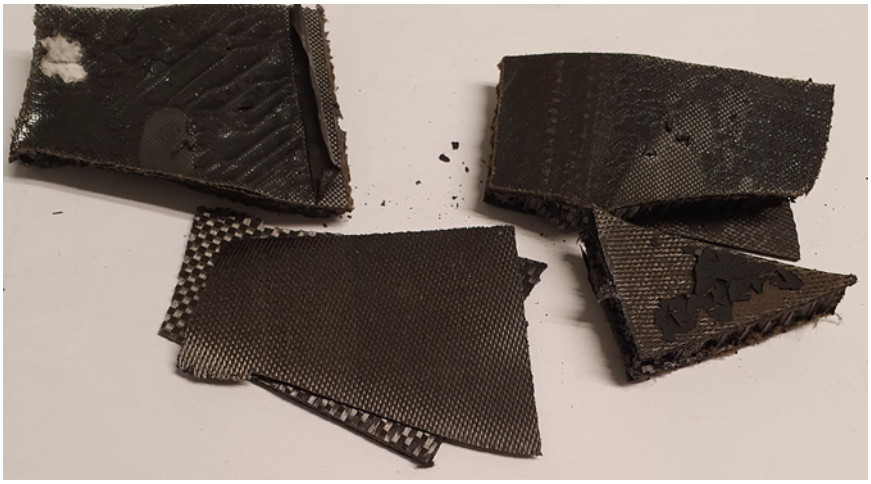

Figure 3 - *Carbon fibre aircraft parts after recovery from the reactor showing that the resin has been removed and that clean carbon fibre mats are recovered for recycle.*

Figure 4 - *Automobile shredder residue before treatment by the RecEOL reactor. The RecEOL technology removes any plastics and other volatile materials such as residual oil turning the material from a hazardous waste to a benign waste.*

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