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Hydrometallurgical processing of Li-Ion battery scrap from electric vehicles

Poster · June 2011

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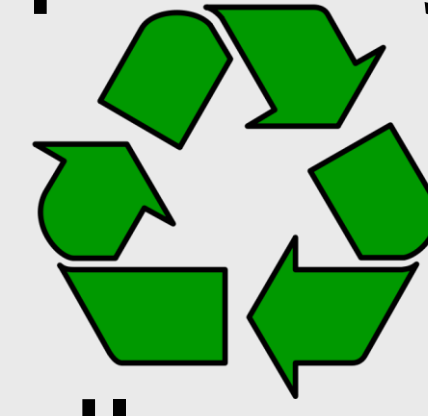


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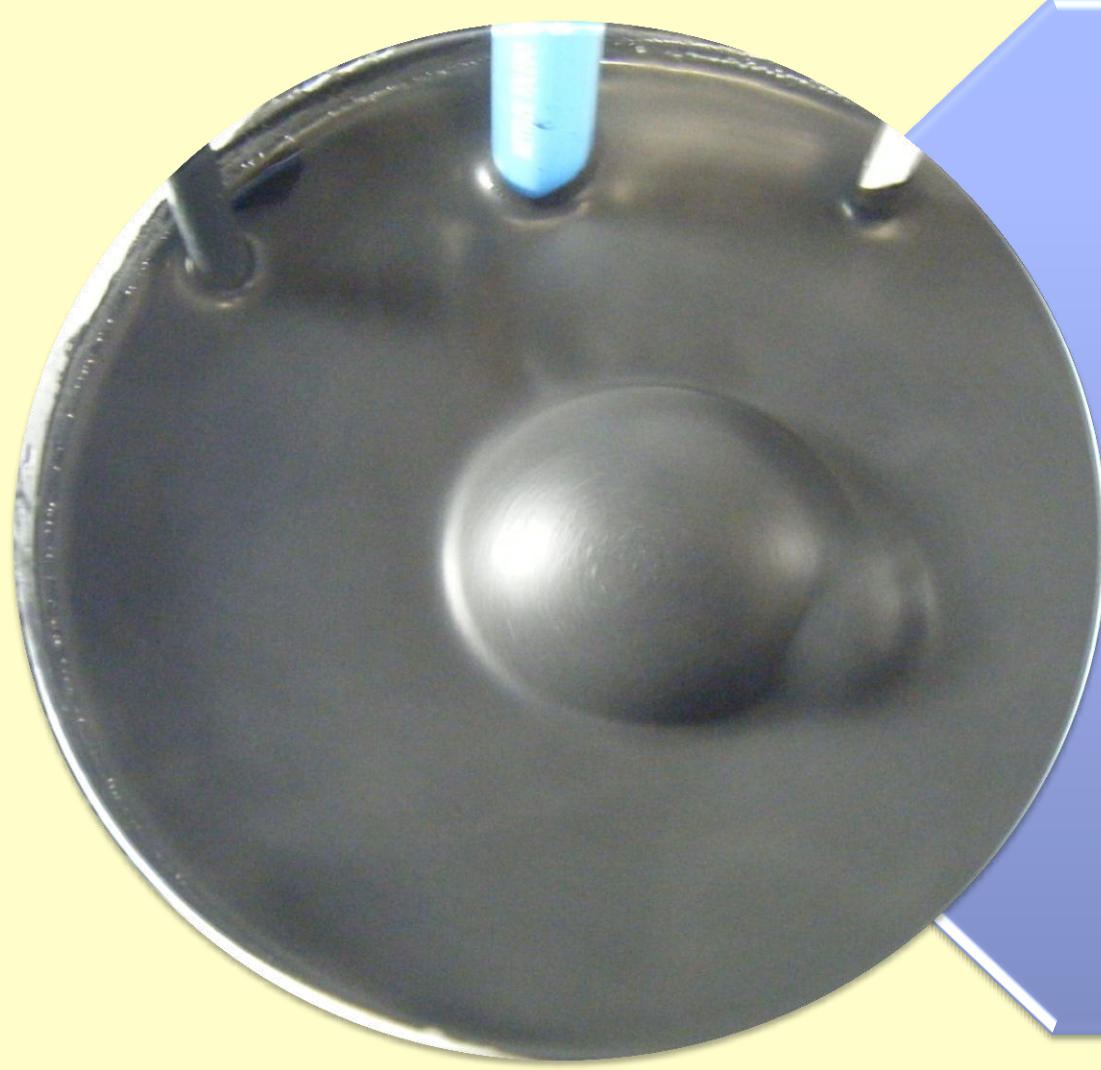
Motivation and Target:

- Treatment of spent batteries of electric vehicles appropriately
- Development of the recycling process economically
- Recovery of all valuable materials environmental friendly



Thermo-Mechanical Treatment

- Disassembling (steel casing, electric scrap, plastic)
- Deactivation and electrolyte decomposition
- Shredding and separation



Leaching Process

- The recovery rate of all metals are higher than 95%
- The leaching efficiency (Productivity, acid consumption)



Solution Purification

- Different valuable metals are tried to recovery separately
- The loss of valuable must be minimized
- The purity of products (marketable)



Li₂CO₃ Crystallization

- The recovery rate of lithium is higher than 50% (at moment)
- The raffinate utilization and waste water treatment

Valuable products



Cu, Al Scrap



Electrode powder

C

Cu

Ni

Co

Al

Mn

Li

Challenge of Recycling of Li-Ion HEV Batteries:

- Adjustment of existing recycling processes to future electrode materials
- Backflow of spent batteries will increase drastically, i.e. current recycling capacities have to be increased