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(54) Title: PROCESSES AND SYSTEMS FOR PURIFYING AND RECYCLING LITHIUM-ION BATTERY WASTE STREAMS

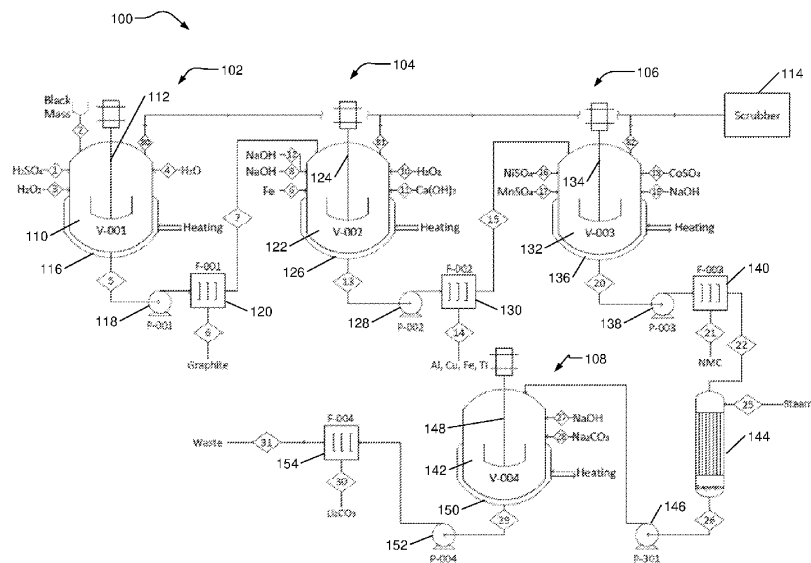


FIG. 1

(57) Abstract: Processes and systems for recovering metals from a lithium-ion battery waste stream include optionally conducting a leaching process to form a leachate stream, purifying the leachate stream in a first reactor to remove fluorine (F), phosphate (P), and one or more impurity metals selected from the group consisting of: copper (Cu), aluminum (Al), iron (Fe), and titanium (Ti), separating nickel (Ni), manganese (Mn), and cobalt (Co) from the purified filtrate liquid stream by passing the purified filtrate liquid stream into (i) a reactor for conducting a co-precipitation process by increasing pH or (ii) one or more chromatographic columns to generate an intermediate liquid stream comprising lithium (Li) and one or more recovered products comprising one or more of nickel (Ni), manganese (Mn), and cobalt (Co). The intermediate liquid stream can be introduced into a lithium precipitation reactor to precipitate at least one compound comprising lithium (Li).

[Continued on next page]

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