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(54) Title: PROCESS AND SYSTEM FOR RECOVERING LITHIUM FROM LITHIUM-ION BATTERIES

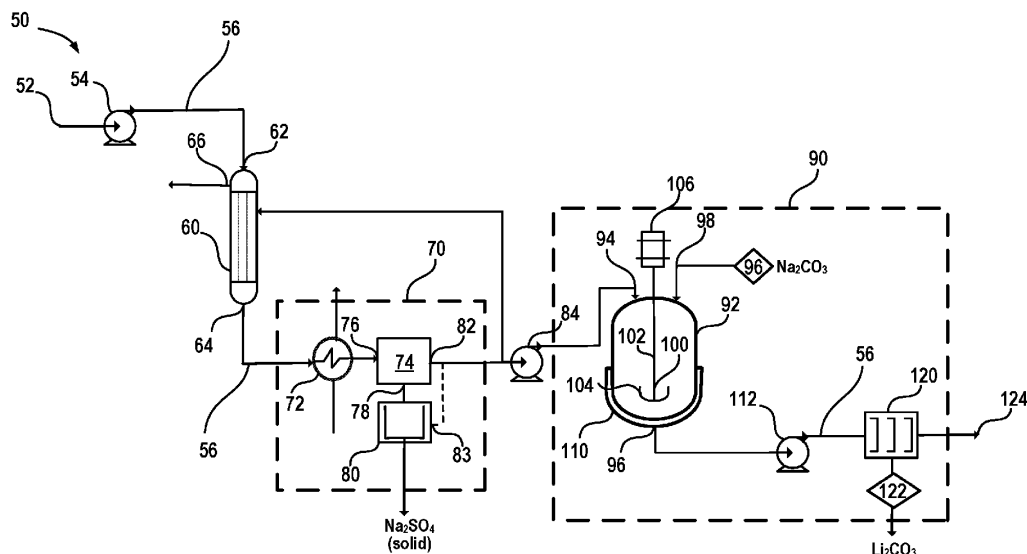


FIG. 1

(57) Abstract: Systems and methods for recovering lithium (Li) from a lithium-ion battery waste stream including lithium sulfate (Li_2SO_4), sodium sulfate (Na_2SO_4), and water (H_2O) are provided. The systems may include an evaporator unit with an optional heating system and a crystallizer unit downstream or upstream of the evaporator unit for cooling and solidifying sodium sulfate (Na_2SO_4). A lithium recovery unit is disposed downstream of the crystallizer unit or the evaporator unit that generates lithium carbonate (Li_2CO_3) product. Methods include evaporating a portion of water from the waste stream to generate water vapor and an effluent stream, which is then cooled to solidify sodium sulfate (Na_2SO_4) in a crystallizer vessel. The solid sodium sulfate (Na_2SO_4) is removed and the effluent stream is heated, followed by introducing sodium carbonate (Na_2CO_3) to produce lithium carbonate (Li_2CO_3) product, which is then recovered.

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