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(54) Title: OXIDATIVE PROCESSES FOR SELF-HEATING AND PYROPHORIC CATALYSTS CONTAINING ACTIVE METAL SULFIDES, AND MITIGATION OF HALIDE AND POLYTHIONIC ACID STRESS CORROSION CRACKING MECHANISMS IN PROCESS EQUIPMENT

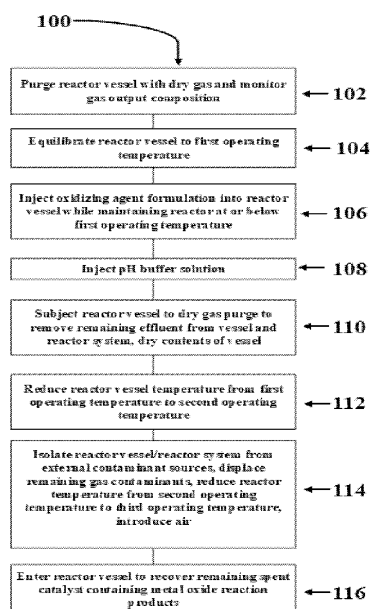


FIG. 1

(57) Abstract: Methods and compositions for the removal of metal sulfides from spent catalysts in reactor vessels and associated equipment are described herein. Using the methods described herein, metal sulfides of a spent catalysts are converted to metal oxides and gaseous and liquid by-products when reacted with a formulation having one or more oxidizing agents. Also, using the methods described herein, metal sulfides and sulfides in the process equipment are oxidized, eliminating the potential formation of polythionic and thionic acids protecting materials from polythionic stress corrosion cracking. Also, using the methods described herein, halides (including chloride) and halide containing compounds and salts in the process equipment are removed, eliminating the potential formation of halide acids and further neutralized via pH buffering, and protecting materials from halide stress corrosion cracking.

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