

Automatic System and Method for Resource Recovery from Freshwater Sludge and Similar Solid Wastes

Abstract

The present invention relates to an automatic system and method for resource recovery from freshwater sludge and similar solid wastes, wherein said similar solid wastes include but not limited to industrial wastewater treatment sludge and buried sludge, both of which contain organic matter or metallic salt coagulants or both. The method comprises the following steps: i) pulverization of solid wastes, ii) thermophilic aerobic digestion, iii) coagulant recovery, iv) coagulant purification, and v) lightweight aggregate fabrication. The system disclosed herein employs artificial intelligence and computing algorithm to enhance treatment efficacy and efficiency. Coagulant recovered from the system can be reused directly in wastewater treatment process, and lightweight aggregate fabricated from leftover materials can be used as gardening media, filtration media, or further processed to lightweight concrete.

Figure 1