WASTEWATER TREATMENT SYSTEM

Inventors: Matias B. Vanotti, Florence, SC (US); Ariel A. Szogi, Florence, SC (US); Patrick G. Hunt, Florence, SC (US)

Assignees: The United States of America as represented by the Secretary of Agriculture, Washington, DC (US); North Carolina State University, Raleigh, NC (US)

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 533 days.

Filed: Jul. 13, 2001

Primary Examiner—Chester T. Barry
Attorney, Agent, or Firm—John D. Fado; Gail E. Poulos

ABSTRACT

Wastewater treatment systems and processes for: removal of solids, pathogens, nitrogen, and phosphorus from municipal and agricultural wastewater include nitrification of wastewater and increasing the pH of the nitrified wastewater by adding a metallic-containing salt and hydroxide to precipitate phosphorus to form a useable effluent having a specified nitrogen:phosphorus ratio that is useful as a fertilizer or spray for remediation of contaminated soils. The presence of infectious microorganism such as enteropathogenic bacteria and picornaviruses will be reduced in the useable effluent. The precipitated phosphorus is recovered and used to form useable phosphorus products.

25 Claims, 11 Drawing Sheets