

MISCELLANEOUS

- 1033 Copper and Brass Tube Mill Wastes Treatment. J. S. Bethel, Jr., C. N. Sawyer and C. Y. Hitchcock, Jr. J. Boston Soc. Civil Engrs. 47, 39-55 (Jan. 1960).

A laboratory investigation was made to determine optimum treatment procedures to reduce the level of copper, zinc, and trivalent chromium in wastes expected from a new copper and brass tube mill. The waste volume was estimated to be 400 gpm and to contain 50 ppm each of copper and zinc and 150 ppm of sulfuric acid, with a pH of about 2.5. Titration curves were developed which indicated that a pH of 9.5 was the optimum pH to be used to precipitate metallic hydroxide sludges. Studies concerned with the effect of flocculator speed on coagulation indicated that best results were obtained with a peripheral flocculator speed of 0.25 ft. per second. Although initially it was thought that a proper overflow rate for the removal of metallic hydroxides should be 200 gallons per square foot per day, model studies led to the conclusion that it would be safe to design on the basis of overflow rates of 600 to 800 gallons per sq. ft. per day. In the actual treatment process, wastes flow from the copper and brass tube mill to an equalization lagoon. The wastes are pumped from the lagoon to a mixing tank where lime is added. They then flow to a flocculator and sludge from the flocculator flows to 2 lagoons where it is decanted, the top water being pumped back through the treatment process. Strong pickling acids and spent dichromate brighteners are diverted to separate sumps. Sulfuric acid and sodium bisulfite are added to the dichromate to reduce the hexavalent chromium to trivalent chromium. Operation of these 2 tanks is based on the assumption that normal mill operation would not occur simultaneously with the dumping of pickle tanks or dichromate tanks. Operation results to date show that the plant is functioning as anticipated.

-- Cond. from Public Health Eng. Absts.

- 1034 New Equipment Upgrades Refinery-Waste Treatment by Activated Sludge Process. A. A. Kalinske. Oil Gas. J. 57, 75-77 (Dec. 21, 1959).

Refinery wastewaters are amenable to treatment by aerobic decomposition processes ranging from application of the completely-mixed high-grade activated sludge process to the simplest stabilization pond or lagoon. Mechanical equipment applicable to each process is discussed. Use of turbine aerators designed for oxygen-absorption efficiencies of 25% or more in a completely-mixed activated-sludge system capable of operation at relatively high mixed-liquor solid concentrations permits volumetric BOD loadings several times those used in the traditional process. This type of aerator furnishes 2.0 to 2.5 lb. of oxygen per hp-hr. Turbine surface aerators providing 2.5 to 3.0 lb. of oxygen per hp-hr. can be installed on platforms or rafts in stabilization basins to supplement natural aeration and reduce the size of the basin required, with or without solids recycle.

-- Public Health Engr. Absts.

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