

ENVIRONMENTAL FOOTPRINT COMPARISON TOOL

A tool for understanding environmental decisions related to the pulp and paper industry



SOLID WASTE

EFFECTS OF DECREASED RELEASE OF CHLORINATED COMPOUNDS ON SOLID WASTE

Purging Residuals from the Process

The buildup of chlorides and non-process elements is a major obstacle to closing the bleach plant by reusing bleach plant filtrates in the pulping liquor cycle. For that reason, various alternative approaches have been proposed and used to purge substances that otherwise accumulate in the process and adversely affect either process chemistry and/or equipment integrity. Substances of consequence other than chlorides include potassium, calcium, barium, manganese, and iron.

Candidate technologies for isolating unwelcome filtrate contaminants into more concentrated waste streams include membrane filtration for alkaline stage organic compounds, ion exchange resins for metals, precipitation, and evaporation. Creative schemes for using some of these concentrated residues have been contemplated, but treatment and/or incineration, and producing residual ash, are the more readily available alternatives. Spent ion exchange resins would also require disposal.

A chloride removal process (CRP) and metals removal process (MRP) have had application in Champion International's Canton, North Carolina mill (now Evergreen Packaging) since 1995. The mill's patented bleach filtrate recycle (BFR™) process uses oxygen delignification and elemental chlorine free (ECF) bleaching (ODEopD), with recycle of bleach plant filtrate to the recovery system. The process has enabled recirculation of the initial D- and E-stage filtrates. In this case, contaminant concentrates containing potassium, chlorides and scale-forming alkaline earth minerals are sent to sewer (NCASI 2003).

Discarding a portion of the particulate catch of the recovery furnace electrostatic precipitator has been more commonly pursued to maintain suitable liquor levels of chloride and potassium. The recausticizing system also provides an outlet where precipitated contaminants emerge with the discarded dregs.

Progressive recirculation of the acid stage filtrates of ECF bleach sequences into the chemical recovery/recausticizing system is a means of reducing untreated wastewater organochlorine levels. It is also a means of adding to the burden of process contaminants that will require removal and potentially contribute to additional manufacturing solid waste.

References

National Council for Air and Stream Improvement, Inc. (NCASI). 2003. *Pulp mill process closure: A review of global technology developments and mill experiences in the 1990s*. Technical Bulletin No. 860. Research Triangle Park, NC: National Council for Air and Stream Improvement, Inc.