



CIRCUIT BOARD MANUFACTURER, WISCONSIN

THE CHALLENGE

A circuit board manufacturer in the Midwest generates about 28,400 Lit. (7500 gal) of wastewater daily. The waste stream is acidic (pH = 1.8) and contains mainly copper and lead, with tin and nickel as minor metallic components. Additionally, the waste stream also contains several cleaners that have various chelating agents. The treatment employed hydroxide precipitation along with dithiocarbamate (DTC). A sand filter is employed to polish off suspended solids and the effluent is neutralized before discharge to a POTW sewer. The facility was looking for an alternative technology that can eliminate the use of DTC and bring about compliance with the newly Proposed EPA's MP & M effluent limits.

THE SOLUTION

The acidic waste was treated with AQUASIL® AMX-5GV without any pH adjustment. Analytical data shown in Table 1 indicate that the treatment brought levels of copper and lead below the new stringent EPA's Proposed MP & M limits. The treatment produced large, dense floc that settled efficiently. The treated water is of excellent quality and can be reused. As well, the treatment generates less waste that passes TCLP.

Parameter	Proposed MP & M Monthly Max. (mg/L)	Before Treatment(mg/L)	After Treatment(mg/L)
Copper	0.28	200.0	ND
Lead	0.03	2.02	ND
Tin	0.14	NA	NA
pH	6.0 - 9.5	1.81	7.50

The AQUASIL® treatment eliminated the need of all liquid chemicals, including the noxious DTC. Further, sand filter and post-treatment neutralization were rendered unnecessary.

The treated water meets the newly proposed EPA's MP & M proposed effluent limits for printed circuitboard category and generated solid waste is non-hazardous as defined by Resource Conservation and Recovery Act (RCRA).

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