SABREX Consumer Products, Inc.

Test Report

January 2, 2004

Performance Test
Washing Machine Application

Waste waster from a Maytag Neptune washer with Tide detergent was collected for one cycle using a full load of towels. The waste water was processed through an EWP system.

The test was run to evaluate the ability to recycle and purify waste water.

Summary

It was found that the 10 gallons of waste water from one washing machine cycle could be recovered at 80% (by extending the purification time) resulting in water quality that is at 20 to 50 ppm (relatively soft water).

The surfactants in Tide soap was either absorbed onto an activated carbon filter—or other chemistry discharged as the waste stream from the EWP.

The cycle for the front loading washer could be reduced to 2 to 3 gallons per cycle.

Discussion

A full load of towels were charged into a Maytag Neptune washer.

Water Quality used: 100 ppm (from Whole House EWP)
Tide Soap used: 59 g
Water collected from Cycle: 10 gallons
COD: 1,600 mg/l

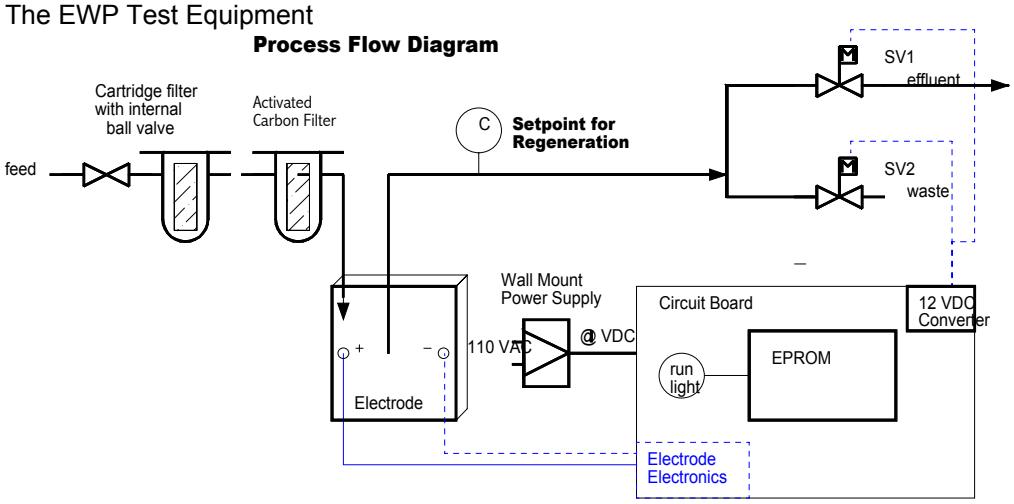
For the EWP the test was run using a 50 gram cell using PAC material. The test was run at 200 ml/min (equal to a speed of 4 ml/min/g-c). This is the exact cell that is in a mini EWP. The recovery of the test was set at 75%.

		Waste Water Collected	After AC Filter	EWP Purified	EWP Waste
Conductivity**	US	460	N/a	90	1,577
COD*	Mg/l	1,600	0	0	0

*measured using a Hach spectrophotometer
** measured using a GLI conductivity meter and/or Hach handheld conductivity meter

It is proposed that two filters be used in the system that could be disposed—an activated carbon filter to capture the surfactants, oil and grease and a sediment filter for lint and dirt. An average house uses 10 load of wash per week; 100 gallons of water. This is 600 g of soap per week—assuming 90% absorption of surfactants on carbon, the amount of carbon used would be (1) 4 lb filter per month.

The EWP Test Equipment



Proposed System

It's proposed to install an EWP system to collect the waste water and purify into a small 15 gallon storage tank for re-use. The external system would be configured to have 2 tanks, one atmospheric and one pressurized at 40 psi.

Robert Atlas
investigator