

WasteWizard® Case Study; Spray Parts Washer

Rebuild Shop for Aerospace Components

Problem: The Customer has a spray parts washer with a 250-gallon (950 l) tank that was dumped every month, but probably should have been dumped every week. Because of the high waste hauling costs, the company put up with a very inefficient cleaning process. In most cases, the parts needed to be cleaned twice. The parts being cleaned were brake and wheel assemblies for airplanes. Contaminates included hydraulic oil, heavy bearing grease, oil, brake grindings and rubber shavings. The goal was to save money by decreasing cleaner consumption, increasing productivity and reducing waste disposal costs. All three goals were accomplished by recycling the cleaner with Ransohoff' WasteWizard.

Solution: Ransohoff originally tested a Spiral UF (MARS) recycle system on the application but had a difficult time keeping the system operational. The prefilters fouled quickly with the oil, greases and solids. This could have been solved with settling and dual prefiltration; however, these steps would have added additional capital and operating costs. The membrane on the spiral UF membrane system also needed to be cleaned every few days to maintain the throughput required to attain the turnover required to keep the parts washer sump clean. This frequent cleaning would eventually lead to both additional maintenance time and chemical costs. Conventional crossflow membrane filtration (tubular, hollow fiber and spiral) would fail on this application from any manufacturer without engineering an expensive custom system

Ransohoff installed a WasteWizard System on the parts washer after the parts cleaner sump was charged with fresh cleaner. The installation took less than 15 minutes from start to finish. The operator within days noticed an improvement in the cleaning efficiency. The parts were clean after only once cleaning cycle. The WasteWizard System increased productivity for the customer significantly.

The WasteWizard System was designed to be **transparent** to the end-user; the initial feedback from our customers has confirmed this to be true. When the unit was initially installed, and again a few weeks into the evaluation, the operator asked what the scheduled maintenance was and when he should perform the scheduled maintenance. Ransohoff expressed to him that in most cases he would only have to exchange the 55-gallon (208 l) drum once it became concentrated with greases, oils and solids. Ransohoff also recommended the free oil be skimmed off for disposal after a few inches of free oil had collected at the top of the drum. The only other necessary maintenance item required was changing the membranes as needed. The membrane life will vary but is expected to be 6 months.

The WasteWizard System ran for six weeks without the need for a cleaning cycle or purge of the working tank (55-gallon drum). The working tank (55-gallon drum) finally had to be dumped when the filtration rate started to decrease due to a very high concentration of solids and oils in the working tank. The 55-gallon drum became full of sludge from the parts washer. There was a 4" layer of free oil on top of the 55-gallon drum and a thick past of oils, greases and solids on the bottom of the drum.

The WasteWizard System requires no prefiltration. The protection for the WasteWizard from large foreign objects is a 20-mesh strainer on the feed line from the parts washer to the WasteWizard working tank (55-gallon drum). The WasteWizard is extremely easy to use and requires essentially very little maintenance by the customer. This particular WasteWizard System was able to concentrate typical waste streams 5 to 10 times greater than a conventional membrane system (tubular, hollow fiber or spiral).

The increased volume reduction (99+ % or 100-to-200 fold) of the concentrated waste significantly reduced waste disposal costs.