

# Case Study 16

## Hydraulic System Clean-up for Plastic Bottle Maker

### Background

Plastic bottles are used for everything from water & beverages to laundry detergent & hand sanitizers. These bottles are basically produced in a two-step process. The first step is injection molding of the cap and bottle preform. The second step is blow molding the preform into the final bottle shape. In the first step, hydraulic fluid is the lifeblood of an injection molding machine since it is used to rotate the pellet screw, inject the molten plastic into the mold, open and close the mold clamp and eject the parts after they are cooled. Consequently, fluid cleanliness is paramount to protect servo valves, pumps and other system components. Most injection molding machines are built with circuit filters designed to protect critical circuit components, but they do not have built-in filtration to maintain system cleanliness in the reservoir. A major bottle producer in the Midwest was experiencing chronic issues with pre-mature plugging of circuit filters on their older machines and asked Northeast Filter to evaluate their situation and offer options to improve overall OPEX.

### Solution

Our VAS staff performed particle count fluid analysis on three of the oldest machines with fluid drawn from the reservoirs. The test results indicated the fluid did not meet the required cleanliness for their systems. Further inspection of the reservoirs confirmed our suspicion that years of contamination ingress had resulted in a thick layer of silt inside the reservoir. Northeast Filter sold a portable filter system to be installed as a kidney loop on the reservoirs of their oldest machines and used on a rotational basis. After 30 days the fluid in each of the machines had improved to “like new” condition with greatly reduced OPEX. As a result, they decided to install dedicated stationary filter systems on every machine in the plant and now use the portable filter as a fluid transfer cart. Our VAS team also helped them establish a routine fluid condition monitoring program.



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