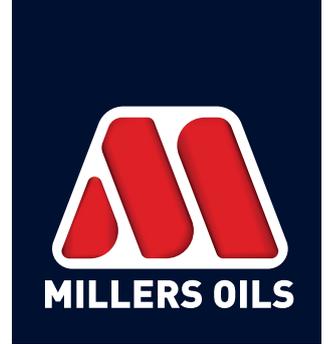


CASE STUDY: WATER FILTRATION



Tackling Severe Water Contamination in a Plastic Injection Moulding Machine

Overview

A long-standing plastic injection moulding customer that produces automotive parts, suspected they had water contamination in their hydraulic oil, but they had no visibility of the scale or the risk it posed, until the Millers Oils Fluid Management team conducted an on site assessment. What appeared to be a minor issue was, in reality, a critical threat to machine reliability and production uptime.

The Challenge:

Oil analysis results from our laboratory revealed a severe contamination level: over 100 litres of water in an 800 litre hydraulic tank. More than 12% of the tank's volume which should have been oil was water.

For any injection moulding operation, this level of contamination is alarming. Water is one of the most destructive contaminants in hydraulic systems, even in small quantities.

At these levels, the risks can escalate dramatically:

- Accelerated oil degradation and breakdown of additive packages
- Corrosion of pumps, valves, and internal surfaces
- Loss of demulsification, leading to emulsified, milky oil
- Reduced machine precision, affecting injection profiles and part quality
- Seal and elastomer damage, causing internal leakage
- Increased energy consumption due to reduced lubricity
- High likelihood of pump, servo valve, or full system failure

Complicating matters further, the machine's design offered limited access for deep cleaning.



The Solution:

Given the severity of the contamination, our Fluid Management team would usually recommend a deep clean followed by a flush and extra waste removal. However due to the size of the tank, type of contamination, and access issues a more cost effective solution for this clients circumstances was to offer a drain and clean, to achieve as best results as possible with limited access, and to deploy our high performance filtration system. We ran this over a few days enabling them to continue production without any downtime and reducing the need for purchasing 2 sets of oil. The objective was clear: restore the oil to a safe, stable condition without requiring a full machine strip down.

Through continuous circulation and targeted filtration, we successfully reduced the water content to 71 ppm, bringing the oil back within an acceptable ISO cleanliness range. This approach allowed the customer to avoid costly downtime and invasive mechanical intervention.

Outcome:

The customer was able to avoid a potential catastrophic pump failure, unplanned production stoppages, and the financial impact of scrapped parts and machine repair.

Instead, they were able to continue production confidently, with improved system stability and significantly reduced risk. The intervention not only protected their equipment but also reinforced the value of proactive fluid management as part of their ongoing maintenance strategy. And our personalised approach and understanding of their requirements meant they achieved the results they were looking for.