

Quench Oil

Heat Treat Furnace - Automotive Manufacturer

CUSTOMER SAVINGS & BENEFITS

Installing the CJC® Desorber D10, the customer obtained below benefits:

- Annual savings: 192,240 USD on waste oil
- ROI on 2 months
- Reduced oil consumption
- Environmental savings of 21,600 gal/82,000 L of quench oil

CUSTOMER

An automotive part manufacturer in the Midwestern, United States.

SYSTEM

System: Heat Treat Furnace
Oil type: Quench oil
Oil volume: 415 gal/1,570 L per week

PROBLEMS

This customer has 6 carburizing furnaces at one of their plants. As part of the hardening process, each batch of parts goes through an oil quench. After quench, the part is coated in quench oil, which must be removed before any further processing can take place. The process to remove the oil is to put the parts through a water wash, which then leaves a large amount of oily water that needs to be cleaned. A chemical is introduced to the water/oil mixture to help with the separating process, then the mixture goes to an oily water separator device. However, the oil is still considered waste oil, having approximately 3-5% water entrained in the oil. Because of safety risks of having water in the quench oil, oil with water levels this high would not be allowed to be returned to use in the process. Thus, the customer was disposing of approx. 415 gal/1,570 L of quench oil every week.

SOLUTIONS

A CJC® Desorber D10 was put in place to de-water the contaminated oil. A test was done at the customer's facility, using the contaminated oil. The customer tested daily to determine water content, and a secondary test by the oil manufacturer confirmed the results.

FINANCIAL BENEFITS

The current annual loss at this facility due to the waste oil lost during this process is \$192,240. After seeing the results, the company decided to purchase the unit. The Return-on-Investment period was less than 2 months. The used oil, which would have been disposed of, will be dehydrated and mixed back in with virgin quench oil and introduced back into the system.

ENVIRONMENTAL BENEFITS

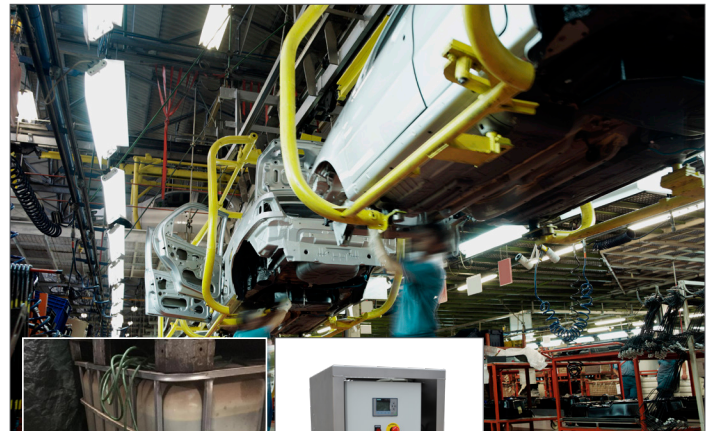
The customer is now able to extend the life of their quench oil and the system will keep them from disposing of over 21,600 gal/82,000 L of quench oil per year. Because water in quench oil is a huge safety risk, this also gives the customer the peace of mind knowing that the recovered oil has been dehydrated to a level that has been tested and safe to re-use.

TEST

The customer collected the waste oil from their wash process and placed the oil in large totes. When the totes became full, they started running the Desorber and pulled samples periodically. We monitored the water content until the Karl Fischer test showed results less than 150 PPM.

RESULTS

Using the Desorber, the customer was able to take the water content in the oil down from almost 5% to 0.0131% or 131 PPM. Since it is critical to have even a low water level in this application, we had the oil manufacturer run tests as well. The oil manufacturer confirmed that the reclaimed oil was acceptable to re-use in the process and that it maintained appropriate level of additives and performance properties.



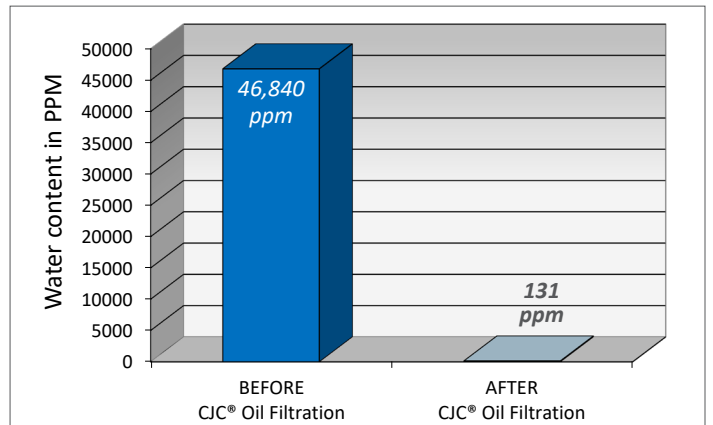
Water removal from quench oil using the CJC® Desorber D10

The waste oil from the washing process is placed in large totes for removal of water

Water Removal

Water content, at start-up	46,840 ppm
Water content, after oil filtration	131 ppm

REDUCED WATER CONTENT



Customer Statement:

Manufacturing Engineer of the Heat Treat Process:
"The unit works great for this application. I was impressed with the results and amazed how well the unit works. The Desorber is simple to use and easy to maintain."



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