

VISCOpro 2000 reduces blending time for lubrication product



RESULTS

- Reduced lubricant blending time by more than 30 minutes
- Increased output capacity
- Reduced demand on the laboratory
- Enhanced QA traceability



The 321 sensor is a unique viscometer for in-tank blending and reaction monitoring.

APPLICATION

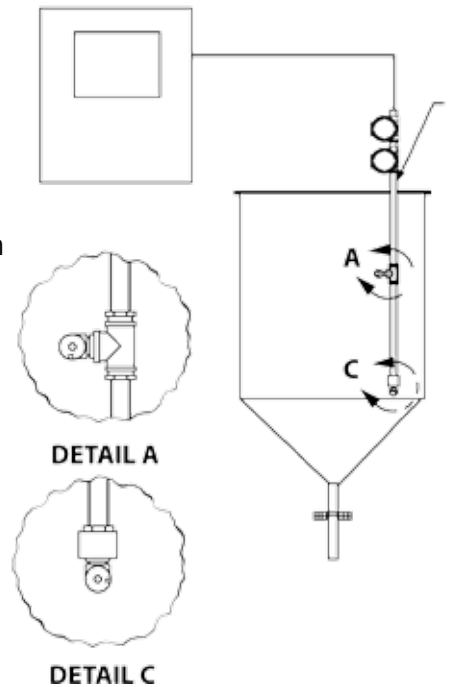
Viscosity analysis of lubricant in a blending tank

CHALLENGE

Because of the high global demand for lubricants, a refinery was interested in increasing the production of their lubrication products by reducing the time it takes to formulate the products. The facility had several blending tanks in varying sizes, which were used for blending multiple products. Their operating procedures required that they test samples from the top, middle, and bottom of the tanks to ensure they were homogenous. Because they didn't know the exact blending time of the batches, their procedures required that they wait for an hour or more to be sure that full blending had occurred. This effort was time-intensive and could add 45 minutes or more to a batch. If the mixing wasn't complete and the tests needed to be performed again, even more time would be added to the process.

SOLUTION

At the invitation of the customer, PAC performed a trial to help the process engineers determine how quickly the fluid in the tank became homogenous during the blending process. PAC installed two VISOpro 2000/321 model viscosity sensors on a single three-meter stem and inserted the stem into a lubricant blending tank from the top.



The test configuration consisted of two probes at the top and bottom of the tank.

Prior to the test, PAC and the engineers discussed whether installing two viscosity sensors (installed at the top and bottom) or three viscosity sensors (installed top, middle and bottom) would be necessary to determine if the mixing was complete, because they were not sure how quickly the mixture became uniform. It was decided that a custom viscosity probe with sensors installed at the top and bottom would be the best option for testing.

The results of the test showed that blending was complete significantly earlier than expected, which allowed them to perform final quality control procedures and transfer the product up to 30 minutes earlier. Additionally, they found that there was little stratification and that both the upper and lower viscometers showed that the fluid reached the target viscosity within one minute of each other.

The facility selected a final configuration that consisted of a two-meter probe with a single model 321 viscosity sensor for each tank. During the process, the viscosity is monitored in the tank until the values plateau and then a sample is sent to the lab for final quality control before transfer for shipment. This method reduced the manufacturing time, which led to increased output capacity, reduced demand on the lab, and improved QA traceability.

For more information about the VISCOpro 2000, visit us online at www.paclp.com.



The VISCOpro 2000 uses oscillating piston technology, which is known for its high accuracy, repeatability, low maintenance requirements, and vibration tolerance. Its small size allows for easy installation, and it has a low overall total cost of ownership.