

Wax Precipitation in Crude Oil Flows

This brief is provided to illustrate the capability of a vision system to detect wax particles as they precipitate from solution. This can be a significant issue in pipeline transport where the oil is subject to varying ambient temperatures as it flows. These thermal changes can cause wax to precipitate out of solution and clog pipelines. Detection of wax particles as they form can alert line operators to adjust flow conditions in order to prevent wax precipitation and the subsequent need for cleaning the line.

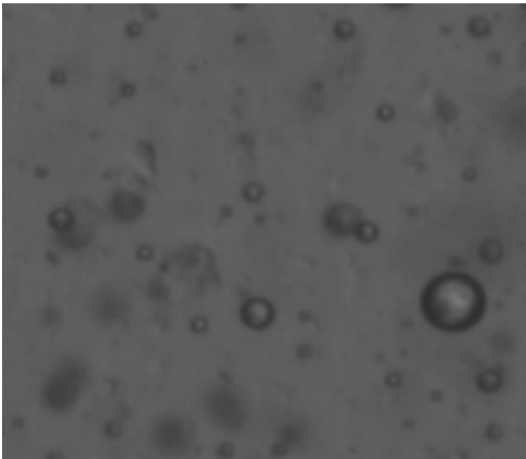


Figure 1. Minor Wax Presence

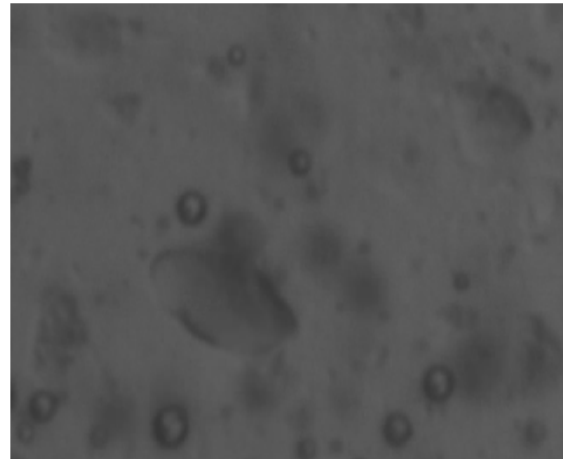


Figure 2. Significant Wax Presence

The spherical droplets with translucent centers are water content. The non spherical, large, translucent particles are wax precipitation and are apparent in Figure 2. The software can detect the increase in wax particulate and warn operator.