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## **Question 29: How are crudes with high filterable solids crude managed to mitigate their impact on the operation? What levels of solids do you see and how are they measured?**

**SAM LORDO** (Consultant)

Typical filterable solids test follows ASTM D4807. Using this method solids range from 3-1500 ptb, a typical range would be 30-50 ptb. Several major refiners have begun to use a water wash step at the end of the D4807 test to determine the actual non-water-soluble filterable solids. This method is more reflective of actual solids contained in the crude. Using this method, one sees a lower range of solids as the water-soluble material is removed. It is not unusual to see a reduction of 30-60%.

**DENNIS HAYNES** and **CHRISTIAN LEEDLE** (Nalco Champion)

Crudes with elevated solids can be problematic on desalter operations and heat exchanger fouling, to name a couple of the issues. Generally, solids content in excess of approximately 80 ptb are problematic, yet the actual number will vary based on the chemical makeup of the solids. Iron sulfide would be typically more of an issue than other sediment. Some strategies for dealing with solids are increased wash water rate to the desalter, optimized mix valve operation, optimization of mudwash practices, and addition of chemistries that preferentially move solids to the water phase in the desalting process. Solids are measured with an ASTM filterable solids test. The test uses a specific filter pad type at a 0.45 um pore size, yet some analysts use a 0.2 um or other sizes to differentiate particle sizes, and there is another modification of the test that calls for water washing to remove water soluble materials.

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