

## **Measure Vanadium, Nickel and Sulfur by HDXRF**

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Crude oils often contain many metallic and nonmetallic elements with various chemical forms, which cause problems like corrosion, catalyst deactivator, and pollution. The value of crude oil can be affected heavily by those elements' concentration. Test methods for measuring sulfur content, like ASTM D4294 and ISO 8754, have become critical for assessing the value of crude oil. The blending of crude oils from different sources has become more commonplace within the industry to meet specifications for the classification of sweet crude oil. The introduction of new crudes brings new challenges, like higher concentrations of metals such as nickel (Ni) and vanadium (V). Ni and V are known to rapidly deactivate process catalysts in the catalytic cracker (FCC) and hydrotreaters. In response, many refiners have incorporated Ni and V analysis into their routine crude assay, and pipelines have set specifications for Ni and V in their common stream sweet crude. Petra MAX™ benchtop analyzer using low power HDXRF provides a rapid measurement technique for sulfur compliance and simultaneous trace analysis of Ni and V.