The Average Oxidation State of Sulfur by X-ray Spectrometry

R. W. Morton and Sezen Soyer-Uzun

ConocoPhillips, Bartlesville Technology Center, Bartlesville OK 74004

Many commercial wavelength dispersive x-ray fluorescence spectrometers provide enough resolution to accurately measure peak shifts associated with changes in the oxidation state of sulfur. Sulfur is an important component in many chemical processes. Knowing the oxidation state of sulfur can lead to a better understanding of the chemistry involved. One key advantage to using x-ray spectrometry is that the results provide a bulk analysis on either solid or liquid specimens. Applications include materials associated with corrosion, biofuels, petroleum, polymers, crude oil, detergents, paints, pigments, forensic science, catalysts, minerals, etc. This presentation covers the background and limitations of determining the weighted average oxidation state of sulfur using commercially available instrumentation.