

## **ELEMENTAL ANALYSIS OF POLYOLEFINS BY X-RAY FLUORESCENCE USING CHARACTERIZED POLYMER STANDARDS**

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The analysis of catalyst residues and additives in polyolefins is an important measurement for evaluating catalyst efficiency, process control, product development and specifications. X-ray fluorescence (XRF) can be powerful tool for these analyses. The blending of polyolefins with various additives and subsequent elemental characterization has provided standards for quantitative XRF data. Fifteen polypropylene standards were blended with triple extrusion containing the following elements: Na, Mg, Al, Si, P, S, Cl, Ca, Ti and Zn. The standards were characterized and/or validated using inductively coupled plasma (ICP) atomic emission spectrometry, neutron activation analysis (NAA), and XRF fundamental parameters (FP) analysis. For standards with additives containing P and S, gravimetric data were used for the certified values, but verified using XRF-FP. The characterized standards were evaluated for linearity and precision. Because Zn interferes with Na, the standards were blended to allow a correction factor to be applied during the XRF calibration. An overview of the characterization process and use of these standards for XRF analysis will be discussed.