

An Investigation into the effects of Aging on Automotive Bumper Samples by Xylene Soluble Flow Injection Polymer Analysis (XS-FIPA).

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The xylene extraction method described in the ASTM D5492 method is commonly employed to determine the xylene soluble (XS) content by weight, representing the percentage of soluble species in polypropylene polymers. In practice the XS measurement is commonly used for product quality control and monitoring physical properties of the polymer during synthesis and processing.

The drawbacks of the ASTM method are that it difficult to automate, requires large sample amounts and substantial volumes of hazardous solvents, and in addition the amorphous content of polyolefin samples typically include low molecular weight material, oligomeric material, additives and other matrix impurities that may interfere with the result.

This poster describes the use of flow injection polymer analysis (XS-FIPA) as an analytical tool for XS determination with quick and easy simultaneous measurements of molecular weight, intrinsic viscosity and XS%. The technique was applied on automotive bumper samples which had undergone an aging test. Unable to identify differences between the samples by other techniques, the results from the XS-FIPA technique highlight the differences caused by the aging process.