FTIR Microscopy solutions for your everyday polymer questions

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Abstract. The failure of polymer and plastic materials often is caused by the inhomogeneous distribution of the used components inside the polymeric material. Also contaminations like particles, fibers or inclusions may be the reason for its failure. In case of composite materials defect layers or a layer made from the wrong material will have a negative impact on the product properties. As such defects are often extremely small they are hard or even impossible to analyze by a macroscopic measurement. However, a successful failure analysis includes the chemical analysis of the faulty region in the sample. FT-IR microscopy is a powerful tool for failure analysis: It allows to obtain IR-spectra anywhere on the sample with high lateral resolution and thereby to reveal the chemical composition of this particular area of the sample. When using a system with an outstanding ATR performance, the vast majority of samples can be analyzed without any sample preparation, making FTIR microscopy an easy and fast to use technique to tackle everyday polymer questions.