

# Non-invasive Determination of CO<sub>2</sub>-Solubilities in Industrially Relevant Polyols and Isocyanates at Elevated Pressures

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Producing rigid polyurethane foams (PURs) with well-defined product properties demands a polyol component and an isocyanate component as reactants, together with a blowing agent and further additives. In a recent approach, compressed CO<sub>2</sub> is utilized as physical blowing agent due to its low cost, environmental compatibility and high availability. Besides the selection of the suitable additives, the effective foam properties are adjusted by the application of continuously redesigned and specifically developed polyols and isocyanates. Consequently, a fast and reliable measurement technique for the CO<sub>2</sub>-solubility in these fluids is needed.

We present an *in situ* Raman measurement technique, which allows for the determination of the solubility of CO<sub>2</sub> in industrially relevant polyols and isocyanates. Different techniques were used to suppress interfering fluorescence signals from the colored technical samples. The effect of pressure (in the range 8 MPa to 20 MPa) and temperature (308 K to 333 K) on the solubility data is shown and discussed.

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