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Sensitivity of Compositional Measurement of High-pressure Fluid Mixtures Using Microcantilever Frequency Response

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Highlights:

- The frequency response of cantilevers immersed in ethanol-CO₂ mixtures at 318 K and within the pressure range 10 – 21 MPa was measured.
- Sensitivity of compositional measurement of high-pressure fluid mixtures using microcantilever frequency response was investigated.
- Expressions for sensitivity of cantilever were derived from Sader's model of hydrodynamic interactions.
- Limit of detection of ethanol in the mixture was estimated from the sensitivity formulas and standard deviations.
- Lowest limit of detection was 900 ppm for the 150 µm long cantilever.

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