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Title: Solubility of (supercritical) carbon dioxide in different lipids.

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Abstract:

The solubility of gases e.g. carbon dioxide in lipids is an important parameter when working under high pressure in partially filled vessels as is used in some production methods for consumer goods.

The work describes a method at three hundred gram scale to determine the solubility of (supercritical) carbon dioxide in different types of vegetable oil at elevated pressures (max. 200 bar) and temperature (max. 80°C). The solubility of carbon dioxide was measured in an heated autoclave whereas the mass flow of carbon dioxide was determined using a none-thermostated coriolis flow meter.

From the added amount of carbon dioxide, temperature, pressure and amount of fat the mol ratio of dissolved carbon dioxide at different pressures was calculated. A solubility diagram of each individual type of fat was prepared. From this information, it followed that using a coriolis mass flow meter has intrinsic and fundamental flaws that allow the solubility diagrams to be used only in a qualitative way. Some experimental results are presented in the poster.