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## Effect of starch thickening on emulsion formation and stabilization in salad dressings

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The effect of starch thickening on the viscosity ratio of the continuous and dispersed phases in emulsions is not often considered, yet it can have an important impact on processing parameters. Salad dressings are typically mixtures of two immiscible liquids, oil and vinegar, often stabilized through the use of emulsifiers. Knowledge of equilibrium phase behavior of emulsions is an essential tool to study the emulsification process and the long-term stability of salad dressings. However, much of the research in emulsion science has focused on characteristics of the emulsifier, such as hydrophilic-lipophilic balance (HLB) number, its packing parameter and its solubility. Starch, which is often used as a thickener in salad dressings, can also have a significant impact on emulsion behavior. In particular, starches can affect the viscosity ratio. The viscosity ratio of the 2 phases is the principle factor determining which phase will be continuous and which phase will be dispersed. As the viscosity ratio increases, both the minimum volume fraction of the first phase, which can be continuous and the maximum volume fraction of the first phase that can be dispersed increase. That is, as the viscosity of a phase increases, its tendency to be dispersed increases. This seminar will discuss the effect of starch thickening on the viscosity ratio of the continuous and dispersed phases in salad dressings and the impact on processing parameters leading to emulsion formation and stabilization.

### Biography

Rachel Wicklund, PhD leads the convenience and dairy applications team at Tate & Lyle. Her research focuses on starch-based food product development and applications. She has worked for Tate & Lyle since starting her career as a Food Scientist in 2006. She attended the University of Illinois at Urbana-Champaign where she obtained a Doctorate and a Master's degree in Food Science and a Bachelor's degree in Chemical Engineering.

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