

Frothers: from fundamentals to practice

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Frothers provide three key functions: maintaining small bubble size, reducing bubble rise velocity, and contributing to froth stability. Studies have linked these to frother structure. The first two are the focus. Bubble size is tracked using critical coalescence concentration (CCC) and rise velocity using the concentration at minimum velocity (CMV). Both are briefly explained and CCC and CMV shown to be related. Two theories help link to frother structure, Marangoni effect and hydration effect. Including impact of molecule conformation and H-bonding on molecule transport either theory provide an explanation. For alcohols it shows an advantage of branched over straight chain structures. Hydration theory does have an advantage: through ordering water it provides interprets why different size bubbles can rise at the same speed dependent on frother type. Evidence the volume of water carried per bubble varies with frother type is presented. Water transport aids froth stability and influences frother choice.