

## Tackling Unwanted Foam in Industrial Beverage Processing



Food foams are a significant component of many food products and their production processes, including the beverage industry<sup>4,6</sup>. Beverage foams occur when gas, such as air, is dispersed in a continuous liquid phase, usually water, during various stages such as brewing, reconstitution, mixing, pressing, and bottling<sup>9</sup>. This phenomenon is prevalent and highly relevant in the food industry, with foams playing a crucial role in various foodstuffs produced and sold today.

For many liquid systems, excessive foam formation can be problematic and difficult to manage. For example, it is essential to break foam regularly in storage vessels to maximize their capacity, especially in the case of beverages like beer. Foam breaking is also necessary to improve the efficiency of distillation or evaporation processes<sup>7</sup>. Production efficiency can suffer if foam is not properly controlled, which can lead to processing delays or even

equipment malfunction<sup>1</sup>. Additionally, in beverage bottling operations, foam can severely disrupt the process, as overflowing can cause underfilled bottles and posing a high risk of contamination<sup>6</sup>.

There are various foam control agents available in the market that can be used to address the issue of foam formation in beverages. These agents come in different types such as oil-based, silicone-based, water-based, and more<sup>8</sup>.

### **Foam Control Solutions**

Defoamers and antifoam agents are chemical additives utilized to manage foam formation in industrial process liquids. The primary difference between them lies in their mode of action and timing of application<sup>1,2,3</sup>. Although their chemistry is often similar, they have distinct uses and may be applied at different stages of the process<sup>5</sup>.

When foam has already formed and needs to be quickly eliminated before causing harmful consequences, defoamers are used in urgent situations<sup>1,2,3</sup>. Typically, defoamers are hydrophobic liquids that float on the surface of the water. They break down and eliminate foam during processing by reducing surface tension and destroying any foam on the surface. However, defoamers cannot prevent the formation of new foam. On the other hand, antifoams prevent and reduce air entrainment (bubbles in the body of the liquid) by blocking the formation of foam. They are slightly soluble in foaming solutions and disrupt foam bubble walls by lowering surface tension, causing the bubbles to burst<sup>5</sup>.

Food and beverage manufacturers can keep foam build-up under control by establishing effective foam control management using food-grade antifoams and defoamers to prevent and/or destroy foam. Consequently, they can benefit through better product and process quality, smaller waste generation, and thus lowering the production costing<sup>1</sup>. At DPO

International, we are honoured to bring you a range of ingredient choices that will elevate the quality of your beverage products.

## References

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