

What Causes Foaming?

Foam is classified as the dispersion of a gas in liquid. In most systems, there is the presence of a naturally occurring surface acting agent (surfactant) that minimizes foaming. Whenever the surfactant is not present and gas is interspersed within fluid, foaming will occur. Corn's naturally occurring oils act as a stabilizing agent during fermentation, minimizing the formation of foam. If fractionation occurs on the front end of the process when corn oil is removed, or if another grain such as wheat or barley is used, then the lower oil content will increase the potential for foaming. Another part of the ethanol process susceptible to foaming is the CIP of tanks and vessels.

Factors in Antifoam Selection

Determining the best solution

The selection of antifoams is important and should be based upon application and prior experience. The selection process can be improved by conducting laboratory bench tests using a device called a circulating foam cell. This device will help you eliminate products that will not be effective. Only an in-plant test can determine the product with the best cost performance.

Regulatory Requirements

Any processing aid must be approved for use in food applications and should have Kosher approval. All three Phibro antifoams meet some or all regulatory requirements for direct food contact per 21 CFR 173.340. Phibro FC-3560 has GRAS approval.

Fuel Quality

Recently, ethanol producers have learned silica based antifoams should not be used because they can enter ethanol via the distillation process. Under no circumstances should silica be present during the ethanol process. Antifoam suppliers should have a good understanding of the ethanol process and be familiar with ASTM fuel standards to avoid fuel quality problems.

Yeast Health

Prior to using any antifoam in direct contact with yeast, the impact on yeast health should be determined and dosage limits established to prevent harm to the fermentation process. If the supplier is unfamiliar with a particular antifoam's impact on yeast health, the product should not be used in the process.

Product Summary

Product	Food Grade	Kosher	Dose (ppm)	Silica content
Phibro FC-260	Yes	Yes	10-100	none
Phibro FC-3598	Yes	Yes	10-100	none
Phibro FC-3560	Yes	Yes	10-100	none



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