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Subject: Mayonnaise high pressure homogenisation		

The mayonnaise is an oil in water emulsion with an high fat content with egg yolk or whole egg and vinegar as acidifying agent.

Typical composition

- Vegetable Oil (Corn/Soybean) 65 - 80 %
- Water (Tap) 8 - 10
- Egg Yolk (Liquid/Frozen/Dry) 5 - 7
- Vinegar 10% (Malt/Distilled) 2 - 4
- Sugar (Cane/Corn) 1 - 2
- Salt (Rock/Sea) 1 - 2
- Mustard (Dried/Prepared) 0.3 - 0.8



In the preparation of a mayonnaise, one attempts to produce the highest possible viscosity consistent with a long shelf life and the desired rheological properties .

Whatever the combination of egg yolks and egg whites used, it is imperative that the content of egg yolk does not fall below 5% by weight of the overall formulation. Sweetening ingredients such as cane sugar, corn sugar or invert sugar in either dry or liquid forms may be used. Spices or seasonings such as salt, pepper, mustard and lemon or lime juice are permitted.

During the premix preparation the temperature is very important as well as the mixing phase step: In preparing a batch of mayonnaise premix, the egg yolk is mixed into the water until uniform. The sugar, salt, mustard and vinegar are then added in order. This aqueous solution is mixed until uniform with a slow speed propeller mixer. The oil is added slowly with continuous mixing at first and then as quickly as it will be taken up by the aqueous phase. Premix viscosity at this point may range from 5,000 - 15,000 cP, depending upon the formulation and degree of agitation. It should be obvious at this juncture to assess if the premix will produce a stable emulsion. A good premix should resemble whipping cream in texture and color. A poor premix will more closely resemble melted butter.

The homogenisation process

The homogenization is the last passage after adding all the components. High pressure homogenizers can overwork the product, due to over-extension of the emulsifier; that is why it is very important to run at very low pressure about 30÷40 bar, in any case below 100 bar.