
Emulsifier YN for Chocolate Production

Emulsifier YN has unique features of uniformity and functionality for chocolate production.

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Emulsifier YN (ammonium phosphatides, E442) is an alternative to lecithin (E322) in both chocolate and compound products. It is an alternative because this tasteless and odorless ingredient significantly outperforms lecithin in terms of viscosity reduction. It opens up interesting possibilities for low-fat products and optimization of recipes. This article discusses the development of emulsifier YN, compares its functionality to lecithin and offers suggestions for recipe optimization.

HISTORICAL BACKGROUND

Lecithin has been used in chocolate since 1930, when Hanseatische Mühlenwerke Akt Ges. filed a patent on the use of lecithin in chocolate. Since then it has been widely used in this application and is in general a highly functional and efficient ingredient when it comes to adjusting flow properties and reducing fat content in chocolate.

In the 1950s there was a growing demand for an improved alternative to soy lecithin, which is widely used in various chocolate recipes.

Some manufacturers experienced drawbacks when using lecithin. Its quality depends on the natural variations in the harvest of the beans, leading to variations in

the active components. The processing and purity of the product also have an influence on the functionality of the lecithin. Variations in functionality may cause production problems due to variations in flow properties of the chocolate. Another important reason for wanting an improved alternative is the taste of lecithin. Milk chocolates, especially, are sensitive. In these typically very rich and milky chocolates, particularly in the UK, the combination of lecithin and milk chocolate can result in the chocolate acquiring an off-flavor of “grass” or “hay” during storage.

With a special focus on removal of the off-taste, one chocolate manufacturer, Cadbury Brothers Ltd., decided to solve this problem and initiated the development of an improved alternative to soy lecithin. The idea was to make a product containing molecules similar to the most important component in soy lecithin, called *phosphatidyl choline* (Figure 1).

Cadbury Brothers Ltd. filed a patent in 1962 and the development resulted in a product today known under several names such as *ammonium phosphatide*, *ammonium salts of phosphatidic acids* or *emulsifier YN* (Figure 2). The latter will be used throughout this article. ➤



Arne Pedersen has worked in the meat and fish industries and was production manager in a medium-size chocolate factory before he joined Aarhus Olie. For almost 20 years he worked in various positions with a focus on confectionery fats. Pedersen joined Palsgaard in 2005 as product and application manager with technical responsibility for the bakery and confectionery group—including products and application.