

## Minor Components present in deodorizer distillate

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The deodorizer distillate obtained from the deodorization process of vegetable oils is a complex product. Its composition and characteristics depends on a number of factors, including the type of oil being processed (e.g. soyabean oil versus palm oil), mode of refining (chemical versus physical refining) and operating conditions during the refining process.

The deodorizer distillate mainly consists of volatile components that are distilled during the deodorization process. Consequently, free fatty acids (FFA) are an important fraction in the deodorizer distillate. The FFA level of the deodorizer distillate generally ranges between 30-50% for chemical and 80-90% for physical refined oils.

Besides FFA, the deodorizer distillate also contains some valuable minor components. These include tocopherols, tocotrienols, phytosterols, squalene, carotenoids etc. Depending on the refining conditions, tocopherol and phytosterol concentrations in the deodorizer distillate may vary between 2-20%. Tocopherols and phytosterols are known to have positive nutritional properties and are used today as active ingredients in many types of functional foods. Deodorizer distillates with a high concentration of these components (e.g. obtained from chemical refining) therefore have a significantly higher economical value.

On the other hand, deodorizer distillates may also contain volatile contaminants such as light poly-aromatic hydrocarbons, pesticides and in some cases even dioxins and PCB. For further valorisation of the deodorizer distillate, it is important to minimize the presence of these contaminants to the lowest possible level.

Accurate analytical techniques have been developed for the complete characterisation of the deodorizer distillate. A gas chromatographic analysis which can separate the most important components present in the deodorizer distillate in one single run are most commonly used today.