

## Centrifugal Processes for Polishing and Processing of Oils

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Oils containing raw materials are one of the most important sources of renewable materials for industrial application. For this application it is important to realize an effective oil extraction process but it is important as well to achieve good oil processing in order to ultimately meet industrial demands.

Application of these oils from renewable resources as a source for biofuel is a topical issue. In order to burn this oil as a fuel the oil has to be transesterified into fatty acid methyl ester (FAME). Also the recovered glycerol is suitable for industrial use.

The processes for transesterification are meanwhile standard. One of the most favored processes is the aqueous Continuous Deglyzerization Process (CD-Process), the so-called Connemann Process.

Independent of the fact of whether it is a high-grade oil (e.g, produced by the displacement extraction process), or if it is a solvent extracted oil or if it is a low-grade oil or fat from the slaughterhouse), in all cases the oils have to be pretreated before transesterification can be realized. Undesirable impurities have to be separated first.

The focus on centrifuges in this respect is a logical approach because mechanical processes are cheaper than thermal processes.

The phospholipids are considered to be the most important group of these impurities. The degumming step separates the hydratable phospholipids (HP) and after the decomposition step of the Ca- or Mg complex also the non-hydratable phospholipids (NHP). The raw material behavior and composition have to be checked in order to choose the right degumming process: "chemical refining", special degumming, TOP-degumming or enzymatic degumming. Finally, less than 10 ppm phosphorous has to be achieved and the losses in free fatty acid (FFA), soap etc. have to be minimized. These will be presented.