

### The production of bio-diesel Reconstruction of a distillery to a bio-diesel plant in Bokel



The Biodiesel Bokel GmbH was followed from a typical agricultural distillery cooperative. The former grain distillery was rebuilt to a bio-diesel production with a capacity of 10 000 t of bio-diesel per year. The big advantage for the investors was that many apparatus and devices could be re-used or refit for the bio-diesel production. The necessary investment costs were clearly under the costs for a complete new construction. This investment advantage has a direct influence to the specific inter-esterification costs and lead to a competitive production of this plant compared to other big plants.

The process for the production is easy. Vegetable oil, methanol and a catalyst are mixed by a recipe.

Because of this interesterification bio-diesel is produced, also named rape-methyl ester.

The raw bio-diesel is separated from its by-product glycerine in a phase separation vessel. In the next process steps the raw bio-diesel is refined, so that the environmental friendly fuel has the required quality according to DIN 51 606 or EN and it can be used for cars and lorries.

For the reconstruction of the distillery the stirrer tank, the existing tanks and the distillery were checked and refit for the new application. New heat exchangers and apparatus were added. A complete new piping system and a new control and instrumentation equipment were installed.



For the chemical storage, the electrical plants and the office a new building was established. A filling place for the loading and unloading of the road tankers and a petrol station for the selling of the bio-diesel ex works was also installed.

#### Technical data

Used oil sorts:	cold-pressed rape oil
Production capacity:	10.000 t/a, in two-shift operation
Spec. interesterification costs:	ca. 0,08 - 0,10 €/l



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