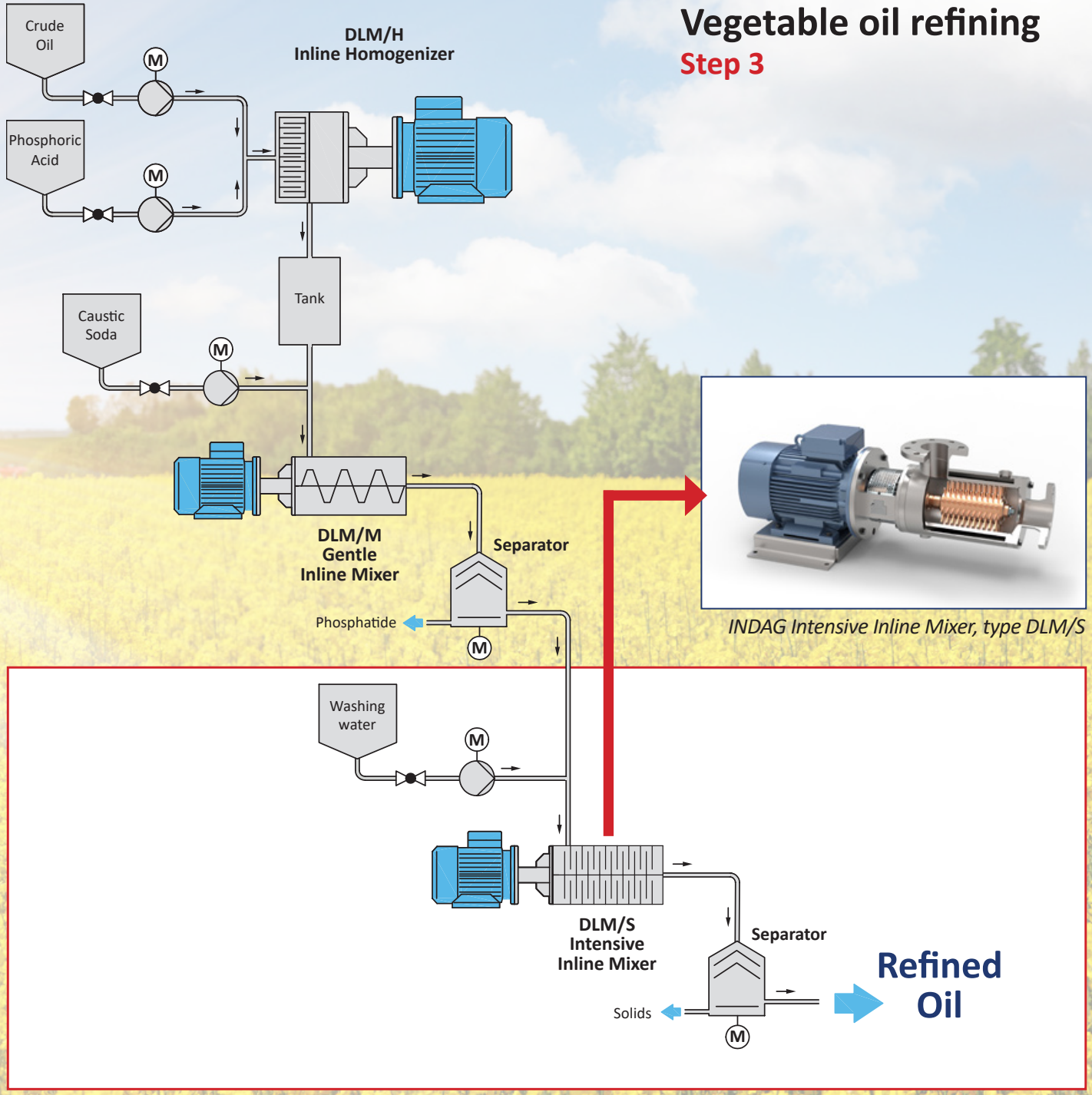
Case No. 510A
Vegetable oil water washing





Vegetable oil refining
Step 3



INDAG Intensive Inline Mixer, type DLM/S

Case No. 510A
Vegetable oil water washing





Process description

After the phosphatides have been separated from the crude oil in the previous process steps, this **third process step** is used to separate the remaining shell/shell materials from the oil. These are very fine and are therefore difficult to separate from the oil. However, the solids can be agglomerated by adding water. The shell materials still contained in the oil adhere to the water and thus create larger particles, which can then be more easily separated in a centrifuge.

The major challenge of this process step is to produce water droplets that are as small as possible, but not so small that an oil-water emulsion is created. An emulsion would not be able to be separated in the subsequent separator. It is also important to utilise the water as efficiently as possible.
The INDAG Intensive Inline Mixer can do both. A frequency converter is used to set the ideal shear input via the speed of the mixer, depending on the volume flow. This means that the droplet size of the water can also be precisely adjusted and the formation of an emulsion can be prevented at the same time.

The downstream separator can therefore be operated ideally and no oil that is bound in your emulsion is lost.

A high-shear mixer, such as the INDAG inline homogeniser, is not suitable because it would produce an emulsion or at least a partial emulsion with a lower shear input. A simpler dynamic mixer or even a static mixer cannot achieve the required effect of fine water droplets.

INDAG offers the inline mixers in hygienic or industrial design, just as the process requires.

The previous process steps of vegetable oil degumming and its ‘neutralisation’ are described in separate INDAG case studies.

Vorteile

- **Improve oil quality**
- **Efficient distribution of fine water droplets without creating an oil-water emulsion**
- **The very narrow size distribution of the water droplets significantly improves the separation process.**
- **Special single acting or double acting mechanical seal arrangement to maximize lifetime of the seal.**
- **Same spare parts for the INDAG mixers in all vegetable oil refining process steps.**
- **More than 70 year of experience in manufacturing dynamic inline mixers.**



View of the mixing elements of the INDAG Intensive Inline Mixer, type DLM/S

Comparable applications with a similar process and the same mixer

- Crude vegetable oil degumming with acid
- Vegetable oil neutralisation with NaOh
- Biodiesel production glycerin separation by adding methanol and catalyst
- Biodiesel production stop transsaponification by HCL adding

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