



Deoxygenation of edible oil with rotary jet mixer technology

Pharma Nord, Denmark

Case story

De-oxygenation of oil

To prevent the oil from going rancid due to oxygenation, deoxygenation can be applied to edible oil production. By using rotary jet mixer technology for the deoxygenation of edible oil, shelf life is extended and the use of antioxidants is avoided.

Client

Danish pharmaceutical company Pharma Nord, producer of dietary supplements, natural remedies and linseed oil.

Problem

Pharma Nord was facing a problem with short shelf life of their linseed oil and thus needed a new technology, which could extend shelf life considerably.

Solution

The solution was to use the Alfa Laval Iso-Mix rotary jet mixer to disperse nitrogen in the oil and thereby remove oxygen from the linseed oil. With the Iso-Mix rotary jet mixer, the oil is stripped with nitrogen in order to slow the oxygenation process. A total solution for deoxygenation was installed including the Iso-Mix rotary jet mixer, a boost pump and a re-circulation loop.

Result

The result was a reduction of oxygen content from 10 ppm to 0.1 ppm. This extended shelf life from two months to almost two years. In other words, shelf life was extended 10 times.



Facts

- Extension of shelf life from two months to two years
- Reduction of oxygen content from 10 ppm to 0.1 ppm
- Cost-effective solution

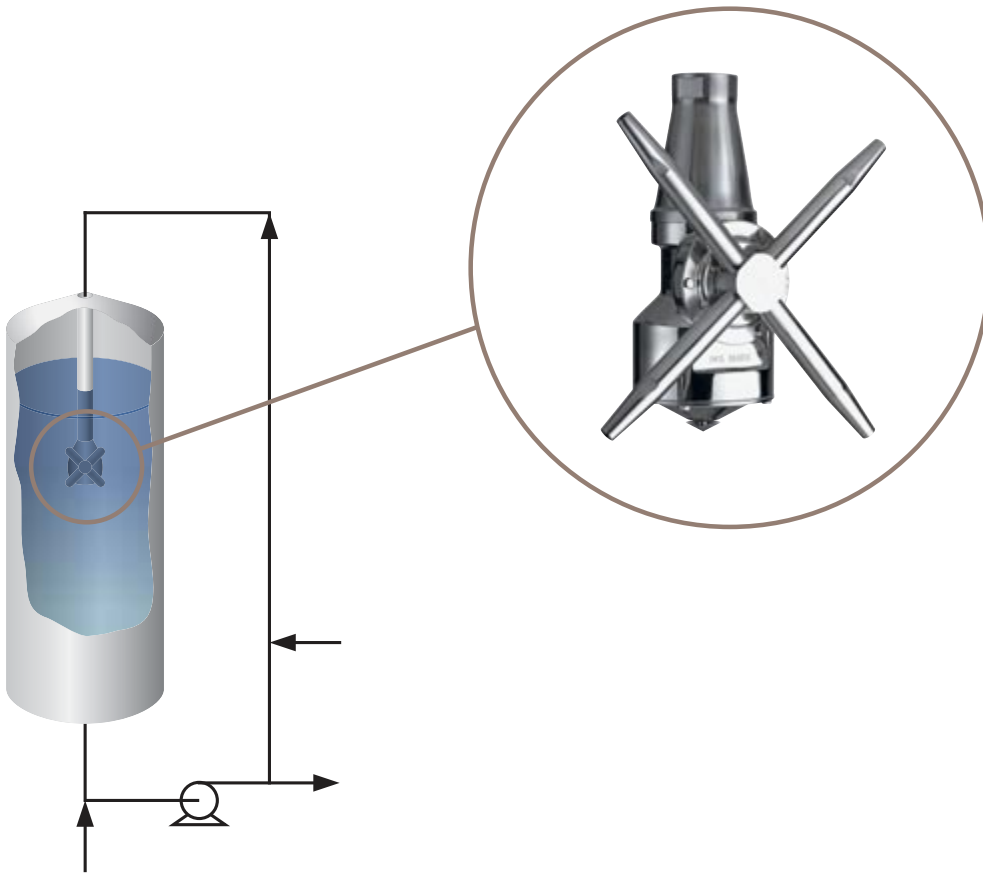
System data

Volume: 1,000 l
Tank diameter: 1 m
Tank height: 1 m
Mixer type: 2 x IM 20 with 4 x 3.5 mm nozzles
Temperature: Ambient
Pressure, pump: 3–4 bars
Density/Viscosity: 0.83 kg/l

Technology and operation

The Alfa Laval rotary jet mixer has either two or four rotating jet nozzles positioned under the liquid surface at the top of the tank. A variable speed pump circulates the liquid to be mixed through the tank in a closed loop system. The resulting flow drives a gearing system in the rotary jet mixer, which causes the nozzles to rotate around both the horizontal and vertical axes.

This double rotation enables the jets to produce mixing action and extend its reach throughout the entire tank volume. This results in fast and efficient mixing of the injected liquid, gas or powder. The rotary jet mixer may also be used for cleaning the tank; cleaning fluids are then fed through the nozzles of the rotary jet mixer into the tank.



How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com