

# HOPSTEINER – NEWSLETTER

## MARCH 2011

TECHNICAL SUPPORT



  
**Hopsteiner**®

COMMITTED TO THE BREWER.

## New CO<sub>2</sub>-Extraction Plant in Mainburg



Our new CO<sub>2</sub>-Extraction plant in Mainburg, which has a capacity of approx. 4,000 tons of hops per year, started up in autumn 2010. This new investment is an extremely important addition to our well-established Ethanol-Extraction plant.

The new facility has been built at a time when CO<sub>2</sub>-Extract is becoming increasingly important, not only as a conventional hop extract, but also as a base material for the production of Downstream Products such as Iso-Extracts and Reduced Extracts.

One of the main features distinguishing CO<sub>2</sub> from Ethanol as solvents is the extraction of the hard resins. Ethanol extracts them almost fully, while CO<sub>2</sub> only extracts them to a minimal extent. Breweries will, of course, have to decide which Extract to use for their own beers, based on criteria such as taste, utilization, economy etc.

### Method

The hops are pelleted prior to extraction. As the bulk weight of pellets far outweighs that of leaf hops, the use of pellets rather than leaf hops results in much better utilization of the extractors. The extractor is filled, then closed and finally locked. It is then loaded with CO<sub>2</sub>. The CO<sub>2</sub> is fed from a work tank and is converted into the supercritical condition via a high pressure pump and a heat exchanger positioned just before the extractor entrance.

In the new plant the pressure in the work tank is set at 60 bar and is increased up approx. 280 bar for extraction. The heat exchanger keeps the temperature of the CO<sub>2</sub> at a maximum of 55 °C.

As previously mentioned, supercritical CO<sub>2</sub> has the ideal properties to separate hop bitter and aroma substances from the pellets by being flushed through the bottom to the top of the extractor.

As the laden CO<sub>2</sub> exits the extractor, the pressure is reduced and this results in the hop components gradually separating from the CO<sub>2</sub>. This process finishes in the separator which is positioned immediately after an evaporator.

The CO<sub>2</sub> gas is re-liquefied in a condenser and returned to the work tank for re-use in the production process.

The resulting pure resin extract is pumped from the separators into a bitter substance container and is further conveyed to the filling plant. The vast majority of extract is not standardized and is filled as pure resin extract. The same applies to Ethanol Extract.

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