

Extraction at its best



An optimal process is achieved when economic production is combined with high quality standards. But it can require the right kind of expertise to make it happen. Special technology using supercritical carbon dioxide helps to produce extracts from a diverse set of natural products. NATECO₂ GmbH & Co. KG, a company based in the German town of Wolnzach, has built its business around knowing just the right way to implement and further develop this technology. Its main product is hops, which is needed to make beer – and it can do this without causing pollution, while also resulting in great taste.



The company primarily works with hops for the beer industry

“This method of extraction does not harm or stress the product. Additionally, the food grade carbon dioxide we use is gained from a chemical process as a by-product and is recycled at NATECO₂ by using it as extraction solvent,” says Dr. Andreas Wuzik, plant manager with the company. “Furthermore, our extraction solvent is an inert gas, neither toxic nor flammable.”

The use of carbon dioxide (CO₂) for this process was first pioneered in the 1970s. There are many benefits compared to the use of organic solvents, which are often classified as hazardous and create enormous efforts and costs when dealing with their environmentally friendly disposal.

Prior to using CO₂ as an extraction solvent, it is compressed and heated up to get it into its supercritical state.

This means that the borders between liquid and gas disappear, and a fluid with the density of a liquid but the diffusion properties of a gas is reached. Consequently, it is optimal to use as extraction solvent for hops and other products.

NATECO₂'s employees have outstanding expertise, enabling them to know exactly what temperatures, pressure levels and other parameters are needed to extract the desired substances. “You can build the most advanced CO₂ extraction plant if you have the required money,” says Dr. Wuzik. “But if you do not know how to adjust the parameters to the different extraction challenges, it does as much good as a Formula One racing car without a driver.”

Lately the company has been applying its expertise to natural products other than hops. For example,

NATECO₂ is decaffeinating tea, degreasing cocoa or deoiling seed – just to mention some of the manifold applications.

While the company still does around 75 % of its business from dealing with hops, working with other items will represent an increasing portion of its activity in future years. That will allow for a greater diversification of the company's customer base, which currently consists mostly of local companies active in the hops and brewing business – in particular its own shareholders. NATECO₂ is 74.9% owned by the Barth family while the remaining 25.1% is held by the Hopfenverwertungsgenossenschaft (HVG), a local association of hop farmers. Both of the shareholders deal with hops and essentially use the company to handle one step in their process chain.

“We are making considerable investments in our activities others than hops and are growing fast,” says Dr. Wuzik. “As mentioned before, most of our hop clients are in our local area, whereas our customers in other parts of our business are located worldwide.” He adds that these customers often have very specific demands and wishes, such as the removal of particular smells from certain natural products. It is amazing how much can be done with CO₂ if one knows how!

But increasing know-how requires experimentation. For feasibility studies NATECO₂ has established a

small R&D extraction plant and a pilot plant, which is adequate for R&D purposes as well as for small-scale production.

In addition, NATECO₂'s in-house laboratory ensures constant product quality and effectiveness. The company's chemists are not only the leading global players in hop analytics, but are also experts in process control of all types of natural substances. An own pilot brewery is also available in the company, used not to make commercial beer but to conduct experiments in beer brewing.

The extraction process can have such a profound effect on the quality of the finished product that some of NATECO₂'s clients require it to sign confidentiality agreements.

Beside the core business of CO₂-extraction milling, drying, mixing, filling, packaging, storage and worldwide distribution are daily work at NATECO₂. “We operate swiftly and flexibly and offer full-service packages,” Dr. Wuzik says. ■

NATECO₂ GmbH & Co. KG

Auenstrasse 18-20

85283 Wolnzach

Germany

Phone: +49 8442 660

Fax: +49 8442 6666

contact@nateco2.de

www.nateco2.de