

## FACTS AND FIGURES

## EXTRACT IN ITS PUREST FORM

OUR QUALITY GUARANTEE

CONCENTRATED  
QUALITY

OUR NEW CO<sub>2</sub>-EXTRACTION PLANT



A milestone for Hopsteiner: in autumn 2010 a new processing plant for the production of high-quality hop CO<sub>2</sub>-Extracts was commissioned at our site in Mainburg, Germany. A number of computer control functions means that processing parameters can be fine tuned to suit the respective raw material. This makes it possible to determine the composition of the resulting extract very precisely. Our ultra modern plant has been designed to allow maximum packaging flexibility and caters for a wide range of packaging sizes.

This means that the specific requirements of our customers can be met individually. Hopsteiner is well equipped to deal with the ever-increasing demand for isomerised hop products, which are produced on the same site in Mainburg as the base product – CO<sub>2</sub>-Extract.



### CO<sub>2</sub>-EXTRACTION PLANT

CO <sub>2</sub>	Food-grade (ex-fermentation) carbon dioxide
Extraction pressure	280 bar
Extraction temperature	55 °C
Working tank pressure	60 bar
Working tank temperature	22 °C
Extractor volume	3,3 m <sup>3</sup>
Extraction cycle	5 hours
Daily capacity	12 – 13 to
Plant capacity	up to 4.000 to/a



The heart of the system: the central control room (left) for the three extractors (right)

### DUE DILIGENCE IS OUR BENCHMARK

Hopsteiner puts emphasis on the highest quality standards. Our Quality Control encompasses the entire production chain – from the raw material to the extraction agent all the way to the finished extract. We set the benchmark by ensuring detailed production and consequently, constant quality levels. Our customers know that the CO<sub>2</sub>-Extracts they receive from us meet their high demands.

Hopsteiner is known for its innovative approach and has therefore complemented the full-scale industrial extraction facility with a pilot plant for trial purposes. This means that we can not only produce a wide range of CO<sub>2</sub>-Extracts, but we also have the facility to carry out innovative extraction trials.

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**Hopsteiner**

COMMITTED TO THE BREWER.

# PRECISION IN EACH STEP

THE WAY TO HIGH QUALITY CO<sub>2</sub>-EXTRACT



## PELLETIZATION

Prior to extraction the fresh leaf hops are pelletized as soon after harvest as possible. The higher bulk density of the pellets makes the following stages of production more economical.

## CO<sub>2</sub>-WORKING TANK

Our carbon dioxide originates from natural fermentation processes and is stored in liquid form in the working tank. From there it is fed into the extraction plant.



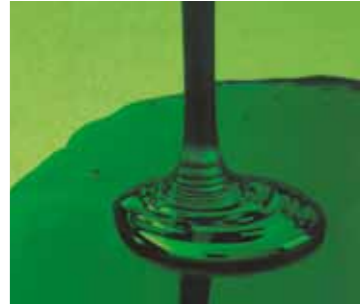
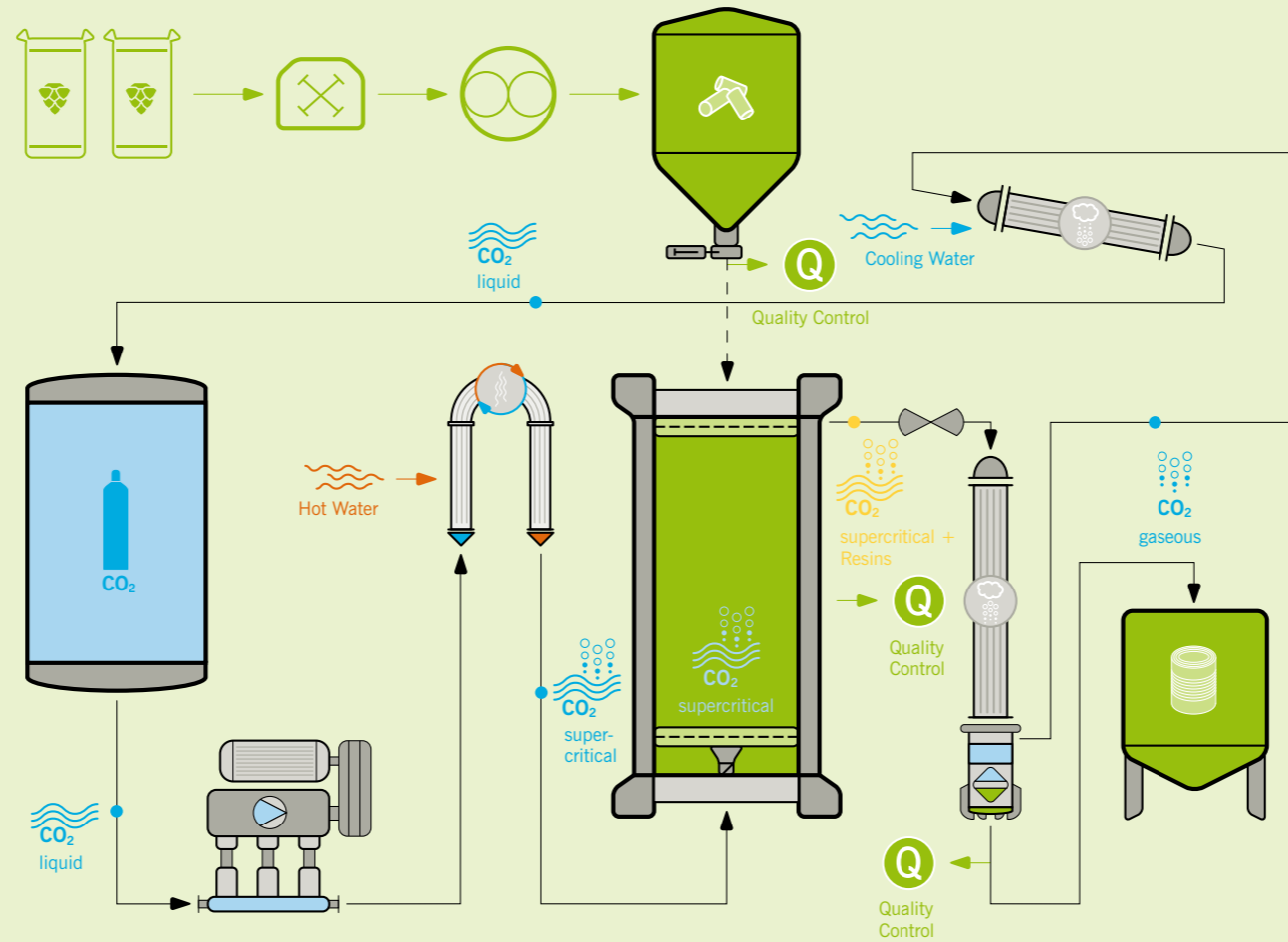
## HIGH PRESSURE PUMP & HEAT EXCHANGER

The liquid CO<sub>2</sub> is compressed up to 280 bar using a high pressure pump. A heat exchanger then warms up the carbon dioxide to 55°C. Having reached supercritical conditions the properties of the extraction solvent are now ideal for the extraction of the valuable hop substances.

## EXTRACTOR

The supercritical CO<sub>2</sub> is flushed through the hop pellets from the bottom to the top of the closed extractor. Variety specific bitter and aroma substances are extracted within a few hours during this so-called batch process.

## PROCESS FLOW



## SEPARATOR

A reduction in pressure and transfer to an evaporator converts the supercritical CO<sub>2</sub> into gas. This results in its solvent properties being lost, allowing the pure resin extract to be separated. After condensation the liquid CO<sub>2</sub> is transferred back to the working tank.

## HOP EXTRACT

The result is a high quality hop product. The hop extract contains all the oils typically associated with each variety and also the majority of the bitter substances in their original form, especially the soft resins.



## PACKAGING

The pure resin extract is homogenized prior to packing which is carried out according to the customers individual requirements. Standard sizes are tins from 0.5 to 10 kgs or drums (e.g. 200 kgs). Packed in this form the extract can be stored for several years.

## LABORATORY

In order to assure that our high standards are maintained the plc controlled process is supported by constant laboratory analyses. Furthermore the thorough control of production is electronically documented according to all currently valid quality standards.