HOPSTAR™ Iso
For higher alpha acid yields

GEA has developed an innovative method for the efficient use of hop extract. For an industrial application of this method we also integrated an homogenizer.

Although principally designed for the use of hop extract, modifications to the process means the HOPSTAR™ Iso can additionally process a mixture of hop pellets and hop extract – or just hop pellets. A patent application has been filed for this innovative process as well as for the equipment.

Enhanced utilization with greater flexibility of the dosing point

The basic technical principles for higher alpha acid yields are the droplet size reduction in the hop extract suspension and the isomerization of the suspension under controlled process conditions parallel to the usual wort boiling. Traditionally hops are dosed in the wort kettle but with the use of the innovative HOPSTAR™ Iso the hop product can be dosed at any point in the brewing process prior to the beer filtration. Subsequently by dosing after wort boiling, a significant reduction in product losses may be achieved thus reducing the annual hop expenditure to the brewer by 15 - 50%.

The dosing of the isomerized hop extract or hop pellet suspension can be done towards the end of wort boiling into the kettle. Hop extract suspension can be dosed independently of this provision directly before the wort cooler into the hot wort.
Proven results

Results of large scale trials with a reduction of alpha acid dosing by 30% and a process-related pH adjustment showed a sensory more intense, but more harmonious bitterness in the beer than in the beer batch that was produced in the standard way with dosing of the hop extract into the wort kettle. The analytical results of the bitterness units showed a comparable level in both beers. The indicator substance for the hop oil content, Linalool, is significantly higher by a factor 3 - 5 in beers with dosing of isomerized hop extract suspension than in the conventionally hopped beer.

When brewing outside of the requirements of the Provisional German Beer Law, the yield of isomerized alpha acids can be increased even further by the process-related adjustment of the pH value in the hop extract suspension according to the Drinking Water Ordinance. If the requirements of the Provisional German Beer Law have to be obeyed then e.g. the use of hop pellets will support the buffering of the hop suspension on an optimal and process-related pH value.

The described technology supports customers in the brewing industry to achieve the objectives defined by politics regarding the implementation of energy efficient processes for beer production and contributes to the reduction of CO2 emissions.

Improved utilization

The investment in the HOPSTAR™ Iso equipment for homogenization and isomerization of hop extract or hop pellet suspension is characterized by the efficient and sustainable use of hops, especially the alpha acids. With a possible reduction of hop dosing by 30%, brewers can easily determine cost reductions in annual hop purchase. With regards to energy expenditure, further costs can be reduced too, as savings of up to 50% of the originally required heat is possible.

GEA understands the brewers’ challenge to operate an energy efficient and sustainable brewhouse and with the use of this technology, these demands can be met.