

# HOPSTEINER – NEWSLETTER

June 2009

- Technical Support-



## Reduced hop products - addition to the brew kettle

A prerequisite for the production of lightstable beers is the use of reduced hop products, iso-alpha acids which have been converted into rho-, tetra- and hexa-hydro-iso-alpha acids.

“Downstream products” are named in accordance with their application at the end of the brewing process. However it is well known that hops act as an important agent against microbiological infections and consequently the first addition of reduced products is often made into the kettle, usually using rho-hydro-iso-alpha.

In 60 litre pilot-scale trials we tested rho and tetra products using different test parameters such as gravity, rate and time of hop addition.

The results of these brews are shown below:

1. At the end of wort boiling, each brew showed higher yields of rho compared to tetra-hydro-iso-alpha acids in the wort. The differences between the products were in a range of 20 – 40% rel.
2. The addition of these products at the end of the boiling process resulted in slightly higher recoveries (5 – 10% rel.)
3. As expected, lower yields were observed when brewing with higher gravity worts (11% compared to 16%). The differences were approximately 10 – 15% rel.
4. After final pasteurisation (150 PU) of the beers produced from these worts there was no significant change in the quantity of the dissolved reduced iso-alpha acids.

In most cases Rho products gave better utilization than Tetra products. If microbiological protection is required, Rho products are more commonly chosen for addition to the kettle.