

“NZYBREW MIX” for “Barley Brewing”



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High Barley Brewing with "NZYBREW MIX"

NATURE BIOCHEM has specific solutions to these issues which can help the brewer restore the balance of quality while still benefiting from the efficiencies of the high barley brewing process.

INTRODUCTION:

Barley is a cost-efficient raw material. It enables brewers to reduce costs and produce high quality beers. The price of barley is typically half of the price of malt. Due to its resemblance to malt, barley is a flexible and versatile alternative to malt in the production of high quality beers with great foam, taste and clarity. In many parts of the world, brewers have gradually begun to partially replace malt with barley. This was initially in modest quantities of 5-10% barley, but now a higher barley content of 30-40% is not uncommon. In some parts of the world, brewers have been producing quality beers with 100% barley.

PRODUCT DESCRIPTION:

NZYBREW MIX is an optimized enzyme blend for applications where 30%–100% barley is used. It complements the enzymes present in barley (mainly β -amylase and exo-peptidase) and provides all other enzymes required for effective barley brewing in one single product – making the process faster and simpler than ever before. Its unique composition contains an optimized mix of enzymes.

ADVANTAGES:

The advantages or reasons for switching to "NZYBREW MIX" brewing are as follows:

- Cost-effective integrated solution containing every enzyme activity needed for efficient brewing with barley.
- Suitable for up to 100% barley brewing, as well as malt, barley and adjunct blends.
- Unique enzymatic composition producing a high yield and a wort rich in fermentable sugars and free amino nitrogen.
- Delivers low wort viscosity, high wort and beer filterability, with good beer clarity and foam quality.
- Provides robust process control against variations in barley grist levels and barley quality.

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Function:

NZYBREW MIX unique composition ensures a high yield and a wort that is rich in fermentable sugars and free amino nitrogen. The presence of varied functional enzymes in NZYBREW MIX ensures the breakdown of beta-glucans, arabinoxylans and other hemicelluloses to ensure low wort viscosity and high filterability. This also prevents the formation of haze in beer, which can occur due to the carryover of haze forming polysaccharides. NZYBREW MIX works together with the barley peptidase to break down proteins, and ensures that the free amino nitrogen levels are sufficient for a quick fermentation. In addition, NZYBREW MIX enzyme component makes polysaccharides accessible to other enzymes, while also leaving foam positive proteins for good foam quality in the final beer. NZYBREW MIX works in conjunction with the enzymes in barley to break down starch into fermentable sugars and prevent the formation of retrograded starch.

Application:

While NZYBREW MIX enables brewing with up to 100% barley; it is also suitable for blends of barley, malt, and/or adjuncts. The recommended dosage depends on the proportion of barley being used. The quality of raw materials may also affect the dosage. Adding NZYBREW MIX at the beginning of the mashing in process ensures optimum conditions for the enzymes to work in as mashing proceeds.

Dosage:

NZYBREW MIX can be used at the following dose rates depending on the grist composition.

Barley (%)	Malt (%)	Dose rate (kg/ton of grains)
100		2.0-4.0
80	20	1.0-3.0
60	40	0.5-1.0
40	60	0.3-0.5
30	70	0.1-0.3

Barley: The barley performance is checked using a barley quality test measuring turbidity, throughput, FAN, sugar profile, amino acids, viscosity, beta-glucan, and pH. The endogenous enzymes (exopeptidases and alpha-amylase) of the barley must be active. FAN correlates with the protein content.

Milling: The best lautering performance is experienced with a six-roller mill using coarser barley grist compared with malt grist.

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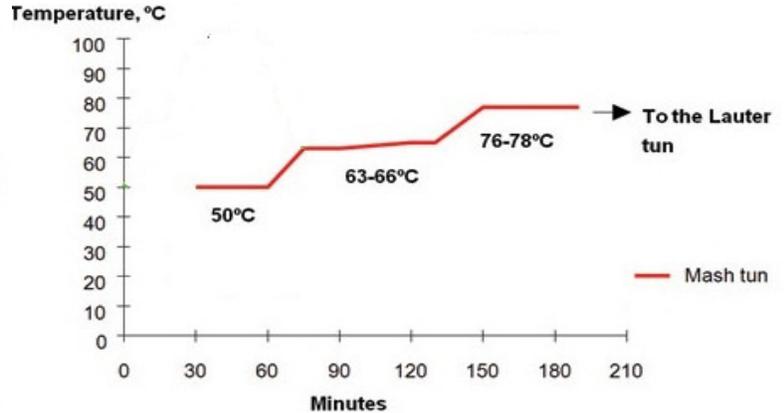
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Mashing: To ensure the synergy between NZYBREW MIX activity and the barley enzymes the correct mashing profile is extremely important. Usage recommendation: Barley-to-water ratios in mashing: 1:2.2-1:3.5. Saccharification rest: 45-75 minutes. Target RDF: from 66% to above 70% (maltose wort). Enzyme dosage: 1.5-2.5 kg/t barley

- Mashing : NZYBREW MIX added at mashing-in recommended pH 5.7-6.0 (no adjustment of pH in the mash kettle, barley-to-water ratios: 1:2.2-1:3.5, calculating with the higher moisture content of barley, continuous stirring in the mash kettle , protease rest at 54 °C to ensure FAN.

- Saccharification : Rest at 64 °C, saccharification time (45-75minutes) impacted by RDF target and dosage of NZYBREW MIX. Mashing-off may not be starch negative – no problem as it will be in lautering.

Wort treatment: Adjustment of wort pH < 5.2. Ensure right pH in final beer, less hops needed to reach similar bitterness perception to malt beer.

Wort separation : Using mash filters, make sure that the dry matter loading is the same as when using malt; that is, to take into consideration the moisture content of the barley. When lautering the more coarse barley grist, the normal standard lauter programme can be used in terms of circulation time and lauter speed.

Packing:

NZYMEBEW MIX is available in standard pack size of 25 kg HDPE drums.

Storage:

NZYMBREW MIX should be stored under cool condition and dry conditions in sealed packs. For long term storage, it is preferable to store it under 10 deg C.

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