

# LYSOBIER

## PRACTICAL USAGE OF LYSOBIER IN BREWING

All points of application are to prevent spoilage by lactic acid bacteria.

APPLICATION	DOSAGE	PURPOSE
Yeast	50mg/L - 500mg/L	Preserves & Decontaminates the yeast
Yeast Washing	50mg/L - 2000mg/L	For Slurry Decontamination or as an Alternative to Acid Washing
Wort Pre-Fermentation ie. during cooling	50mg/L - 300mg/L	Preserves the sensitive Wort during cooling
During Fermentation	50mg/L - 300mg/L	For Security and Prevention
During Bottling/Filling	50mg/L - 300mg/L	For Non Pasteurized, Non Filtered beers and Microbrews

### #1. ADDING LYSOBIER TO PRESERVE & DECONTAMINATE THE YEAST

Yeast used to start beer fermentation is often obtained from previous fermentations. This repitched yeast is very easily contaminated with lactic acid bacteria and is often treated by acid-washing. This process has many drawbacks which negatively affect the yeasts' performance, such as sluggish fermentation and inefficiency. The use of strong acids can also raise worker safety concerns. **LYSOBIER** inhibits only the lactic acid bacteria and *not* the yeast. It is highly effective, totally non-toxic and without any safety issues. When only the yeast is treated (not the final beer) there is less than <1 ppm of **LYSOBIER** detected in the finished beer.

Add a solution of solubilized **LYSOBIER** to treat the yeast when recovered or harvested from fermentation. As a curative, the final concentration of solubilized **LYSOBIER** in the yeast preparation should range from 50 – 2000 ppm; as a preventative, the optimum would be 200-300 ppm.

*Example:* To 100 liters of yeast we would add 300 ml of 10% w/v solution\* of **LYSOBIER** to obtain a final **LYSOBIER** concentration of 300 ppm (or 300mg/L). We recommend that the **LYSOBIER** treated yeast be held 48-72 hours prior to use, to maximize the decontaminating action of **LYSOBIER** before the wort dilutes it.

\*NOTE: 10% w/v solution means 10% weight/volume of lysozyme in the solution. For example, 1 Liter (volume) solution has 100 grams (weight) of **LYSOBIER**.

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## #2 - ADDING LYSOBIER TO DIRECTLY PROTECT THE COOLED WORT

During beer production, wort produced from mashing is highly vulnerable to infection by lactic acid bacteria once it is cooled and before the start of active yeast fermentation. For protection, **LYSOBIER** can be added to the cooled wort in case the fermentation is delayed. The final concentration of **LYSOBIER** in the wort should range from 200-300 ppm. The yeast can be added any time after the addition of **LYSOBIER**.

*Example:* To 10 Hectoliters of wort we would add 3 L of 10% w/v solution of **LYSOBIER** to obtain a final **LYSOBIER** concentration of 300 ppm (or 300mg/L). **NOTE: Do not add LYSOBIER to hot wort as it will be deactivated.**

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## #3. ADDING LYSOBIER TO THE FERMENTING BEER FOR PROTECTION

If lactic acid bacteria contamination is evident, **LYSOBIER** can be added at any time during fermentation. However, we recommend prevention by either treating the yeast preparation or the freshly cooled wort, to be sure lactic acid bacteria don't become problematic during fermentation. (As a preventative, it can also be added to the final beer). The **LYSOBIER** concentration in fermenting beer should range from 200-300 ppm.

*Example:* To 25 Hectoliters of fermenting beer we would add 7.5 L of 10% w/v solution of **LYSOBIER** to obtain a final **LYSOBIER** concentration of 300 ppm (or 300mg/L).

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## #4. ADDING LYSOBIER AT FILLING/PACKAGING TO PREVENT SPOILAGE & EXTEND THE SHELF-LIFE

**LYSOBIER** can be added to the final fermented beer product prior to packaging to ensure that lactic acid bacteria won't spoil the product. This application is for beers that won't be either pasteurized or get sterile filtration for microbial stability. Examples are cask and bottle conditioned beers containing live yeast and Microbrews that have no further processing for microbial stability.

The final concentration of **LYSOBIER** in the finished beer should range from 50-300ppm. We recommend lower levels in finished beer, as at this point, it's less prone to infection. Excessive levels of **LYSOBIER** may cause chill haze in finished, light colored beers.

**NOTE:** Do not add **LYSOBIER** to beer that'll be pasteurized or filter sterilized, as it would be deactivated by the heat and serve no purpose.

*Example:* To 25 Hectoliters of finished beer we would add 7.5 L of 10% w/v solution of **LYSOBIER** to obtain a final **LYSOBIER** concentration of 300 ppm (or 300g/L).

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