



Premium Liquid Yeast *and* Cultures *for* **Professional Wild & Sour Brewing**

Wyeast Laboratories, Inc. Technical Data Sheet

PRODUCTS

Premium Liquid Yeast

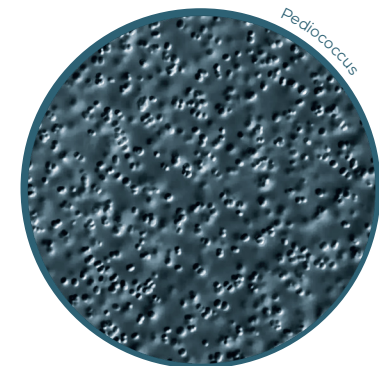
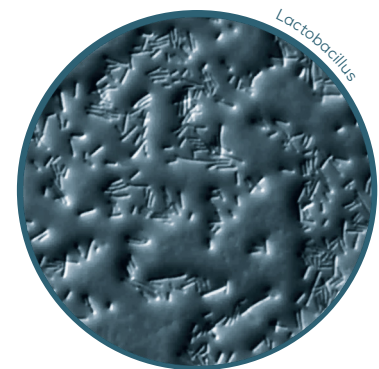
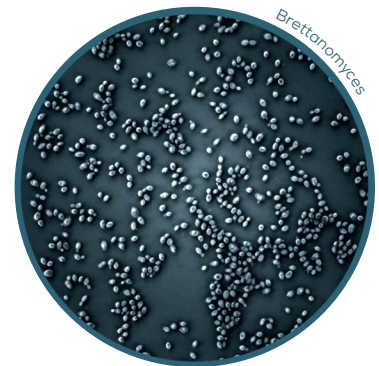
- > *Brettanomyces bruxellensis*
- > *Brettanomyces lambicus*
- > *Brettanomyces claussenii*

Premium Liquid Lactic Acid Bacteria

- > *Lactobacillus buchneri*
- > *Lactobacillus brevis*
- > *Pediococcus damnosus*

Premium Mixed Culture Blends

- > Saison-Brett Blend (*S. cer. var. diastaticus, Brettanomyces*)
- > Berliner Weisse Blend (*S. cerevisiae, Brettanomyces, Lactobacillus*)
- > Oud Bruin Ale Blend (*S. cerevisiae, Lactobacillus*)
- > Belgian Lambic Blend (*S. cerevisiae, Brettanomyces, Lactobacillus, Pediococcus*)
- > Roeselare Ale Blend (*S. cerevisiae, Brettanomyces, Lactobacillus, Pediococcus*)
- > Belgian Style Blend (*S. cerevisiae, Brettanomyces*)
- > Old Ale Blend (*S. cerevisiae, Brettanomyces*)



DESCRIPTION

A liquid suspension of cultures grown in a sterile, nutrient-rich medium.

PACKAGING

Available from 1.0 liter and up per strain, in 0.5 and 1.0 liter increments to suit your brewhouse, barrel aging program, and styles. Contact us for a customized pitch rate recommendation.

INOCULATION RATES

Suggested Volumes:

Product Type	Application	Million Cells per mL	Liters / BBL (1.17 hL)
Blended Cultures	Direct Pitch	Proprietary	varies *
	Primary & Secondary Fermentation		
<i>Brettanomyces</i>	Primary Brett-only Fermentation	6.5 million	1.0 liter *
	Secondary Fermentation	3.25 million	0.5 liter *
Lactic Acid Bacteria	Souring Wort	varies *	varies *
	Souring Beer (Berliner Weisse)	varies *	varies *
	Secondary Fermentation	0.5 million	0.5 liter *

* This chart serves as a guideline but does not cover all possible fermentation styles, parameters, or brewer preferences. Pitch rates will vary depending on your brewing goals, time, temperature, and beer style. Contact us for a customized recommendation.



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STABILITY

Store at 34–40 °F (1–4 °C) immediately upon arrival. Best when used fresh. Use within 14 days.

Brettanomyces cultures take 3–6 months to fully develop character once fermentation is underway, and can age for years under traditional cellaring conditions. Lactic acid bacteria cultures develop character and acidity with cellaring, but may also be used following the fast souring method known as kettle souring.

INSTRUCTIONS FOR USE

Allow to come to ambient temperature just prior to use. Sanitize package before opening. Pour the contents into wort, following the instructions below:

- ▶ ***Brettanomyces* in Primary:** If used as the only microorganism, pitch the Brett into wort with little aeration. Too much oxygen will stress the cell membrane.
- ▶ ***Brettanomyces* in Secondary:** The beer in primary fermentation is transferred to another vessel keep at 60–75 °F (15–24 °C). Do not aerate the fermented beer to avoid contaminations and oxidation. Brett strains can be pitched directly into the fermented beer.
- ▶ **Mixed *Saccharomyces* & *Brettanomyces*:** If *Saccharomyces* yeast is used in combination with a Brett strain, slightly aerate the wort.
- ▶ **Mixed *Saccharomyces* & Lactic Acid Bacteria:** The yeast will lead the fermentation and later the LAB will start its process, so the wort can be aerated as usual. In some cases, separate fermentations can be completed and later blended.
- ▶ **Mixed *Saccharomyces*, *Brettanomyces*, & Lactic Acid Bacteria:** If a blend is used, slightly aerate so the *Saccharomyces* can start fermentation. The Brett and LAB will start later as fermentation progresses. Direct pitch into the wort.
- ▶ **Lactic Acid Bacteria Souring:** No hops are added to the wort. Boil for 15 minutes, then cool to 100 °F (38 °C). Pour the bacteria contents into the wort. The wort can be aerated with CO₂.
- ▶ **Lactic Acid Bacteria in Secondary:** Results in less souring because of reduced available sugars left after primary fermentation. Do not aerate the fermented beer to avoid contaminations and oxidation. The LAB can be pitched directly into the fermented beer.

STRAIN AVAILABILITY

Fresh inventory is immediately available for many core strains and can ship to you in just a few days. Our full range of strains, blends, and banked proprietary cultures are grown to-order and ship only once they have met all QA/QC specifications.

PRODUCTION

All strains are produced in Wyeast's licensed food manufacturing facility from an archival -80 °F (-62 °C) ultra-low temperature bank in order to maintain genomic stability and assure that cultures have consistent fermentation kinetics, flavor profiles, and flocculation characteristics.

Cultures are propagated on premium malt extract as the primary carbohydrate source, ensuring they are conditioned to an environment similar to brewers wort, and propagation environments are optimized for every strain. *Brettanomyces* are produced on a specialized oxygenation schedule to meet reduced species requirements. LAB are produced with genus-specific nutrient additions and monitored for lactic acid production and pH decrease. Minimal processing is required once propagations are complete, therefore having no detectable effect on culture integrity, and the possibility of contamination is significantly limited.

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PROFESSIONAL SPECIFICATIONS OF BASE CULTURES

<i>Saccharomyces cerevisiae</i>	
Analysis	Specification
Viable <i>Saccharomyces</i> concentration	1.20 x 10 ⁹ cells/mL
Culture Density	1.10 g/mL
<i>Saccharomyces</i> Colony Morphology	Single morphology
Total anaerobic bacteria	< 1 cfu/ 7.5x10 ⁷ yeast cells
Total aerobic bacteria	< 1 cfu/ 7.5x10 ⁷ yeast cells
Total wild non- <i>Saccharomyces</i> yeast	< 1 cfu/ 7.5x10 ⁷ yeast cells
<i>S. cer. var. diastaticus</i> (STA1 +)	No Detection (qPCR)
<i>Megasphaera/Pectinatus</i> spp.	No Detection (qPCR)
<i>Lactobacillus/Pediococcus</i> spp.	No Detection (qPCR)

<i>Brettanomyces</i> spp.	
Analysis	Specification
Viable <i>Brettanomyces</i> concentration	7.50 x 10 ⁸ cells/mL
Culture Density	1.10 g/mL
<i>Brettanomyces</i> Cell Morphology	Single morphology
Total anaerobic bacteria	< 1 cfu/ 7.5x10 ⁷ yeast cells
Total aerobic bacteria	< 1 cfu/ 7.5x10 ⁷ yeast cells
Total wild non- <i>Brettanomyces</i> yeast	< 1 cfu/ 7.5x10 ⁷ yeast cells
<i>S. cer. var. diastaticus</i> (STA1 +)	No Detection (qPCR)
<i>Megasphaera/Pectinatus</i> spp.	No Detection (qPCR)
<i>Lactobacillus/Pediococcus</i> spp.	No Detection (qPCR)

<i>Lactobacillus</i> spp.	
Analysis	Specification
Bacteria concentration	≥ 1.0 x 10 ⁸ cells/mL
Culture Density	1.00 g/mL
Bacteria Cell morphology	Single morphology
Total Yeast	< 1 cfu/ 1.0 mL bacteria cells
Non Lactic Acid Bacteria	< 1 cfu/ 1.0 mL bacteria cells

<i>Pediococcus</i> spp.	
Analysis	Specification
Bacteria concentration	≥ 1.0 x 10 ⁸ cells/mL
Culture Density	1.00 g/mL
Bacteria Cell morphology	Single morphology
Total Yeast	< 1 cfu/ 1.0 mL bacteria cells
Non Lactic Acid Bacteria	< 1 cfu/ 1.0 mL bacteria cells

INTEGRITY

- Base *Saccharomyces* cultures are standardized at 1.2 billion viable cells/mL, resulting in > 99.9% viability of the your pitch rate and the blend ratio of these cultures.
- Base *Brettanomyces* cultures are standardized at 750 million viable cells/mL, resulting in > 99.9% viability of your pitch rate and the blend ratio of these cultures.
- Lactic acid bacteria cultures are standardized at ≥ 100 million cells/mL prior to packaging or culture blending.
- All cultures meet or exceed strict quality standards and specifications prior to shipment. A combination of traditional and innovative technologies are used to prove product purity for every phase of propagation to the finished product.
- Quality assurance samples are archived and routinely tested for ongoing confirmation of product integrity.
- Yeast, bacteria, and mixed cultures are guaranteed by our Product Warranty to produce a healthy and complete fermentation under typical brewing, barrel aging, and beer/wort souring conditions.

CERTIFICATION

Every yeast and bacteria strain is certified Kosher by the Orthodox Union.



Let's get creative.

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