



Technical Data Sheet

WINDSOR

BRITISH-STYLE BEER YEAST

Windsor ale yeast is a true English strain that produces a balanced fruity aroma and imparts a slight fresh yeasty flavor. Beers created with Windsor are usually described as full-bodied, fruity English ales. Brewers choose Windsor to produce beers that range from Pale Ale to Porter with moderate alcohol levels and the flavor and aroma characteristics of the best traditional ales. Traditional styles brewed with this yeast include but are not limited to Milds, Bitters, Irish Reds, English Brown ales, Porters and Sweet Stouts.



MICROBIOLOGICAL PROPERTIES

Classified as *Saccharomyces cerevisiae*, a top fermenting yeast.

Typical Analysis of Windsor yeast:

- Percent solids** 93% - 97%
- Viability** $\geq 5 \times 10^9$ CFU per gram of dry yeast
- Wild Yeast** < 1 per 10^6 yeast cells
- Diastaticus** Undetectable
- Bacteria** < 1 per 10^6 yeast cells

Finished product is released to the market only after passing a rigorous series of tests

*See specifications sheet for details



BREWING PROPERTIES

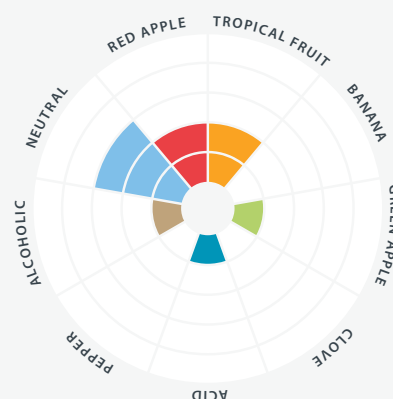
In Lallemant's Standard Conditions Wort at 20°C (68°F) Windsor yeast exhibits:

- Vigorous fermentation that can be completed in 3 days
- Medium attenuation and Low flocculation
- Fruity and estery flavor and aroma, typical of traditional English style ales
- The optimal temperature range for Windsor yeast when producing traditional styles is 15°C(59°F) to 22°C(72°F)
- Windsor does not utilize the sugar maltotriose (a molecule composed of 3 glucose units). Maltotriose comprises an average of 10-15% of total sugar in all-malt worts. The result will be fuller body and residual sweetness in the beer. Be advised to adjust mash temperatures according to desired result.

Lag phase, total fermentation time, attenuation and flavor are dependent on pitch rate, yeast handling, fermentation temperature and nutritional quality of the wort. *If you have questions please do not hesitate to contact us at brewing@lallemand.com*



FLAVOR & AROMA



QUICK FACTS

BEER STYLES

fruity English ales, pale ales, porters

AROMA

fruity, estery

ATTENUATION

medium

FERMENTATION RANGE

15 - 22°C (59 - 72°F)

FLOCCULATION

low

ALCOHOL TOLERANCE

12% ABV

PITCHING RATE

50 - 100g/hL to achieve a minimum of 2.5 - 5 million cells/mL



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USAGE

The pitch rate will affect the fermentation performance and flavor of the beer. For Windsor yeast, a pitch rate of 50 – 100g per hL of wort is sufficient to achieve optimal results for most fermentations. More stressful fermentations such as high gravity, high adjunct or high acidity may require higher pitch rates and additional nutrients to ensure a healthy fermentation.

Find your exact recommended pitching rate with our Pitch Rate Calculator in our Brewers Corner at www.lallemandbrewing.com

Windsor may be re-pitched just as you would any other type of yeast according to your brewery's SOP for yeast handling. Wort aeration is required when re-pitching dry yeast.



STORAGE

Windsor yeast should be stored in a vacuum sealed package in dry conditions below 4°C (39°F). Windsor will rapidly lose activity after exposure to air.

Do not use 500g or 11g packs that have lost vacuum. Opened packs must be re-sealed, stored in dry conditions below 4°C (39°F), and used within 3 days. If the opened package is re-sealed under vacuum immediately after opening, yeast can be stored below 4°C (39°F) until the indicated expiry date. Do not use yeast after expiry date printed on the pack.

Performance is guaranteed when stored correctly and before the expiry date. However, Lallemand dry brewing yeast is very robust and some strains can tolerate brief periods under sub-optimal conditions.

If you have questions, do not hesitate to contact us. We have a team of technical representatives happy to help and guide you in your fermentation journey.



REHYDRATION

Rehydration of Windsor in sterile water is recommended prior to pitching into wort in order to reduce stress on the cell as it transitions from dry to liquid form. For many fermentations, this stress is not significant enough to affect fermentation performance and flavor, so good results may also be achieved when pitching dry yeast directly into wort. We highly recommend rehydration in harsher fermentation conditions such as high gravity or sour wort where the added stress of dry-pitching is more likely to have a greater impact on the finished beer. Use of a rehydration nutrient such as Go-Ferm Protect Evolution has been shown to improve fermentation performance for difficult fermentations.

Rehydration guidelines are quite simple and present a much lower risk of contamination than a starter, which is unnecessary when using the recommended pitch rate of dried active yeast.

Sprinkle the yeast on the surface of 10 times its weight in clean, sterilized water at 30-35°C (86-95°F). Do not use wort, or distilled or reverse osmosis water, as loss in viability may result. **Stir gently**, leave undisturbed for 15 minutes, then stir to suspend yeast completely. Leave it to rest for 5 more minutes at 30-35°C.

Without delay, adjust the temperature to that of the wort by mixing aliquots of wort with the rehydrated yeast. Wort should be added in 5 minute intervals and taking care not to lower the temperature by more than 10°C at a time. Temperature shock of >10°C will cause formation of petite mutants leading to extended or incomplete fermentation and possible formation of undesirable flavors. Do not allow attemperation to be carried out by natural heat loss. This will take too long and could result in loss of viability or vitality.

Inoculate without delay into cooled wort in the fermenter. Windsor yeast has been conditioned to survive rehydration. The yeast contains an adequate reserve of carbohydrates and unsaturated fatty acids to achieve active growth. It is unnecessary to aerate wort upon first use.

CONTACT US

For more information, please visit us online at www.lallemandbrewing.com

For any questions, you can also reach us via email at brewing@lallemand.com