



TECHNICAL DATA SHEET

WINDSOR BRITISH-STYLE BEER YEAST

Windsor ale yeast is a true English strain that produces a beer which is estery to both palate and nose with 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 a *Saccharomyces cerevisiae*, a top fermenting yeast.

Typical Analysis of Windsor yeast:

Percent solids 93% - 97%

Living Yeast Cells $\geq 5 \times 10^9$ per gram of dry yeast

Wild Yeast < 1 per 10^6 yeast cells

Bacteria < 1 per 10^6 yeast cells

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

*According to the ASBC and EBC methods of analysis



BREWING PROPERTIES

In Lallemand'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

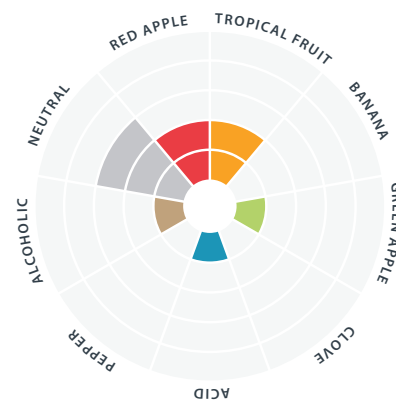
The optimal temperature range for Windsor yeast when producing traditional styles is 15°C(59°F) to 22°C(72°F)

Windsor does not utilize the sugar maltotriose (a molecule composed of 3 glucose units). Maltotriose is present in wort in an average 10-15% of all malt worts. The result will be fuller body and residual sweetness in beer. Be advised to adjust mash temperatures according to desired result.

Fermentation rate, fermentation time and degree of attenuation are dependent on inoculation density, 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



USAGE

Depending on the desired gravity of the beer, among other variables, different yeast pitching rates should be applied. For Windsor yeast, pitching rate varies between 50 grams and 100 grams of active yeast to inoculate 100 liters of wort.

A pitching rate of 50g per 100L of wort to achieve a minimum of 2.5 million viable cells per ml.

A pitching rate of 100g per 100L of wort to achieve a minimum of 5 million viable cells per ml.

The pitching rate may be adjusted to achieve a desired beer style or to suit processing conditions.

Windsor has an ABV tolerance of 12%. For beers above 12%, the yeast will require nutrient addition such as 1g/hL of Servomyces.

A pitching rate of 25g per 100L of Windsor can be used in the production of Ciders.

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



REHYDRATION

Rehydration of Windsor is recommended for use, and will reduce osmotic stress on the yeast when rehydrated and pitched in liquid form. Rehydration guidelines are quite simple, and present a much lower risk of contamination than a starter, which is unnecessary with dried active yeast.

Sprinkle the yeast on the surface of 10 times its weight in clean, sterilized water at 30-35°C (86-95F). Do not use wort, or distilled or reverse osmosis water, as loss in viability will result. **DO NOT STIR.** Leave undisturbed for 15 minutes, then stir to suspend yeast completely, and leave it for 5 more minutes at 30-35°C. Then adjust temperature to that of the wort and inoculate without delay.

Attemperate in steps at 5-minute intervals of 10°C to the temperature of the wort by mixing aliquots of wort. 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.

Temperature shock, at greater than 10°C, will cause formation of petite mutants leading to long-term or incomplete fermentation and possible formation of undesirable flavors.

Windsor yeast has been conditioned to survive rehydration. The yeast contains an adequate reservoir of carbohydrates and unsaturated fatty acids to achieve active growth. It is unnecessary to aerate wort upon first use.

When using Lallemand Brewing Yeasts, you may repitch the yeast just as you would any other type of yeast according to your brewery's SOP for yeast handling.



STORAGE

Windsor yeast should be stored dry below 10°C (50°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-closed, stored in dry conditions below 4°C, and used within 3 days. If the opened package is re-vacuum sealed immediately after opening, yeast can be stored for up to two weeks below 4°C.

Do not use yeast after expiry date printed on the pack.

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