



PATHFINDER

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TY-48

TURBO YEAST

A high alcohol tolerant, high-ester active dried wine yeast, formulated with optimized nutrition for fermentation of fruit-sugar washes.

PRODUCT DESCRIPTION & FUNCTION

TY-48® is based on a non-diastatic, active dried yeast strain with very high alcohol and osmotic pressure tolerances – formulated with a complete, chemically-defined nutrient complex, TY-48® is optimised for sugar wash fermentations up to approx. 20 % ABV.

Although designed for use with highly refined sugar substrates such as glucose, sucrose, and invert sugar syrup, TY-48® can be used with any fermentable sugar substrate for production of very high alcohol wash up to ~20 % ABV, or for rapid fermentation of lower alcohol levels up to ~14 % ABV.

The nutrient complex in TY-48® contains all essential macro and micro-nutrients required for healthy fermentation, including **nitrogen (urea source)**, phosphate, magnesium, B vitamins and trace minerals. TY-48® does not contain yeast extract or other

non-chemically defined materials which can taint the quality of alcohol used for clean flavour applications.

Recommended For

Fermentation of very high alcohol base for use in FMB/CMB hard soda production; fermentation of very high alcohol wash for spirit alcohol distillation.

Note: TY-48® is not recommended for applications where very low flavour is required (unless post-fermentation treatments such as carbon filtration and/or ion exchange can be applied).

Organoleptic Qualities

Wash fermented with TY-48® is typically high in sulfidic notes along with moderate levels of yeast, wine, and pome fruit notes.

TECHNICAL CHARACTERISTICS

Yeast Classification	Saccharomyces cerevisiae
Temperature Tolerance	Max. 27°C for 20% ABV Max. 36°C for 14% ABV
Killer Factor	Neutral
Alcohol Tolerance	≥ 20 % ABV
SO₂ production	High
Viable Yeast Cells	> 6 x 10 ⁹ cfu/g
Total bacteria	< 3 x 10 ³ cfu/g
Wild Yeast	< 1 x 10 ³ cfu/g
Mould	< 5 x 10 ² cfu/g
Coliforms	< 10 cfu/g
Pathogens (Salmonella, E. coli etc)	Absent in 25 g
Lead	< 3 mg/kg
Arsenic	< 1 mg/kg
Heavy Metals (as Pb)	< 10 mg/kg
GMO Status	GMO Free

DOSAGE & APPLICATION

Pitch rates: suggested rates are as follows (optimisation through bench trials is recommended):

Target ABV for fermentation:	5%	8%	10%	12%	14%	20%
TY-48 Tubro Yeast dosage:	1.2 g/L	1.6 g/L	1.9 g/L	2.3 g/L	2.7 g/L	5.4 g/L

Pitching Method

TY-48® requires agitation to dissolve nutrient salts so cannot be pitched directly without mixing facility. For indirect pitching, pre-mix with 10x times its weight of water at 25-30°C (77- 86°F) and mix for 5 minutes before pitching.

Note: TY-48® is not suitable for propagation or post-fermentation recovery for re-use due to nutrient depletion during fermentation. Rehydration is only required for pre-dissolving nutrients rather than yeast activation. It is important to minimise contact-time (ideally < 15 minutes) to avoid high nutrient concentrations harming the yeast. Trials may be required to determine impacts of longer contact periods on yeast viability and fermentation kinetics.

Fermentation Temperature

TY-48® can tolerate up to 38°C (100°F) but alcohol tolerance is impeded at this temperature. For optimum performance and quality, it is recommended to ferment at 20-25°C (68-77°F), although washes up to 14% ABV can be fermented at 30-32°C (86-90°F) if rapid fermentation is required.

Note: TY48® may generate unexpected quantities of heat during fermentation; if temperature is not controlled and exceeds the maximum tolerance at any time the ethanol tolerance will be impeded.

Oxygenation

Oxygenation will help to minimise SO₂ production; as a guide we suggest oxygenation rates starting from 15-20 ppm for ABVs from approx. 5%, up to 40-45 ppm for very high ABVs of up to 14-20%. Oxygenation rates can be optimised through trials to meet the specific requirements of the application.

pH Tolerance

TY-48® ferments optimally at pH 4-6 but can still operate outside of this range (e.g. pH 3-7). It is best practice to monitor pH as it is likely to drop as fermentation progresses. If possible, avoid levels below pH 3.5 to avoid prolonged fermentation times.

Clarification & filtration

TY-48® has a very high cell density so will result in high cell loading in the fermentation media. The strain is also a very low flocculating so use of high rates of finings agents and/or centrifugation plus filtration will be required to achieve a clear base. The average cell diameter of the yeast is ~5 micron – however, due to presence of smaller daughter cells a filter pore size of < 2 micron (absolute rated) may be required for fine filtration.

PACK SIZES

1000g bags and 25kg poly-lined paper sacks.

SAFETY

This material is non-hazardous when used as directed. SDS available on request.

STORAGE

25kg sacks: Store in original, sealed packaging away from direct sunlight. If stored below 10°C / 50°F this product will have a shelf life of up to 24 months. At 20°C / 68°F storage temperature, shelf life will be reduced to 12 months. After opening, re-seal tightly and keep refrigerated below 10°C for 6 weeks.

1000g bags: Store in a cool, dry place away from direct sunlight for a shelf life of 18 months. After opening re-seal tightly and keep refrigerated below 10°C for 2 weeks.