



# HOW TO TREAT SLUGGISH FERMENTATIONS



**Anchor**  
WINE YEAST

THE LEADING NEW WORLD WINE YEAST BRAND

# HOW TO TREAT SLUGGISH FERMENTATIONS

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## *Quick guide*

**STEP 1 :** *Analyze the must for percentage alcohol, residual glucose, residual fructose, volatile acidity (VA), total yeast count and percentage yeast viability.*

**STEP 2 :** *Lower the red wine temperature to 22°C / 72°F and increase white wine temperature to 20°C / 68°F.*

**STEP 3 :** *In case of a red wine fermentation - press and add 100 mg/L lysozyme.*

**STEP 4 :** *Add the maximum dosage of pure yeast hulls.*

**STEP 5 :** *Contact the yeast supplier for technical advice on how to proceed.*

*Provide the following information:*

- a. Grape variety*
- b. Yeast and yeast dosage used*
- c. Rehydration method*
- d. Initial sugar of the juice*
- e. Analyses from step 1.*
- f. Temperature of fermentation incl. highest and lowest peaks*
- g. Nutrient additions*
- h. Quality of the grapes and vineyard history*

## *Complete explanation*

Analyze the slow fermenting must for alcohol concentration, residual glucose, residual fructose, volatile acidity (VA), yeast count and percentage yeast viability. These analyses will indicate whether or not the yeast will be able to finish the fermentation. For instance, if the alcohol is above 14% and the percentage viable yeasts is 20% or

below, the risk that the fermentation will get stuck is high. If the viable yeast count is above 50% and the alcohol is below 14%, depending on the rest of the analyses and the yeast used, the fermentation might actually complete with some help.

Lower the fermentation temperature to around 22°C / 72°F for red wine and increase it to 20°C / 68°F for white wine. These temperatures are optimum

for yeast survival and alcohol becomes less toxic at lower temperatures.

If the fermentation is very slow, press if it is a red must. Grape skins are a source of many organisms whose growth is normally inhibited by active fermentation. In the absence of active fermentation, these organisms can start growing and competing with the struggling yeast. Do not add the press wine to the rest of the wine. Pressing often results in an increase in sugar content, especially if whole grape berries or raisins are present, and this can make matters worse.

Add lysozyme at a concentration of 100 mg/L. Make sure it is thoroughly mixed throughout the must. Lysozyme kills lactic acid bacteria. Some lactic acid bacteria can produce VA when they metabolize sugar and citric acid instead of malic acid. A VA above 0.7 g/L becomes inhibitory to yeast metabolism and enhances the sluggish fermentation. A yeast may still be able to finish a sluggish fermentation if alcohol is the only inhibitory substance, but when volatile acidity is added as a stress factor, it often gets stuck. The growth of lactic acid bacteria is generally not a major concern for white musts, as fermentation is not conducted on the skins. Therefore the bacterial count of white musts should be quite low.

Add the maximum dosage of pure yeast hulls as advised by your supplier. It is very important to distinguish between commercial products containing inactivated yeast and pure yeast hulls. Inactivated yeast products are a source of nutrients, lipids and sterols. Yeast hulls have no nutritional value but can be a source of lipids and sterols if parts of the cell membrane stayed attached to the cell wall during production. Yeast hulls mainly act as adsorbents of components toxic to living yeasts such as medium chain fatty acids. Medium chain fatty acids are the accidental by-products of long chain fatty acid synthesis that was interrupted due to the lack of oxygen in fermenting must. This is a common occurrence during sluggish fermentations. Yeast hulls (cell walls) will adsorb these inhibitory medium chain fatty acids and remove them from the living yeasts, thereby making the environment more "fermentation friendly." Please note that there are quality differences between different brands of yeast hulls available on the market.

Contact the technical consultant of the yeast supplier. Better to be safe than sorry. Such a person can advise you whether the slow fermentation is a cause for concern and whether you need to proceed with treating it as a stuck fermentation.

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#### References

1. *Stuck fermentation Management*, Karien Lourens and Graham Reid. *The Australian and New Zealand Grapegrower and Winemaker*, February 2003.
2. *Overcoming stuck and sluggish fermentations*, Gordon Specht. *Practical Winery and Vineyard*, September/October 2003.