

## Stuck fermentation? Now what?

*The following is a guideline for stuck alcoholic fermentation.*

*Further information can be obtained from page 37 in the [Vinlab manual](#)*



### How to prevent stuck fermentation

- Choose the right yeast strain
  - Alcohol tolerant
  - Low nutrient requirements
  - Good fructose utilisation
  - Low SO<sub>2</sub> formation
- Ensure fresh yeast (check expiration date)
- Increase yeast dosage
- Rehydrate properly
  - Use rehydration nutrition
  - Follow supplier's recommendations closely
  - Avoid temperature shock
- Add complex yeast nutrition combined with DAP
  - Refer to [Vinlab Manual](#) page 25 for optimal YAN levels at different sugar concentrations
- Add thiamine (60 mg/L is the maximum admissible dosage)
- Aerate the must before inoculation (careful of oxidation)
- Ferment at the temperature as prescribed by yeast supplier
- Ensure proper sanitation

### How to deal with existing stuck fermentation

Perform one or more of the following to deal with stuck fermentations. Be sure to protect the tank from oxidation as there are no more CO<sub>2</sub> generated from an active fermentation.

- Manage fermentation temperature
  - Higher fermentation temperatures will increase fermentation rate
    - Careful of too high temperatures that could increase the alcohol toxicity (maximum 25°C)
- Add pure yeast cell walls
  - Removes toxic substrates

- Aerate the must/wine
- Rack the wine onto compatible healthy yeast lees of a finished wine
- Rack the wine from the lees and reinoculate with freshly rehydrated yeast
  - Choose a strain that utilizes fructose
  - Increase the yeast dosage
  - Follow supplier's instructions for gradually adding rehydrated yeast to the stuck wine
  - Reinoculation protocol is explained in detail in the [Vinlab Manual](#) on page 41
- Add lysozyme (100 mg/L) if bacterial spoilage is the cause
- Correct the glucose:fructose ratio. Please note that adding glucose directly is illegal.

Do not wait for stuck/sluggish fermentation to occur before adding yeast nutrients. Addition towards the end of fermentation (after 10 g/L sugar / 1°Balling) can lead to residual nutrients which can be utilized by bacteria.

## Worried about microbial spoilage causing stuck alcoholic fermentation?

- Ensure optimal pH and acid content of the grape must
  - High pH (>3.5) promotes microbial spoilage
- Use enzymes for flavour, colour and tannin extraction
  - Avoid cold maceration and extended skin contact due to the potential microbial spoilage
  - Remove the wine from the skins as soon as possible
- Ensure sufficient SO<sub>2</sub> content (50 ppm total SO<sub>2</sub>) at crushing
  - Lower SO<sub>2</sub> dose is recommended when co-inoculating MLF bacteria
  - Also consider yeast strain resistance when adding SO<sub>2</sub> to must
- Consider adding lysozyme
  - Suppress bacterial growth during alcoholic fermentation
- Be cautious of spontaneous/natural fermentation when the risk of microbial spoilage is high

MiroID can be done at Vinlab to confirm the presence of microbes other than the inoculated yeast. Yeast cell count and yeast cell viability can also be analysed and, together with chemical analyses such as glucose, fructose, YAN, VA and SO<sub>2</sub>, help to identify the proper solution to rectify a stuck fermentation.

