



Preparing a Sugar Based Wash

To get the best out of Turbo yeasts it is important that the fermentations are started at the right liquid temperature. The wrong start liquid will result in slow fermentations and reduced alcohol quality and strength.

To get the right temperature – first mix hot and cold water to achieve the perfect temperature then reduce the volume before the sugar is added. Be as accurate as possible with temperature and water volumes. Also stir vigorously to incorporate as much oxygen as possible to the benefit of early yeast growth. At no time should oxygen be added after yeast pitching or reduced yields will result.

For example, in the case of Turbo classic, using 6 kg of dextrose, you first need to prepare 21 litres of water in your fermenter at a temperature of 40°C (by adding hot and cold water to get 40°C then reducing the volume to 21 litres). When you add 6kg of dextrose the volume will increase to 25 litres and the temperature will drop to around 35°C, which is the perfect pitching temperature for this yeast. Turbo carbon is added at this stage.

It might seem easier to add the sugar into the fermenter first, then top up with water, but if you do it this way you run the risk of having un-dissolved sugar which can kill the yeast, even if you did dissolve all the sugar – having the wrong start liquid temperature will result in longer fermentation times and reduced strength, quality and yield.

If the start liquid temperature is wrong the yeast performance will be affected.

It is also important to understand that a large amount of heat is produced during the 12-36 hours fermentation of turbo yeast such that the temperature can often be several degrees higher than the air temperature outside the fermenter.

If you are using a heater belt or pads do not turn it on during this time. Extra heating could result in the overheating the wash which will kill the yeast.

If 6 kg wash is made, air temp range is 18-30°C.

If 7 kg 18-25°C - 8kg temp range is 16-23°C.

This is because yeast cannot tolerate both high temperatures and high alcohol content at the same time.

Above 24 °C an 8 kg wash may stick, reducing yields and wasting sugar.
Also a 6 kg wash can finish in 36 hours at 25 °C.
8 kg may take 12-14 days at the correct temperature.
During this time you could have done 9 X 6 kg batches!

Clearing the wash

When fermentation is complete

Turbo clear should always be used to clear wash before distillation, there are three reasons for this;

To remove the yeast – there are many billions of yeast cells (70billion/ml) by the end of the fermentation – if not removed they will break open during boiling releasing volatiles giving off-flavours and aromas into the distillation process reducing distillate quality.

To remove semi-soluble compounds – Turbo clear contains strongly negative and positive charging and will take out unwanted compounds that even filtration will not remove.

To remove adsorbents – the majority of turbo yeasts contain absorbent materials such as activated carbons, clays and other compounds which trap unwanted metabolites within pore microstructures.

If turbo clear is not used, these metabolites will be released during boiling. Turbo Clear has been reformulated to give increased performance and works faster than ever. Each turbo pack comes with part A and part B. It is important to remove dissolved gas from the wash by vigorous stirring of the wash first then add part A. One hour later Part B should be added. Then leave the wash for 24 hours before decanting and distilling.

Within 24 hours Turbo Clear removes over 95% of the yeast cells, solids and other unwanted compounds from the wash – at this point it is acceptable for distilling. For ultimate quality - leave for 48 hours to remove up to 99% of the solids. It can sometimes take several days for the wash to become completely clear because alcohol yeasts are poor flocculators, but removing every last cell is not important.

Carbon Use

Fact and Fiction

Turbo Carbon - Specifically designed for use during fermentation. It actually absorbs impurities as they are being formed by yeast in the wash, this is then dropped to the bottom with the yeast after the addition of turbo clear, vastly reducing the impurity level going into the boiler and increasing the efficiency of your filter carbon for a purer, smoother spirit.

Double filtering? - A single pass through the filter should be enough to remove all odours and tastes from a batch of your spirit. If it is still present review your process and ingredients.

There is something you can do at each stage to reduce the load on your carbon. Most commonly caused by poor quality yeast, inferior brewing sugars and failing to clear wash prior to distilling.

Also pushing the run too far (trying to collect too much) and too fast (keep in the 79°-81 °C for best results). You should expect to yield 1 litre of spirit (after dilution to 40%), per kilo of fermentable used. More than this and you are ringing the neck of the beast and collecting additional unwanted fusels. Less and you are not yielding its full potential. Always remember that late stage, unwanted fusels also test as alcohol, so don't push your run too far.

Dilute before filtering - Water down to 50% or less (40% is best) before carbon treatment. The reason for doing this is that unwanted flavour compounds are dissolved by high strength alcohol and are difficult to remove over 50%.

If you water down to 40% first, as a bonus, you also get your makeup water carbon filtered! And also save a later step to dilute to final 40%.ABV

Activated carbon - Must be spirit grade, carbons are selected and manufactured to remove specific classes of contaminants.

Mineral Salts - Mineral salts are present in the raw materials used to make activated carbon. When spirit runs over activated carbon, mineral salts can be absorbed into the spirit. Later these minerals start to become insoluble in the spirit and after a few days forms a fine haze which eventually drops to the bottom of the bottle as sediment. These mineral salts are 100% safe but you don't want them in your spirit. This is why we recommend flushing the carbon with clean water prior to adding to your spirit. If you notice this effect in your spirit you can decant it off after it settles.

Reusing Carbon - Don't! Carbon can only be used once. A used batch of carbon contains all the junk you took out of the previous batch. Carbon works by micro pore absorption, once these sites have been filled no more contaminates can be removed and pass straight through to your glass!

To reactivate carbon requires that you heat it to 500°C in an anoxic (oxygen added at this stage would cause an explosion) environment (such as an autoclave) and injecting with steam. Even if you could do this at home it is still cheaper to use a new batch!

Soaking - Often used as a pre-treatment for filtering and, used this way, produces a very good result. Used if you have plenty of time on your hands, rather inefficient but can be improved by frequent shaking of the batch over a period of weeks.