



# Frequently Asked Questions

## Beta-Glucanase Assay Kit

- Q. 1. In the malt beta-glucanase assay kit here is a standard sample provided that is specified to have a value of 280 U/kg . Is this value U per kilo dry matter?
- A. No. The value is U/kilo on an "as is" basis.
- Q. 2. I purchased the beta-glucanase kit and I was wondering if the substrate can be used to assay for glucanase activity at higher temperatures (i.e. 95°C)?
- A. Yes, the substrate is stable at higher temperatures. After stopping the reaction, be sure to cool the tubes to room temperature and stir well (a few times) before centrifugation.
- Q. 3. For the precipitant solution of the Malt Beta-Glucanase assay kit can the poisonous methyl cellosolve be replaced with ethanol. If not, is there anything less hazardous which can be substituted?
- A. The precipitant solution can be replaced by an industrial methylated spirits (IMS)/zinc acetate mixture. The details of this solution are now given in the Booklet " Malt Beta-Glucanase assay Procedure".
- Q. 4. Can the substrate be incubated at 50°C instead of 30°C?
- A. The assay can be run at 50°C, however, the reason why the assay is run at 30°C for Malt Beta Glucanase is that this enzyme is quite unstable at higher temperatures.
- Q. 5. The beta-glucanase procedure asks for final filtration with Whatman #1 filter paper. Could you suggest a feasible syringe filter substitute to speed up the procedure?
- A. To speed up the filtration you could use glass fibre paper. This is usually faster but the sheets are a lot more costly. The major requirement is that the filtrates are clear. We have not been happy with various syringe filters that we have tried so I would suggest Whatman GF/A or GF/C glass fibre papers, 9cm diameter.

Q. 6. How do I analyze pelletized animal feed samples for beta-glucanase activity, considering that some of the enzyme is lost during the pelletization. Could you suggest a method that would account for that loss and try to recover some of that enzyme for quantitation purposes?

A. Concerning losses during pelleting. If this is heat inactivation, then it is hard to account for in the assay (without knowing how much enzyme was added and total recovery). Enzyme activity can be lost through adsorption to the feed and possibly due to cellulase inhibitors in the feed (xylanase inhibitors have been found and characterized). You can account for this through "spiking" and "recovery" experiments. Please refer to our booklet "Xylanase Assay Kit" (under Xylazyme AX Tablets) on our web site to see a possible approach to this problem. The only way to determine the loss of activity during pelleting (say through binding to the feed) is by doing recovery experiments, i.e. by adding a known amount of enzyme to a feed slurry, and a parallel amount to buffer, and determining the difference.

Q. 7. Why is the malt beta-glucanase activity corrected and do you have any references about this?

A. The reason the correction is introduced is to compensate for the fact that water bath temperature may vary between laboratories, and also dispensers may not be precisely calibrated. Including a control flour with a known beta-glucanase level will compensate for these differences

Q. 8. Can the Beta-Glucanase Kit be used for determining beta-glucanase activity in oat flour?

A. Yes, the only limitation will be the sensitivity.

Q. 9. How would you measure beta-glucanase activity in feed (chicken feed) where beta-glucanase has been added using the beta-glucanase kit?

A. Beta glucanase in chicken feed can be measured using either the Beta-Glucanase kit (K-MBGL) with appropriate buffer. Ethanol based precipitants are now detailed in the Malt Beta-Glucanase booklet. Alternatively, beta-glucanase in feeds can be assayed using Beta-Glucazyme tablets.

Q. 10. Can the Beta-Glucanase method be used for sorghum malt?

A. The Beta-glucanase kit can be used for sorghum malt. I am not familiar with what level of beta-glucanase may be present in sorghum. It may be necessary to increase time of incubation to increase sensitivity (say to 30 minutes).