Megazyme

Frequently Asked Questions

Beta-Glucan (Barley)

Q. 1: We have measured the molecular weight of beta-glucan originating from barley ordered from your company. Can you please tell us which method have you used for measuring molecular weight?

A: The MW's were determined by Multiangle laser light scattering technique.

Q. 2: We are going to set up reducing-sugar assays for both beta-glucanase and xylanase from different fungal origins. We have some questions concerning the substrates to be used. There are three kinds of barley beta-glucan from your catalogue – high viscosity, medium viscosity and low viscosity. I wonder which barley beta-glucan do you recommend for the glucanase assay.

A: For glucanase assay we recommend the medium viscosity beta-glucan. We now offer low, medium and high viscosity wheat arabinoxylans, and we think that the low viscosity material will be best (easiest) to use in the reducing-sugar assay.

Q. 3: I have purchased barley beta-glucan (lot 30108) and carob galactomannan low viscosity (lot 30702) and would like to know what else there might be in these substrates.

A: Barley beta-glucan lot 30108 would contain about 3-4% arabinoxylan (this was produced in 1993). Material supplied post 1995 contains < 0.5.% arabinoxylan.

Carob galactomannan is quite pure (> 96%).

Q. 4: Although not specified on the beta-glucan data sheet, is the ratio of 1-3 to 1-4 bonds measured, if so what is the ratio and would you expect it to remain standardised over a number of different batches?

A: The content of 1,3 bonds in barley beta-glucan is about 32% (from literature). I would not expect this to change much (if at all) over different batches.

Q. 5: Both substrates ; barley beta-glucan and wheat arabinoxylan, are standardised to a specific viscosity, e.g. 23-24 cSt. Are the substrates adjusted to give this viscosity?

A: The substrates are enzymically treated to yield the required viscosity (20 ~ 30 cSt). Modification of the viscosity of beta-glucan is required for IOB viscometric malt beta-glucanase test (which works well).

Q. 6. I would like to vacuum dry the standards instead of measuring the moisture content. I wish to dry them at a temperature lower than used in the preparation in Megazyme. Would you please give me some suggestions?

A. I suggest that you dry the β-glucan powders further in a vacuum oven at about 50^{o}C. This will lower the moisture content to approximately 1-2%.

Q. 7. I understand a specific polymer can be used for the assay of malt β-glucanase and cellulases. I would very much like to know which polymer this β-glucan is?

A. The polymer you require is barley beta-glucan (medium viscosity). The beta-glucan that we supply is pure 1,3:1,4-beta-D-glucan. Barley β-glucan is also susceptible to hydrolysis by cellulase.

Q. 8. Low, Medium, High Viscosity β-Glucans, are they naturally occurring at these MW's or are the MW fractions obtained by some other process?

A. The high molecular weight beta-glucan is the naturally occurring; this is enzymically modified to give the other viscosities.