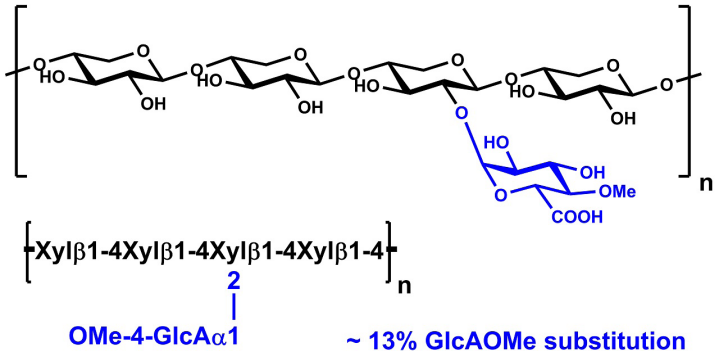
XYLAN (Beechwood) (Lot 171002)

P-XYLNBE-10G **06/20**
CAS: 9014-63-5

STRUCTURE



Schematic representation of xylan (4-*O*-methyl glucuronoxylan)

PROPERTIES

Sugar Composition:	Xylose 80.8%, glucuronic acid 11.4%, other sugars 7.8%
Protein:	0.3%
Ash:	2.4%
Moisture:	2.4%
Physical Description:	Off-white, odourless powder

STORAGE CONDITIONS

Store dry at room temperature in a well-sealed container. Under these conditions, the product is stable for several years.

APPLICATIONS

Highly purified xylan from beechwood suitable as a replacement for birchwood xylan as a substrate for β-xylanase in DNSA and Nelson-Somogyi reducing sugar assays.

COMPARISON OF PROPERTIES:

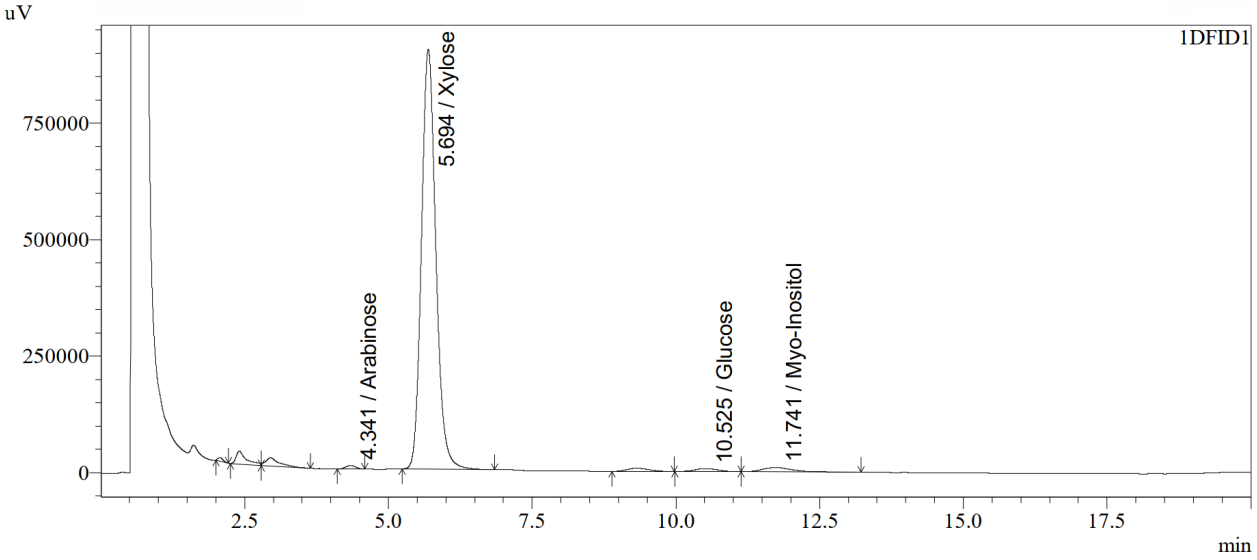
Properties	Xylose, %	Glucuronic acid, %	Other sugars, %	Protein, %	Ash, %	Moisture, %
Xylan (Birchwood)	85.6	8.7	5.7	0.1	7.6	5.1
Xylan (Beechwood) Lot 171002	80.8	11.4	7.8	0.3	2.4	2.4

METHOD OF DISSOLUTION (for 1.0% w/v solution)

Accurately weigh 1.0 g of xylan into a 120 mL dry pyrex beaker. Add 4 mL of 95% ethanol to wet the sample. Add a magnetic stirrer bar followed by 90 mL of distilled water while stirring the slurry on a hot-plate magnetic stirrer. Adjust the heat setting to 120°C and stir vigorously. Cover the beaker loosely with aluminium foil and continue stirring vigorously. Turn the heat off when the solution begins to boil, but continue stirring the solution until the xylan completely dissolves (approx. 10 min). Adjust the volume of the solution to 100 mL (this solution may be very slightly opalescent due to the presence of trace amounts of protein).

Xylan solutions can be stored at room temperature for several weeks in a well-sealed storage bottle. Microbial contamination is prevented by adding a few drops of toluene to the storage bottle.

Gas liquid chromatography of the alditol acetates derived from hydrolysis and derivatisation of Xylan (beechwood) lot 171002.



GLC

A typical polysaccharide sample (~ 10 mg) was hydrolysed using 2N TFA at 120°C for 60 min. Subsequent sodium borohydride reduction was performed in 1N NH_4OH for 90 minutes at 40°C. The corresponding alditol acetates were prepared using acetic anhydride and 1-methyl imidazole, extracted into DCM and analysed by GC. Chromatography was performed on a Shimadzu GC-2014 with LabSolutions LC/GC 5.42 Software using a Packed glass column (6 ft x 5 mm OD, 3 mm ID) with 3% Silar 10C on W-HP (80-100 mesh). The carrier gas was nitrogen at 225 KPa. Injector temperature; 250°C; Column temperature; 230°C. Detection by FID with 100 KPa H_2 pressure and 50 KPa air pressure.

REFERENCES:

McCleary, B.V. & McGeough, P. (2015). A Comparison of Polysaccharide Substrates and Reducing Sugar Methods for the Measurement of *endo*-1,4-β-Xylanase. *Appl. Biochem. Biotechnol.,* 177, 1152-1163.