

Starch Determination Methodology

SOP Numbers: S1028 Starch - Polarimetric and S1197 Starch – Enzymatic.

As above, we have two wet-chemistry methods available for the determination of Starch.

The Polarimetric method; 'The Feedingstuffs Method'

Principle

The method comprises two determinations.

In the first, the sample is treated whilst warm, with dilute Hydrochloric Acid. After clarification and filtering using Carrez reagents, the optical rotation of the resulting solution is measured by Polarimetry.

In the second, the sample is extracted with 40 % Denatured Ethanol. After acidifying the filtrate with Hydrochloric Acid, clarifying and filtering, the optical rotation is measured under the same conditions as the first determination. The difference between the two readings, multiplied by a known factor, gives the Starch content of the sample.

Reference

The method is based on the Feedingstuffs Commission regulation (EC) No. 152/2009 of 27th January 2009 - Method [L] Determination of Starch; Polarimetric method

Starch by the Enzymatic Method

Principle

Starch hydrolysis proceeds in two phases, in phase 1 starch is partially hydrolysed and solubilised using thermostable α -amylase enzyme and then in phase 2 the starch Dextrins are quantitatively hydrolysed to glucose by Amyloglucosidase enzyme. A portion of this solution is then reacted with GOPOD reagent to produce a colour that can be measured using a spectrophotometer at 510nm. A standard solution of Glucose is treated in the same way as a reference.

Note:

Although the method of choice is entirely up to the client, it should be noted that for the Feedingstuffs Polarimetric method, several sample types, and in particular those consisting of or containing Sugar Beet are contra-indicated as they may contain for instance components known as Inulins that may lead to incorrect Starch results being obtained.

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