

EFFECTIVE DATE	N P A n a l y t i c a l L a b o r a t o r i e s	METHOD CODE
REVISED: 09/03/25	LABORATORY TEST METHOD SUMMARY	WSTR
REPLACES: 02/20/22	Gelatinized and Total Starch by Enzymatic Hydrolysis (Wenger Starch)	PAGE 1 OF 1
KEY WORDS: Starch, Carbohydrate, Gelatinization, Starch Damage, Cook		

1. SCOPE AND PURPOSE:

- 1.1. This method measures total starch and the degree of gelatinized (damaged) starch in grain based food stuffs. Gelatinized starch, as a percent of the starch in the sample is reported.
- 1.2. There is no assurance that matrices other than those listed can be assayed using this method.

2. PRINCIPLE:

- 2.1. Raw starch is gelatinized by autoclaving the sample at 121°C and 15-21 psi for one hour. The total starch is readily digested by glucoamylase, forming glucose, which is measured on a glucose analyzer and calculated as % total starch in the sample. A duplicate portion of the sample is also treated with glucoamylase. Existing gelatinized starch in the sample is digested, forming glucose, which is measured on the glucose analyzer and calculated as percent gelatinized starch in the sample.
- 2.2. Percent gelatinization is the amount of gelatinized starch in the sample, expressed as a percent of the total starch in the sample.
- 2.3. Using a 1.0 g sample, the lowest confidence level of this method is 1.0% starch. This lowest confidence level may vary with sample matrix.
- 2.4. Known Interferences: Samples must be sugar free. If free sugars are a concern, perform a sugar extraction prior to testing. See Procedure, Step 8.3.1.4

3. PRECISION:

Records of method precision based on Method Validation and/or known control summaries are located in the QA Master file for this test method. Assay precision may vary with test matrix and analyte level. Terms used to describe method precision are defined in NPSOP3000, *Validation of Quantitative Chemical Tests*.

4. REFERENCES:

- 4.1. R & D Wenger Technical Center: Modified Glucoamylase Method for Determining the Degree of Gelatinization of Extruded Products.
- 4.2. YSI: Application note no. 222LS-02: Determination of Cook in Cereal
- 4.3. YSI Model 2900D Biochemistry Analyzer, User's Manual.