

Viscosity of Acid Thinned Starches Method

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Scope

- Assess cooked viscosity of acid thinned dent corn starch.
- Differentiate starches with different degrees of modification.
- Quality control of the starch modification process.
- Quality control of starch used in the food and paper industries.

Rapid Visco Analyser

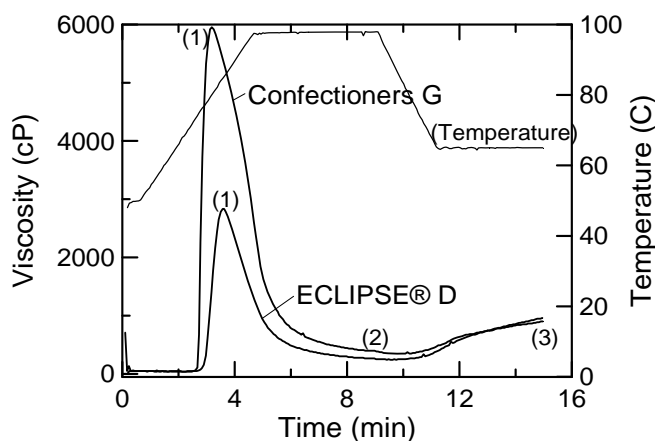
The Rapid Visco Analyser (RVA) is a cooking stirring viscometer with ramped temperature and variable shear profiles optimized for testing viscous properties. The instrument includes international standard methods as well as full flexibility for customer tailor-made profiles. Combining speed, precision, flexibility and automation, the RVA is a unique tool for product development, quality and process control and quality assurance.



Description

The method is applicable to unmodified and to acid thinned dent corn starches. These food and industrial starches are used as thickeners, gelling agents, sizes and coatings in products such as puddings, gravies, sauces, confection and paper. The final temperature of 65°C (149°F) is used to rapidly stabilize viscosity and minimize retrogradation.

Example



Analysis	Starch Type
	All
(1) Peak viscosity (cP)*	✓
(2) Viscosity at 9.00 min (cP)*	✓
(3) Viscosity at end of test (cP)*	✓

*Subtract viscosity at 0.50 minutes from value to give final result.

Fig. 1. Pasting curve of acid thinned corn starches using the ST-05 Method, showing the commonly measured parameters.

Method

Fifteen-minute pasting profile.

Sample Preparation

Select starch concentration (in distilled water) based on starch viscosity from the relative viscosity table below, to give an end viscosity of 800-1500 cP.

Relative Viscosity	Starch Concentration (dry solids, % w/w)	Example of Starch
Modified Medium-High	15	ECLIPSE® D
Modified Medium	18	Confectioners E
Modified Low	20	Confectioners G ECLIPSE® G

Profile

Time	Type	Value
00:00:00	Temp	50°C
00:00:00	Speed	960 rpm
00:00:10	Speed	160 rpm
00:00:30	Temp	50°C
00:04:30	Temp	98°C
00:09:00	Temp	98°C
00:11:00	Temp	65°C
00:15:00	End	
Idle Temperature: 50 ± 1°C Time Between Readings: 4 s		

Measure

PV: Peak viscosity (cP)*

V9: Viscosity at 9 minutes (cP)*

FV: Final viscosity (cP)*

*Subtract viscosity at 0.50 min from value to give final result.