

Wheat Gluten Ethanol Method

Scope

- Rapidly assess wheat gluten vitality.

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

Wheat gluten is used largely as an additive to improve baking quality of leavened bread, but also finds use in other products such as pet foods. During commercial preparation, wheat gluten is usually partially denatured by heat, reducing its vitality. The functionality of wheat gluten can be assessed by heating and cooling in aqueous ethanol in the RVA.

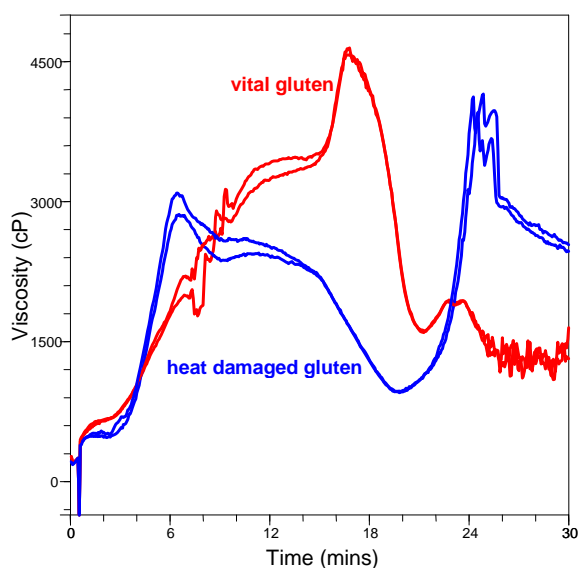


Fig. 1. RVA curves showing the large differences between vital and heat damaged gluten samples. Heat damaged samples lack the second peak.

Method

Thirty-minute pasting profile.

Sample Preparation

6.00 g gluten (12% mb) and 3.5 g ethanol (98%). Stir until mixture resembles breadcrumbs. Add 20.5 g distilled water (total amount of water + flour is 26.5 g). Cover with rubber stopper and shake vigorously to disperse.

Profile

Time	Type	Value
00:00:00	Temp	50°C
00:00:00	Speed	960 rpm
00:00:30	Speed	160 rpm
00:02:00	Temp	50°C
00:06:30	Temp	85°C
00:08:30	Temp	85°C
00:24:00	Temp	20°C
00:30:00	End	
Idle Temperature: 50 ± 1°C Time Between Readings: 4 s		

Measure

P1V: Peak 1 viscosity (cP)

P1T: Peak 1 temperature (°C)

T1V: Trough 1 viscosity (cP)

T1T: Trough 1 temperature (°C)

FV: Final viscosity (cP)

P2V: Peak 2 viscosity (cP)

P2T: Peak 2 temperature (°C)

T2V: Trough 2 viscosity (cP)

T2T: Trough 2 temperature (°C)

The viscosity of the second peak is the RVA Wheat Gluten Ethanol Index.