Pasta Quality Method

Scope

- Process control - dryer effects on pasta quality.
- Monitor consistency of ingredients between production batches.
- Examine competitive products.

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 pasting behavior of pasta depends, to a great extent, on the ingredient and process effects. The cooking properties and final quality of the pasta are affected by treatments, such as drying, sheeting or extruding, during the manufacturing process. Protein-starch interactions may also influence the final product quality. The Critical Paste profile heats the pasta to just above its pasting temperature, and maintains it at this temperature for the remainder of the test. This controlled heating is very useful in differentiating between the manufacturing process, namely the drying regime and the wheat grade used.

The premium (name brand) pasta in the example had a higher viscosity response than the generic (no name) pasta. This suggests that the generic pasta may have been made from durum with weak gluten that was unable to achieve a good viscosity response. This means that, when cooked by the consumer (at temperatures higher than that used in the Critical Paste profile), the generic pasta may not hold together and may break apart under stress (such as when pasta sauce is being stirred into the pasta), leaving a sticky mess.

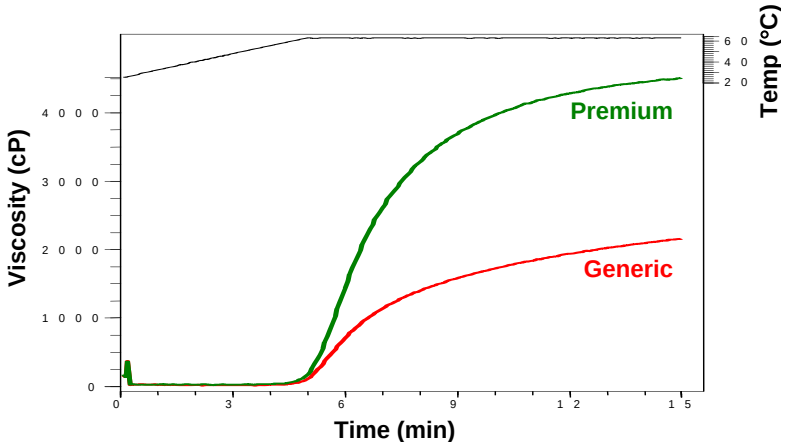

Fig. 1. Pasting curves of premium and generic pasta using the Critical Paste profile.

Method

Two-step testing

1. Sweep Profile; and
2. Critical Paste Profile

Sample Preparation

6.00 g ground pasta at 14% moisture and 25.0 ml distilled water for each profile.

Profile

Sweep

Time	Type	Value
00:00:00	Temp	50°C
00:00:00	Speed	960 rpm
00:00:10	Speed	160 rpm
00:15:00	Temp	95°C
00:15:00	End	
	Idle Temperature: 50 ± 1°C Time Between Readings: 4 s	

Critical Paste

Time	Type	Value
00:00:00	Temp	25°C
00:00:00	Speed	960 rpm
00:00:10	Speed	160 rpm
00:05:00	Temp	PT from Sweep Profile★
00:15:00	End	
	Idle Temperature: 25 ± 1°C Time Between Readings: 4 s	

★PT = pasting temperature (°C)

Measure

PT: Pasting temperature (°C)
V6: Viscosity @ 6 min (cP)
V10: Viscosity @ 10 min (cP)
FV: Final viscosity (cP)