

Chocolate Syrup Viscosity Analysis

Monitoring the viscosity of chocolate syrup is crucial for ensuring product consistency, texture, and pourability. Viscosity affects consumer satisfaction, flow, and application properties, making accurate viscosity control essential for quality assurance.

Background:

- Viscosity analysis measures a fluid's resistance to flow. For chocolate syrup, maintaining consistent viscosity at different temperatures is essential for optimal performance in production and consumer use.

Equipment:

- Instrument: Brookfield DVNext with RV spring torque range
- Spindle: Appropriate spindle type for chocolate syrup viscosity
- Temperature Control: Circulating water bath for precise temperature regulation

Accessories:

- 600 mL beaker, thermometer for accurate temperature and confirmation

Settings:

- Viscosity Measurement Speed: 3, 6, 9 rpm at 4°C; 10, 20, 30, 40 rpm at 25°C
- Test Temperatures: Sample tested at multiple controlled temperatures (e.g., 4°C, 25°C)

Procedure:

1. Prepare equipment and connect the water bath to ensure consistent sample temperatures.
2. Pour chocolate syrup into a 600 mL beaker, ensuring the level fully immerses the spindle.
3. Stabilize sample temperature in the water bath and verify using a thermometer.
4. Position the beaker under the spindle, lowering the spindle to the correct immersion depth.
5. Start the viscometer at specified speeds, allowing it to reach a stable reading.
6. Record viscosity in centipoises (cP) for each temperature.
7. Repeat steps for each target temperature to observe changes in viscosity.



Observations:

- Figure 1: Load vs. Temperature graph illustrates that viscosity decreases as temperature increases, confirming the syrup becomes more fluid at higher temperatures.

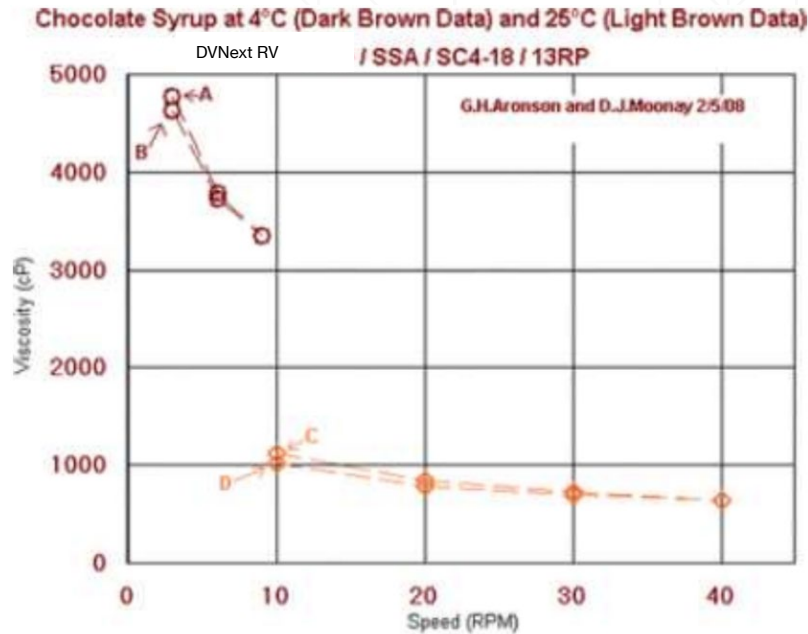


Figure 1
Chocolate Syrup at 4°C and 25°C.

Results:

- Consistent readings across various temperatures confirm expected viscosity-temperature behavior, with lower viscosities at higher temperatures, ensuring that the product's flow and application remain reliable under different conditions.

Conclusion:

- This viscosity test confirms that chocolate syrup meets pourability and texture standards across a range of temperatures. Regular viscosity monitoring allows manufacturers to maintain product quality, ensuring that chocolate syrup remains consistent, usable, and consumer friendly.