

# Honey Viscosity Analysis

Viscosity testing of honey is essential for ensuring product consistency and consumer satisfaction. Accurate viscosity measurements verify that honey maintains the desired thickness and flow properties, which are critical for culinary and commercial applications.

## Background:

- Honey typically displays Newtonian or slightly shear-thinning behavior, meaning its viscosity remains relatively stable across different shear rates. This characteristic allows honey to be thick at rest while maintaining smooth flow under applied force.

## Test Equipment:

- Instrument: Brookfield DVNext
- Spindle: SC4-29/13RPY
- Temperature Control: TC-502 Programmable Bath, set to maintain a stable 21°C



## Accessories:

- Small Sample Adapter for small volume testing

## Settings:

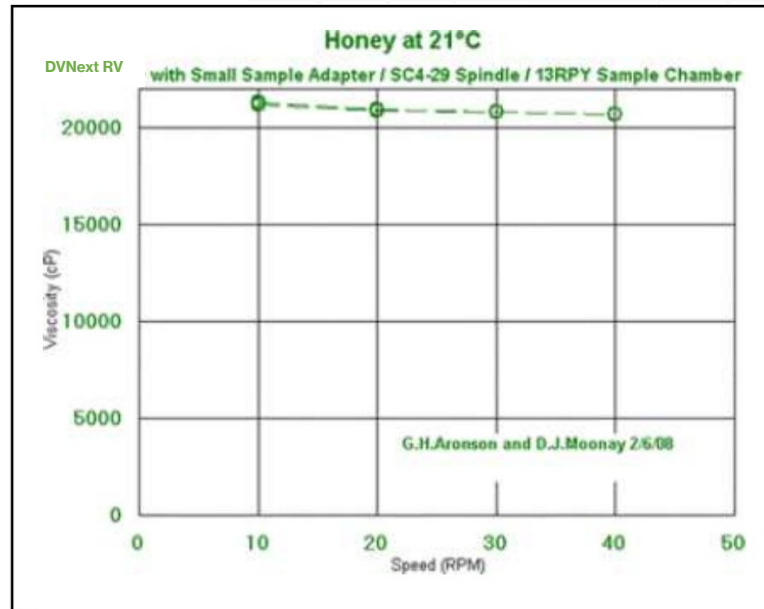
- Temperature: 21°C
- Speeds: 10, 20, 30, and 40 rpm
- Ramp Method: "Up/Down Speed Ramp" to measure viscosity as speed increases and then decreases

## Procedure:

1. Connect the Small Sample Adapter to the TC-502 Bath to maintain the honey sample at 21°C.
2. Fill the sample chamber with honey and insert the SC4-29/13RPY spindle.
3. Start testing at 10 rpm, allowing viscosity readings to stabilize before recording.
4. Gradually increase speeds to 20, 30, and 40 rpm, documenting viscosity at each increment.
5. Reverse the speed ramp, reducing speeds back down to 10 rpm, and record viscosity at each step to verify consistency.

**Observations:**

- Figure 1: Viscosity vs. Shear Rate at 21°C shows consistent viscosity measurements across the speed range, confirming stable flow characteristics.



**Figure 1**  
*Honey at 21°C*

**Results:**

- Honey demonstrates Newtonian or very slightly shear-thinning behavior, with viscosity levels around 21,000 cP, indicating minimal change in viscosity across the tested shear rates.

**Discussion:**

The Brookfield DVNext, combined with the SC4-29/13RPY spindle and Small Sample Adapter, effectively captures the viscosity profile of honey at 21°C. The up/down speed ramp results indicate that honey behaves as a Newtonian or very slightly shear-thinning fluid, maintaining a consistent viscosity around 21,000 cP across various shear rates. This stability supports quality control by ensuring honey’s smooth pourability and desirable thickness for consumer applications.