

IMPROVING VISCOSITY CHECKS IN THE FOOD QC LAB

Safety is paramount in the Food QC Lab and one precaution that many observe is to avoid the use of glass whenever possible. The calibration check procedure for rotational viscometers requires the use of a 600 mL beaker containing a viscosity standard fluid of known cP value. Preferably, this beaker is made of plastic or some other non-glass material. (See Figure 1) Best practice also recommends the use of a temperature bath to control the viscosity standard fluid temperature to 25°C. (See Figure 2)



Figure 1: Brookfield Plastic Vis-Cal Kit with 600mL Beaker



Figure 2: Rotational Viscometer Performing Calibration Check

One of the little problems sometimes encountered is the flotation of the beaker in the bath due to buoyancy. A novel aid to keep the beaker in place is a custom-designed clamshell weight that neatly fits around the lip of the beaker. (See Figure 3) There are openings in the weight that allow the spindle on the viscometer and the protective bracket (Guard Leg) to fit through so that the viscosity measurements are readily accomplished.



Figure 3: Custom-Design Clamshell Weight That Fits on 600mL Beaker

The calibration check of the viscometer should be done on a periodic basis. Some QC managers in busy labs which perform dozens of viscosity measurements every day require a calibration check before each shift. Others may call for a weekly check or some longer time interval that suits the frequency with which the viscometer is used. In any event, it is important to check the calibration whenever there is doubt about the validity of the viscosity readings obtained on your sample material.

To make things easier when performing a calibration check, make use of the calibration template at <http://www.brookfieldengineering.com/support/videos.asp> which systematically guides the user through the procedure. (See Figure 4) All you have to do is plug in the viscosity measurements from your cal check test and the template tells you whether you pass or fail. Another useful tool on the same website is a series of videos which show how a cal check is performed. In today's visual world, this can provide ideal, low-cost training for your instrument operators.

CALIBRATION TEMPLATE FOR ANALYZING CALIBRATION RESULTS

INSTRUCTIONS: ENTER VALUES IN BOLD FIELDS ONLY. Enter instrument model: LV
Enter value of Calibration fluid in column A. Enter spindle number under the RPM used in column E. Enter viscosity reading in column H.

A	B	C	D	E	F	G	H	I
Calibration Fluid Label #	Spindle Number (Use Chart)	Rotational Speed (RPM)	Viscosity (cP)	Spindle Code	RPM	% Error	Viscosity Reading (cP)	Pass/Fail
498	12	12	12	12	2,250-03	2.5%	11.9%	4.98E+02
499	12	12	12	30	1,000-03	10.0%	49.8%	4.98E+02
499	12	12	60	60	5,000-02	5.0%	59.8%	4.98E+02
499	12	12	60	10	1,000-03	10.0%	49.8%	4.98E+02
499	12	12	60	10	5,000-03	5.0%	11.9%	4.98E+02

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SP	SPIN	SPIN	SPIN	SPIN
12	498.00	498	12.57	1.5%
30	499.00	498	112.26	1.5%
60	499.00	498	20.70	TRUE

Figure 4: Calibration Template for Checking your Viscometer

In summary, Food QC Labs have plenty of opportunity to improve their practices by adhering to the helpful tips explained above.