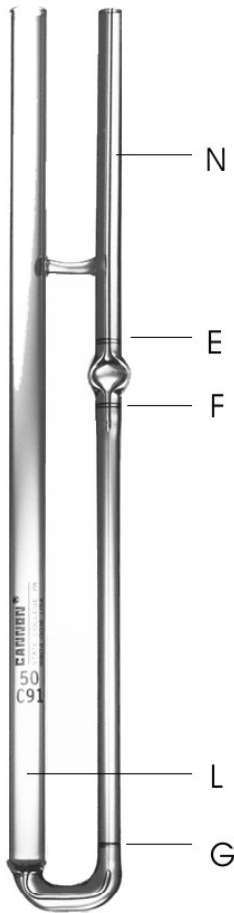


Instructions for the use of The Cannon-Manning Semi-Micro Viscometer

See also ASTM D 445, D 446 and ISO 3105



Cannon-Manning Semi-Micro
Viscometer

1. Clean the viscometer using suitable solvents, and by passing clean, dry, filtered air through the instrument to remove the final traces of solvents. Periodically, traces of organic deposits should be removed with chromic acid or non-chromium cleaning solution.
2. If there is a possibility of lint, dust, or other solid material in the liquid sample, filter the sample through a sintered glass filter or fine mesh screen.
3. To charge the sample into the viscometer, invert the instrument and apply suction to tube L, immersing tube N in the liquid sample, and draw liquid to mark G. Wipe clean arm N, and turn the instrument to its normal vertical position.
4. Place the viscometer into the holder, and insert it into the constant temperature bath. A viscometer holder which fits the Cannon-Fenske Routine and Cannon-Fenske Opaque viscometers will also fit the semi-micro viscometer. Align the viscometer vertically in the bath by means of a small plumb bob in tube L, if a self-aligning holder is not used.
5. Allow approximately 5 minutes for the sample to come to the bath temperature.
6. Apply suction to tube N (or pressure to tube L) and draw the liquid slightly above mark E.
7. To measure the efflux time, allow the liquid sample to flow freely down past mark F, measuring the time for the meniscus to pass from mark E to mark F.
8. A check run may be made by repeating steps 6 and 7.
9. Calculate the kinematic viscosity in mm^2/s (cSt) of the sample by multiplying the efflux time in seconds by the viscometer constant.

RECOMMENDED VISCOSITY RANGES FOR THE CANNON-MANNING SEMI-MICRO VISCOMETERS

Size	Kinematic Viscosity Range	
	mm^2/s^2 , (cSt/s)	mm^2/s , (cSt)
25	0.002	0.5 to 2
50	0.004	0.8 to 4
75	0.008	1.6 to 8
100	0.015	3 to 15
150	0.035	7 to 35
200	0.1	20 to 100
300	0.25	50 to 250
350	0.5	100 to 500
400	1.2	240 to 1200
450	2.5	500 to 2500
500	8	1600 to 8000
600	20	4000 to 20000
650	45	9000 to 45000
700	100	20000 to 100000

The expanded uncertainty¹ with 95% confidence of the calibration measurements relative to the primary standard is as follows:

Range of constants mm^2/s^2	Combined Expanded Uncertainty
<0.025	0.16%
0.025 – 0.25	0.22%
0.25 – 2.5	0.29%
2.5 – 25	0.38%
>25	0.44%

The assigned uncertainty of the primary viscosity standard at 20°C is $\pm 0.17\%$. See ISO 3666.

¹ An expanded uncertainty U is determined by multiplying the combined standard uncertainty u_c by a coverage factor k: $U = k u_c$, where $k = 2$. See NIST Technical Note 1297, 1994 edition, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*.

THIS PRODUCT WAS CALIBRATED WITHIN A QUALITY SYSTEM WHICH IS REGISTERED TO ISO 9002.