

Bubble Viscometers

BYK-Gardner bubble viscometers are used to quickly determine kinematic viscosity of known liquids such as resins and varnishes. The bubble viscometer tubes are also described as Gardner-Holdt tubes.

- The liquid standards are sealed in glass tubes
- Shelf life is 15 years
- Sample tubes can be cleaned quickly and easily
- Tubes have no orifices that can be clogged to cause faulty measurements
- Repeated readings may be taken easily once the temperature has been controlled

The time required for an air bubble to rise is directly proportional to the viscosity of the liquid – the faster the bubble rises, the lower the viscosity. BYK-Gardner bubble viscometers come in lettered tubes A5 through Z10 in four different tube sets covering viscosity ranges from 0.05 to 1,000 stokes.

Certified

Our bubble tubes can be recertified to NIST traceable standards.



Bubble Viscometer A-T

Standards

AOC	Method Ka 6-63
ASTM	D 1131, D 1545, D 1725
FTMS	141a Method 4272

Ordering Information

Cat. No.	Description
0500	Bubble Viscometer A5-A1
0600	Cert. Bubble Viscometer A5-A1
0510	Bubble Viscometer A-T
0610	Cert. Bubble Viscometer A-T
0540	Bubble Viscometer U-Z6
0640	Cert. Bubble Viscometer U-Z6
0560	Bubble Viscometer Z7-Z10
0660	Cert. Bubble Viscometer Z7-Z10

Comes complete with:

Bubble Viscometers:
 Bubble tube standards
 Storage case
 Two empty tubes
 Operating manual
 Certified Sets come with certificate

Technical Specifications

Stokes	
0.05 - 0.31	Set of 5 bubble tube standards A5 - A1 with 2 empty tubes (Grade A)
0.5 - 5.5	Set of 20 bubble tube standards A - T with 2 empty tubes (Grade A)
6.66 - 151	Set of 12 bubble tube standards U - Z6 with 2 empty tubes (Grade A)
406 - 1190	Set of 4 bubble tube standards Z7 - Z10 with 2 empty tubes (Grade A)

Note: Individual replacement tubes can be ordered separately.

Bubble Viscometer Procedure

- Knowing the approximate viscosity, pick four standard tubes closest in viscosity to your sample
- Fill the sample tube with liquid, insert a cork, and then using the tube holder 0577, insert the four lettered tubes and the sample tube into the holder
- Turn over the holder and visually compare what letter best matches the rise time of the bubble in the sample
- The rise time in seconds of the sealed tubes and samples can also be determined using a basic timer

Please be aware of the following accuracies when performing the test:

Temperature control: 1 °C = 10 % error

Verticality control: 5° slant = 10 % error

Tube I.D. control: 0.1 mm = 2 % error



Ordering Information

Cat. No.	Description
0571	Empty Tubes Grade A
0573	Empty Tubes Grade B
0575	Empty Tubes Grade N
0576	Corks
0577	Holder for 5 Tubes

Comes complete with:

Empty tubes in lots of 144 per package including corks

ASTM D 1545 Timer Method

The tube has three amber ring marks at 27, 100 and 108 mm from the bottom. Fill the tube up to the 100 mm line, insert the cork down to the 108 mm line and turn the tube bottom up. Turn the tube around, start the stop watch when the air bubble crosses the 27 mm line and stop when the bubble crosses the 100 mm line.

Accessories

Inscription GARDNER MT in amber stain; inside diameter is checked for 10.65 ± 0.025 mm

Inscription GARDNER BT in amber stain; economical tube for making routine laboratory or factory comparisons; inside diameter 10.75 mm

Inscription GARDNER in amber stain; inside diameter is checked for 10.65 ± 0.025 mm; one additional marking at the bottom of the tube for establishing 73 mm bubble path; ASTM D 1545 term: Timer Tubes

For use in retaining samples; used with all grades of tubes; supplied in lots of 150 per bag

Standards and samples are placed parallel to each other in a true vertical position; sturdy metal frame with plastic handle; fits up to 5 tubes; the flat area allows the holder to sit in a water bath or on a lab bench; comes without tubes

Note: Amber markings in permanent stain are located on the empty tubes for establishing correct bubble size.

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Standards

AOC	Method Ka 6-63
ASTM	D 1131, D 1545, D 1725
FTMS	141a Method 4272

Ordering Information

Cat. No.	Description	Cat. No.	Description
0501	Tube A5	0601	Cert. Tube A5
0502	Tube A4	0602	Cert. Tube A4
0503	Tube A3	0603	Cert. Tube A3
0504	Tube A2	0604	Cert. Tube A2
0505	Tube A1	0605	Cert. Tube A1
0511	Tube A	0611	Cert. Tube A
0512	Tube B	0612	Cert. Tube B
0513	Tube C	0613	Cert. Tube C
0514	Tube D	0614	Cert. Tube D
0515	Tube E	0615	Cert. Tube E
0516	Tube F	0616	Cert. Tube F
0517	Tube G	0617	Cert. Tube G
0518	Tube H	0618	Cert. Tube H
0519	Tube I	0619	Cert. Tube I
0520	Tube J	0620	Cert. Tube J
0521	Tube K	0621	Cert. Tube K
0522	Tube L	0622	Cert. Tube L
0523	Tube M	0623	Cert. Tube M
0524	Tube N	0624	Cert. Tube N
0525	Tube O	0625	Cert. Tube O
0526	Tube P	0626	Cert. Tube P
0527	Tube Q	0627	Cert. Tube Q
0528	Tube R	0628	Cert. Tube R
0529	Tube S	0629	Cert. Tube S
0530	Tube T	0630	Cert. Tube T
0541	Tube U	0641	Cert. Tube U
0542	Tube V	0642	Cert. Tube V
0543	Tube W	0643	Cert. Tube W
0544	Tube X	0644	Cert. Tube X
0545	Tube Y	0645	Cert. Tube Y
0546	Tube Z	0646	Cert. Tube Z
0547	Tube Z1	0647	Cert. Tube Z1
0548	Tube Z2	0648	Cert. Tube Z2
0549	Tube Z3	0649	Cert. Tube Z3
0550	Tube Z4	0650	Cert. Tube Z4
0551	Tube Z5	0651	Cert. Tube Z5
0552	Tube Z6	0652	Cert. Tube Z6
0561	Tube Z7	0661	Cert. Tube Z7
0562	Tube Z8	0662	Cert. Tube Z8
0563	Tube Z9	0663	Cert. Tube Z9
0564	Tube Z10	0664	Cert. Tube Z10

Technical Specifications

Approx cSt	Approx Sec
5.1	0.650
7.1	0.663
14.0	0.720
21.3	0.767
31.0	0.820
53.6	0.936
68.8	1.01
92.7	1.21
102.9	1.30
122.7	1.50
151.9	1.67
160.0	1.85
210.8	2.15
224.2	2.32
268.2	2.75
287.9	3.02
302.3	3.19
335.4	3.45
345.2	3.69
377.9	3.98
408.8	4.24
441.8	4.54
467.4	4.85
517.7	5.29
547.2	6.00
665.9	6.79
889.2	8.97
1073	11.5
1200	14.8
1737	18.4
2289	23.7
2909	30.7
4056	40.2
4840	48.0
7241	72.2
9917	105
15080	158
40650	422
73280	764
91500	955
119000	1240

Note: Centistokes and Seconds values are based on 25°C (77°F).