

Measure what you see.

# Ford Viscosity Cups Cup No. 2 / No. 3 / No. 4



Operating Instructions

**Ford Viscosity Cups**  
**Cup No. 2 / No. 3 / No. 4**

**Operating Instructions**



Cat. No. 7201  
Cat. No. 0173  
Cat. No. 0174

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## General Information

Ford Viscosity Cups have been produced by Gardner Laboratory for over forty years. Each cup produced has been in conformance with Viscosity Cup flow characteristics as initially listed in ASTM Bulletin No. 169 of October 1950. The Ford Cups produced by BYK-Gardner comply with the requirements listed in ASTM D 1200.

### Operation:

1. Select Cup #2, #3, or #4 to provide a test efflux time within the range covered by the attached table at a controlled temperature of 77°F (25°C).
2. Place the selected Ford Cup in the ring of the stand which has been leveled.
3. Mix, filter (if necessary) and temperature condition the sample to be measured, avoiding entrapment of air bubbles.
4. Close the orifice of the cup with a finger and fill to overflowing with the conditioned sample.
5. Remove excess sample by sliding the cover glass flush with the top of the cup. Most materials will not flow from the orifice while the cover glass is in place so that the finger may be removed from the orifice.
6. Place a receptacle directly under the orifice to catch the sample as it flows from the cup.
7. Slide the cover glass from the top of the cup and simultaneously start timing the efflux.
8. Confirm the desired temperature of the sample directly in the efflux stream.
9. Measure the time to the nearest 0.2-second from the moment efflux commences until the first break in the stream occurs below the orifice. This time in seconds may be converted to centistokes by use of the attached table.
10. Record both the efflux time and the type of Ford Cup used (for example 60 seconds with the No. 4 Ford Cup) as well as the measured efflux temperature.

**Recalibration:**

The Ford Cups are milled from solid aluminum bar stock and are fitted with a stainless steel orifice. Each cup is tested with a viscous fluid referenced to National Bureau of Standards certified oils. The orifice is honed to insure that the assembly complies to the applicable „time viscosity“ flow formula. If the orifice of the cup becomes damaged or worn and the original calibration is questioned, the cup should be returned to BYK-Gardner, to be checked, fitted with a new orifice (if necessary) and recalibrated.

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## CONVERSION TABLE FOR FORD VISCOSITY CUPS

### Efflux Time in Seconds to Kinematic Viscosity in Centistokes

Centistokes for Cup				Centistokes for Cup			
Seconds	#2	#3	#4	Seconds	#2	#3	#4
23	-	-	75	51	47	103	179
24	-	-	75	52	48	105	183
25	-	-	79	53	50	107	187
26	-	-	83	54	52	110	191
27	-	47	87	55	53	112	195
28	-	50	90	56	55	114	198
29	-	52	94	57	56	117	202
30	-	54	98	58	58	119	210
31	-	57	102	60	61	124	214
32	-	59	106	61	63	126	218
33	-	61	110	62	64	128	221
34	-	64	113	63	66	131	225
35	-	66	117	64	67	133	229
36	-	68	121	65	69	135	233
37	-	70	125	66	70	138	237
38	-	73	129	67	72	140	241
39	-	75	133	68	73	142	244
40	-	77	137	69	74	145	248
41	-	80	141	70	76	147	252
42	-	82	144	71	77	149	256
43	-	84	148	72	79	151	260
44	-	87	152	73	80	154	264
45	-	89	156	74	81	156	268
46	38	91	160	75	83	158	271
47	40	94	164	76	84	161	275
48	42	96	178	77	85	163	279
49	43	98	171	78	87	165	283
50	45	101	175	79	89	168	287
				80	89	170	291

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## CONVERSION TABLE FOR FORD VISCOSITY CUPS

### Efflux Time in Seconds to Kinematic Viscosity in Centistokes

Seconds	Centistokes for Cup		
	#2	#3	#4
81	91	172	194
82	92	175	298
83	93	177	302
84	94	179	306
85	95	182	310
86	97	184	314
87	98	186	317
88	99	188	321
89	100	191	325
90	101	193	329
91	102	195	333
92	103	198	337
93	105	200	341
94	106	202	344
95	107	205	348
96	108	207	352
97	109	209	356
98	110	212	360
99	111	241	364
100	112	216	367

#### Care and Maintenance:

Clean the cup by use of a suitable solvent and a cleaning swab or soft brush following

each use. In cleaning the orifice, take special care to avoid leaving any film deposits on

the inside wall. Under no condition should cleaning tools made of metal be brought into

contact with the orifice.



