

Zahn Viscometer

1. Introduction

The Nordson Zahn Viscometer is the accepted instrument for accurate viscosity measurement and control. It can be used with a wide variety of coatings. The Zahn #3 is recommended for compliance coatings, including high-solids and waterbornes. The Zahn #5 is useful for measuring high-viscosity conformal coatings. Refer to Table 1 for viscosity comparisons.

2. Measuring Viscosity

To properly measure the viscosity of a coating material, use a viscometer, stopwatch, and a thermometer.

1. See Figure 1. Take the temperature of the material. Measure accurately. Many materials change viscosity by 10% per 1 °C (33.8 °F) temperature change.

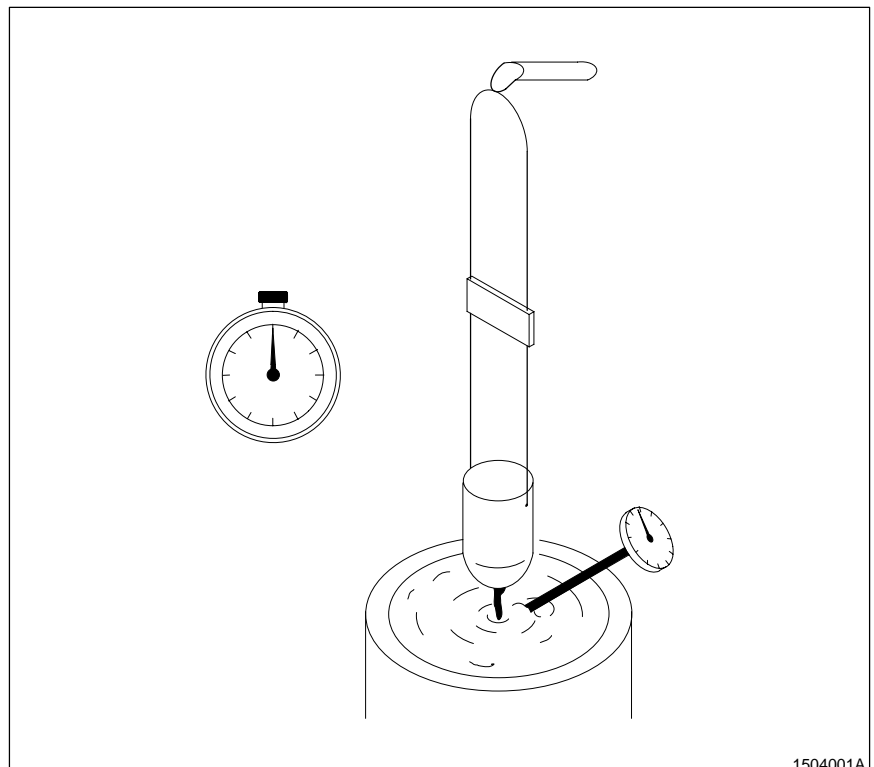


Fig. 1 Temperature Reading

2. Measuring Viscosity

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2. See Figure 2. Submerge the entire cup of the viscometer below the surface of the material.

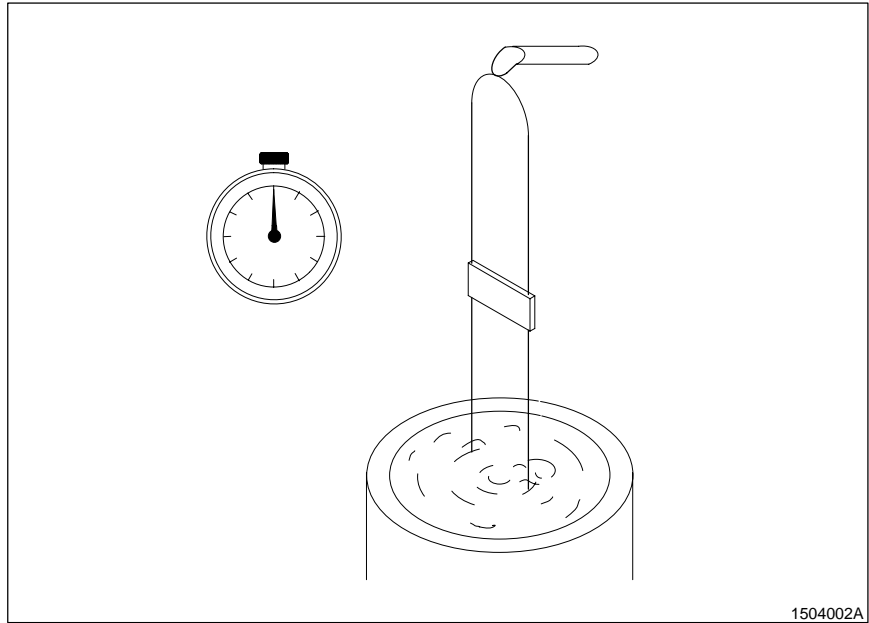


Fig. 2 Viscometer Cup Submerged

3. See Figure 3. Rapidly lift the entire cup of the viscometer from the material and start the stopwatch.
4. Observe the stream of material flowing from the bottom of the cup. The first time the flow of the material is interrupted, turn off the stopwatch.

NOTE: The elapsed time shown on the watch is the viscosity in seconds at the recorded temperature.

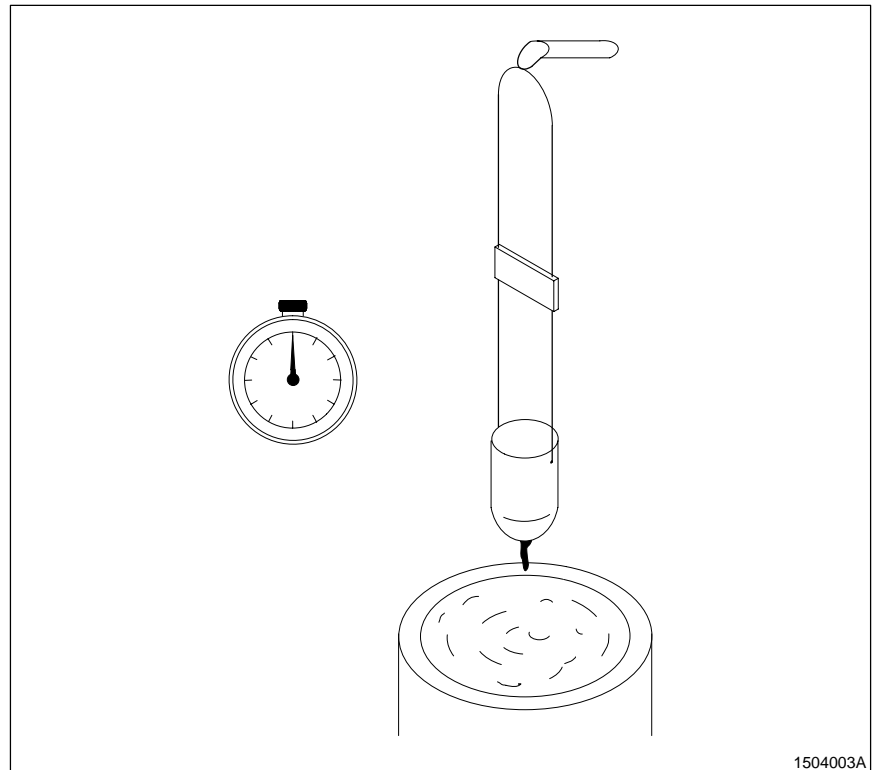


Fig. 3 Viscometer Cup Removal

3. Parts

Part	Description	Quantity
790 106	Viscometer, Zahn, S90 No. 2	1
790 115	Viscometer, Zahn, S90 No. 3	1
165 028	Viscometer, Zahn, S90 No. 5	1

4. Viscosity Comparisons

The following table are viscosity comparison for fluids at 25 °C (77 °F).

Table 1 Viscosity Comparisons

Fluids		Viscosity in Centistokes	Viscosity in Seconds		
			Zahn S90 #2	Zahn S90 #3	Zahn S90 #5
Thin	Lacquers and sealers	25	17		
		30	18		
		40	19		
		50	21		
Medium	Primers and varnishes	60	22		
		70	24		
		80	26	12	
		90	28	13	
		100	30	14	
Heavy	Oil paints, enamels, latexes (300+ centistokes — conformal coating)	120	34	15	
		140	38	17	
		160	43	19	
		180	47	20	
		200	51	22	
		220	56	24	
		240	60	26	
		260		27	
		280		29	
		300		31	13
		320		33	
		340		35	
		350			14
		360		37	
		380		39	15
		400		40	16
		420		42	

Table 1 Viscosity Comparisons (*contd*)

Fluids		Viscosity in Centistokes	Viscosity in Seconds		
			Zahn S90 #2	Zahn S90 #3	Zahn S90 #5
Heavy	Oil paints, enamels, latexes (300+ centistokes — conformal coating)	440		44	
		450			18
		460		46	
		480		48	
		500		50	19
		550		55	21
		600		60	23
		650			25
		700			27
		800			30
		850			32
		900			34
		1100			41
		1200			44
		1300			48
		1400			52
		1500			55
		1700			59

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