

Zahn Flow Cups

Thank you for purchasing a Zahn Flow Cup from Ascott. Please read these instructions carefully and retain for future reference.

Important Information

This equipment should only be used as intended by suitably qualified and trained personnel.

These instructions should be always readily available to such personnel.

Normal common-sense safety precautions must be taken at all times to avoid the possibility of accidents. We recommend that users produce their own risk assessment for the entire testing process for which this equipment will be used.

1.0 About Your Viscosity Cup

Viscosity Zahn Cups are easy-to-use gauges for rapid measurement of the viscosity of liquids.

The cup is held by its handle and is dipped into the liquid to be measured. The cup is removed from the liquid and the time taken for the liquid to drain through an orifice in the bottom of the cup is measured. The measured kinematics viscosity is generally expressed in seconds (s) flow time, which can be converted to Centistokes (cSt). A wide range of cups with different orifices are available for measurements between 2 cSt and 1,840 cSt.

1.1 Standards

The Viscosity Zahn Cups can be used in accordance with ASTM D 816, ASTM D 1084, ASTM D 4212

Details/Zahn cup	Zahn cup 1# T01-700190	Zahn cup 2# T01-700191	Zahn cup 3# T01-700192	Zahn cup 4# T01-700193	Zahn cup 5# T01-700194
Cup Number	1	2	3	4	5
Orifice ϕ (mm/inches)	1.98mm/0.08"	2.74mm/0.11"	3.76mm/0.15"	4.27mm/0.17"	8.1mm/0.31"
Zahn Range (sec)	33.5-80	20-80	20-75	20-80	20-80
Centistokes Range	5-56	21-231	146-848	222-1110	460-1840
Applications	Very Thin Oil	Thin Oil, Paint Lacquer	Medium Oil Mixed Paint	Viscous Liquid and Mixtures	Very viscous mixtures

1.2 Contents

- Viscosity Zahn Cup with handle
- Operating instructions

The Viscosity Zahn Cup is packed in a cardboard and foam package.

Please ensure that this packaging is disposed of in an environmentally sensitive manner when no longer required.

1.3 CAUTION

Take care to avoid damaging your viscosity dip cup. Damage to the orifice, scratches on the internal surface or deformation of the cup will affect the readings and the gauge may have to be replaced.

2.0 Taking A Reading

2.1 Before You Start

- Select a cup which gives a flow time of between 30 seconds and 100 seconds.
- Ensure the handle, the cup and the orifice are clean and free of debris, etc.
- The liquid being tested must be homogeneous and must not contain any bubbles.
- Measure and record the temperature of the liquid.

2.2 Procedure

1. Immerse the cup completely into the liquid and twist several times to dislodge any bubbles which may be clinging to the internal surface of the cup (Figure 1 A).
2. Stir the liquid gently to ensure uniform temperature and density.
3. Leave the cup in the liquid for at least one minute.
4. Lift the cup vertically out of the liquid (Figure 1 B) and start the stopwatch the moment the top of the cup breaks the surface of the liquid.
5. Watch the flow of liquid from the orifice and stop the stopwatch the moment the flow breaks.

2.3 After the Test

Clean the gauge and all equipment.

After cleaning, ensure that all materials are removed and that the instrument is dry.

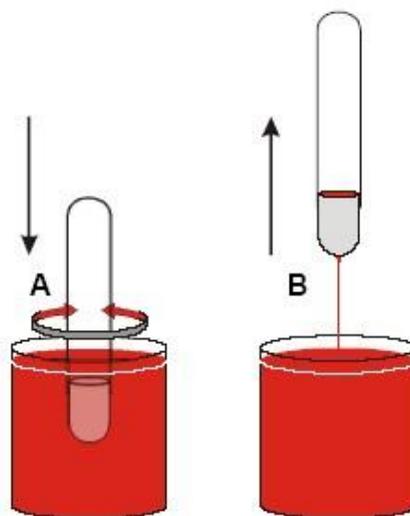


Figure 1

Ascott Analytical Equipment Limited

6-8 Gerard, Lichfield Road Industrial Estate, Tamworth, Staffordshire, B79 7UW, Great Britain

T +44 (0) 1827 318040 F +44 (0) 1827 318049 E info@ascottshop.com W www.ascottshop.com

3 .0 Converting to Viscosity

The measured kinematic viscosity is expressed generally in seconds (s) flow time, which can be converted to Centistokes (cSt).

To convert from flow time (s) to kinematic viscosity (cSt), use the following formula:

$$V = K(t - c)$$

Where V = kinematic viscosity in cSt (mm^2/s)

t = flow time in seconds

N.B.

The formula treats the cups as linear, which they are not.

The formula is effective for flow times between 35 seconds and 80 seconds.

All Zahn cups are calibrated before leaving factory, please multiply "K" coefficient marked on the cup body.

4.0 Storage & Care

When not in use, store in a clean dry environment

Do not use wire brushes, metal scrapers, metal files or other metallic tools for cleaning.

Clean the cup using a suitable solvent only.

5.0 Maintenance

Viscosity Zahn Cups are designed to give many years reliable service under normal operating and storage conditions.

Regular calibration checks over the life of the gauge are a requirement of quality management procedures e.g., ISO 9000 and other standards.

To check for wear, use Viscosity Standard Oils and measure the drain time.

If you have any queries regarding your new equipment, or require any additional accessories or consumables, please contact info@ascottshop.com or telephone +44 (0)1827 318040. If you wish to contact us by post, our full mailing address is 6-8 Gerard, Tamworth, Staffordshire, B79 7UW