

**DETERMINATION OF LOW TEMPERATURE VISCOSITY
BROOKFIELD VISCOSIMETER****Application**

This method is used to determine the low temperature viscosities of new and used oils by Brookfield viscosimeter.

The method consists of cooling a test sample of oil in the cold bath and determining its viscosity without removing it from the cold bath.

Apparatus and Materials Required**Cold Box**

Capable of maintaining temperatures to - 40 °C within +/- 2 °C.

Insulator

Cork or wood to prevent bath from resting on bottom of cold box.

Stirring Rod**Thermometer**

For viscosity bath (+ 20 to - 40 °C).

Coolant

Alcohol.

Viscosity Bath

300 mm dia by 300 mm deep.

Six Station Sample Indexing Cover Plates**Plexiglass Cover**

With support for Brookfield viscosimeter. This item replaces one of the two pyrofoam covers of the freezer.

Support Stand

For stirrer motor.

Thermocouple

(Iron-constantan) immersed in test fluid sample.

Date	Action	Revisions
2001 07 23	Revised	Editorial – no technical change A. Cockman
1994 02 28		

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Brookfield Viscosimeter

Model No. LVF or LVT, and spindles No. 3 and No. 4 with guard.

Six Stainless Steel Sample Beakers (500 mL)

Mixer

Pyrometer Potentiometer

With an accuracy of 1 %.

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

1. Fill beakers with 275 +/- 5 mL of oil under test.
2. Heat oil in oven at 100 °C for 30 minutes to remove any moisture present in test sample. Cool to 23 +/- 2 °C.
3. Place Pyrex glass bath into cold cabinet on insulator spacer. Adjust the height so the top of the bath is 65 mm below the top of the cold cabinet.
4. Fill the bath with alcohol, acetone, or any other low freezing point liquid.
5. Place indexing cover on bath and insert test beakers.
6. Adjust cold box to desired temperature and condition test samples for 16 hours.
7. Immerse thermocouple (iron-constantan) into test sample so that it does not touch the sides or bottom of the beaker.
8. Attach Brookfield viscosimeter with desired spindle and guard. Place in soak hole on plexiglass cover to stabilize to 23 +/- 2 °C, 10 minutes minimum.
9. Remove Brookfield from soak hole and place on plexiglass levelling support pad which is adjusted to maintain the proper immersion to the depth indicated by the groove cut in the spindle. This groove mark indicates the maximum and minimum immersion. (See manufacturer's specification.)
10. Set viscosimeter motor speed (60 r.p.m.). With viscosimeter in the immersed level position, press down clutch lever, then start motor.