"Your Direct source for Plant Reliability, Test & Measurement"
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VISGAGE - A POCKET VISCOSITY COMPARATOR
Model #38 and Model #76 Operating Instructions

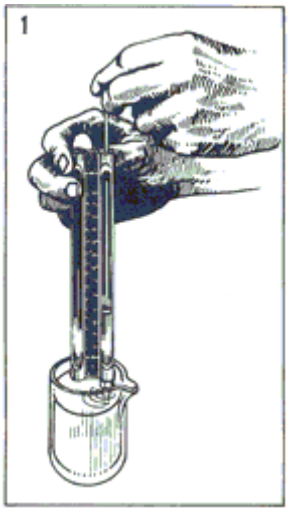
Quickly and conveniently, the VISGAGE checks oil viscosity on-site; without thermometers or stop watches. The VISGAGE can be used to check any oil from light spindle oil to heavy gear oils. Regular users of the VISGAGE include nearly every type of industry in the world, i.e.: railroads, truck and bus lines, marine fleets, power plants, laboratories, oil distributors, etc. The VISGAGE is probably the most useful instrument ever devised to aid in a used oil analysis program. Quality control can be assured when the VISGAGE is regularly utilized to verify oil viscosities.

ANY COMPANY USING QUANTITIES OF LUBRICATING OILS, TURBINE OILS OR HYDRAULIC OILS, SHOULD HAVE A VISGAGE.

The principle of operation is simple. It is based on comparing the viscosity of a sample of oil with oil of known viscosity. The viscosity reading is made directly in Saybolt Universal Seconds at 100 degrees Fahrenheit at room temperature (80 degrees Fahrenheit). *No calculations are necessary.* An accuracy of 95% or better is easily achieved when making tests. Careful operators can obtain excellent results. The VISGAGE is more widely used throughout the world than any other type of viscometer, for two very good reasons, better accuracy and easier operation. Operators in the field can consistently test as accurately and faster than most commercial laboratories. The use of the VISGAGE is ideal for obtaining immediate test results.

HOW TO FILL THE TEST TUBE:

CAUTION: *Do not draw hot oils directly from a crankcase or reservoir into the VISGAGE.*



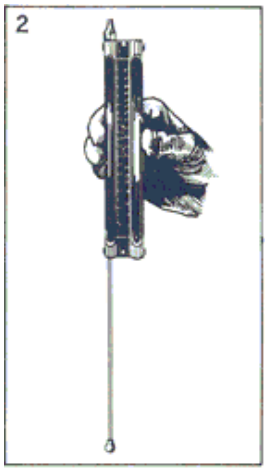
Place a small quantity of oil into a container (Fig. I), then insert nozzle of VISGAGE into this oil (fluid) when temperature is approximately 27° C (80° F).

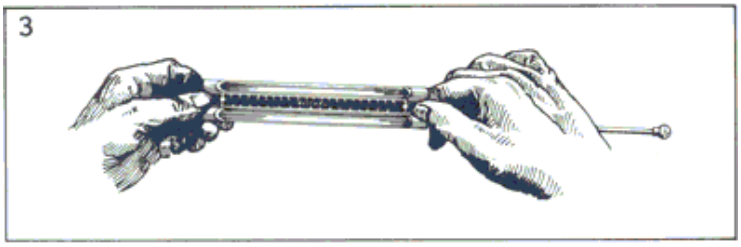
Best test results are achieved when tests are made at 27° C (80° F).

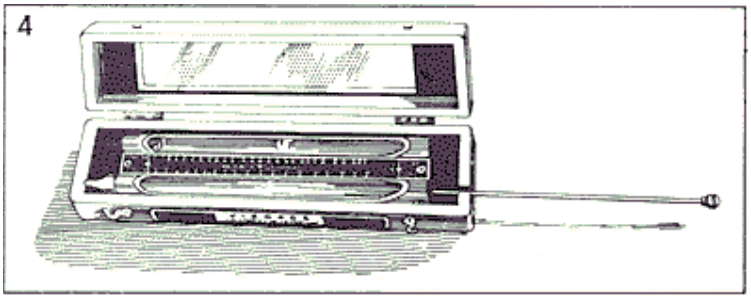
After inserting nozzle in oil to be tested, slowly withdraw plunger (Fig. I). If an air bubble appears in the test tube, invert the VISGAGE (Fig. 2) and discharge the air with a small amount of oil. Insert nozzle in oil, slowly withdraw the plunger and completely fill the test tube with oil, free of air bubbles.

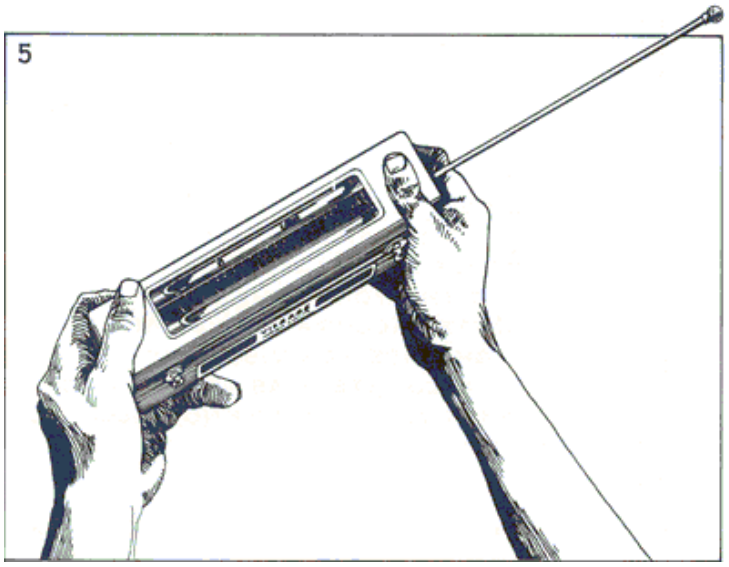
HOW TO PLACE VISGAGE IN DRAFT PROOF CASE:

Adjust the plunger to set sphere in test tube to zero (Fig. 3). Position VISGAGE in draft-proof case with plunger rod extending through slot at right side of case (Fig. 4). *Close and lock cover. Allow the oils to attain the same temperature.*









READING:

- Hold the case with VISGAGE in horizontal position at eye level, fifteen inches away, with scale in upright position.
- With both spheres on zero line, tilt instrument with nozzle end down (Fig. 5) to an angle between 30 and 45 degrees so spheres move through the oils toward the line at left side of scale. (NOTE: To develop your proficiency, make VISGAGE tests using a standard fluid of specific viscosity for determining best angle of tilt.)
- Give spheres the run of the oils. As the leading sphere approaches the line (38.6 line/76.5 line) at left of scale, gradually move the instrument to horizontal position to stop **leading sphere** exactly on the line.
- Read point on scale opposite position of other sphere. The reading gives the viscosity of the tested oil directly in Centistokes at 40°C. After a few trials, any operator can check the viscosity of oils to an accuracy of 95°F or better; and if skillful, to even closer accuracy.

HOW TO BE CERTAIN THAT OILS ARE THE SAME TEMPERATURE:

Slowly raise plunger end of VISGAGE to an angle between 30 to 45 degrees. Take two or three readings. If readings repeat, the oils are the same temperatures. If readings do not repeat, allow another few minutes to equalize temperature until a few readings repeat. The final repeat reading indicates the viscosity of the test oil directly in Centistokes at 40°C.

HOT OILS:

WARNING: ***Do not immerse VISGAGE in hot oil/ or hot water to equal/is temperatures. Do not heat VISGAGE above 40°C.***

CLEANING:

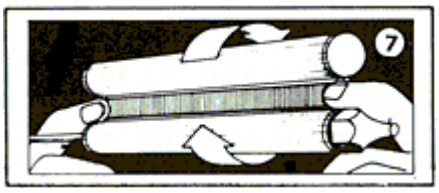
The VISGAGE is self-cleaning. When the oil is discharged after a test, returning the plunger to its original position effectively cleans the wall of the test tube. A small a- mount of oil will remain in the bore of the nozzle. To discharge this, fill the test tube with the next oil to be tested, discharge and discard it. This will clean the nozzle of the previous oil before the new test is made.

Non-use of the VISGAGE over a period of time with residue oil in the test tube may gum the sphere and the wall of the tube. To remove it, draw into the test tube a few charges of light oil or kerosene to dissolve the residue. *Do not use straight gasoline or naphtha.*

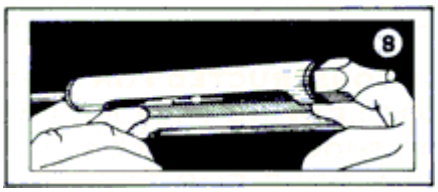
DARK COLORED OILS:

Dark colored oils in the test tube may make it difficult to see the sphere. To overcome this, follow standard test procedure under READING. Then, with your back to the light (Fig. 6) and full light on the scale, (Fig. 7 & 8) tilt reference tube toward you 90 degrees to bring the sphere in the test tube into sight. The point on the scale corresponding to the position of the sphere indicates the viscosity of the test oil direct at which it was rated in Centistokes at 40° C. (Fig. 8)

The VISGAGE is designed and constructed to test the viscosity of new and used oil/s but not sludge.



Whenever the sphere in the test tube can no longer be seen, you will know the oil is so badly fouled with contaminants that it needs to be changed immediately or cleaned by any of the appropriate cleaning methods.

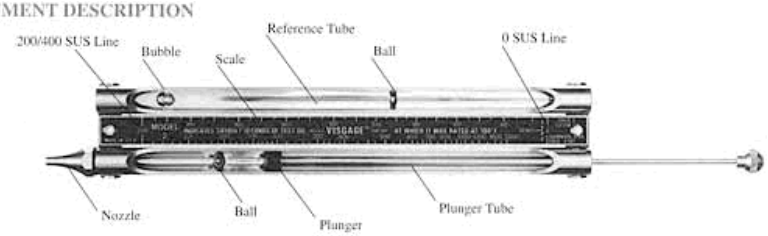


VISCOSITY INDEX (VI):

The reference tube contains certified oil with a viscosity index of 95 VI. Best accuracy is achieved when the oil being tested has a VI near the VI of the reference oil, and several identical readings on the scale indicate temperatures of both tubes are equal. If the VI's of the oils are far apart (for example, 95 VI in reference tube, 40 VI in test oil), warm VISGAGE to 40° C, and then take readings.

MODEL #38	MODEL #76
SCALE RANGE - 0 TO 400 CST @ 40°C. Recommended range for readings approximately 8 to 200 CST	**SCALE RANGE - 0 TO 400 CST @ 40°C.** Recommended range for readings approximately 20 to 400 CST

INSTRUMENT DESCRIPTION



HEATING THE VISGAGE:

The temperature of both the reference tube and the drawn oil must be the same before taking a reading. Certain oils may require heating the instrument to 40°C to obtain accurate results.

Place the VISGAGE in its draft-proof case with a thermometer under a lamp. Test your oil viscosity when temperature reaches 40°C. **The VISGAGE should NOT be heated over 40°C.**

OVER-HEATING WILL CAUSE THE VISGAGE TO GO OUT OF CALIBRATION.

Reference tube oils are sealed with a small bubble to allow for expansion. Overheating the oil will rupture the seals of the reference tube.

Hot oil drawn from a crankcase or reservoir must first be cooled in a separate container before testing the oil with the VISGAGE.

The VISGAGE is calibrated at 27 ° C.

ATTENTION OPERATORS:

Develop your proficiency by first practicing with oils of a known viscosity. A standardized testing procedure and an angle between 30 and 45 degrees will then be established.

Oils lighter than reference tube oil are easy to test. Stop the faster sphere at the 38.6 or 76.5 line. The sphere in the heavier oil will then mark your viscosity.

REPAIRS: *If instrument is damaged, pack carefully in carton with shredded paper to prevent further damage and return to us for repair, reconditioning and recalibration at prevailing charge.*

Every VISGAGE is constructed for portability and utility and is assembled and calibrated before leaving the laboratory. Do not disturb either glass tube. The VISGAGE is sensitive to shock and, like a thermometer, must be handled with care.

WE CANNOT BE RESPONSIBLE FOR THE CALIBRATION OF THE VISGAGE IF PARTS ARE REMOVED AND REPLACED BY YOU.