DIRECTIONS FOR TEST NO. 14-29-41

SUBJECT: Viscosity of Liquid Aroclors

METHOD: Saybolt Universal, ASTM D 88.

Viscosity is a measure of resistance to flow. It is measured by the time necessary for a chosen volume to be forced thru a tube of chosen length and internal diameter. By theory the viscosity of a fluid is related to the average distance between its molecules and to their average speed and their size.

Apparatus

Viscosimeter assembly with oil tube, bath, receiver, thermometers, strainer, timer and pipet to meet all requirements of ASTM D88-38. The viscosimeter now in use is made by Krebs Elec. and Mfg. Co., New York, purchased from Emil Greiner Co., their 2-tube capacity #862. One tube – on left hand – has been certified by the Bureau of Standards.

Procedure

The viscosimeter is set up in accordance with manufacturers directions using No. 20 motor oil for the bath.

The procedure and method of reporting results are those described under ASTM.

Care of Apparatus

Maintain proper level of oil by occasional additions thru hole in front. When oil blackens dismantle, clean heaters, tubes, and orifices, then refill with fresh oil.

Bath. At conclusion of test, open the contact points until 1 or 2 inches apart so as not to put undue strain on thermostatic control when bath cools. Put a few drops of oil in motor cups occasionally. Keep outside of bath wiped free of oil or Aroclor. Cover with hood when not in use.

Oil Tube. While still hot, remove all possible Aroclor from gallery with pipet. When cooled to 70-80°, fill tube and gallery with benzol-carbon tetrachloride mixture, drop thru orifice into beaker, drain gallery with pipet and wipe dry with absorbent paper in such a way that fibers cannot fall into the tube. Repeat until clean.

Occasionally cover the leather plunger with sized thin paper "copy" sheets) and swab walls of tube before using cleaning fluid. This keeps walls polished. Cover oil tubes with lids when not in use.

Orifice: Do not pass wires, strings, pipe cleaners, etc. thru the orifice. If a hair falls across orifice, remove with long handled forceps. If the orifice becomes clogged, dismantle apparatus to clean.

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Calibration

Check the timer occasionally for 60 second periods. Check bath thermometer from time to time. Check performance of viscosimeter periodically by running a reference sample of Aroclor on which careful determinations have been made.

Available for calibration is also an oil standard, called "Alpha 40", of the American Petroleum Institute. The oil is obtained from the office of Dr. T. G. Delbridge, The Atlantic Refining Co., 3144 Passyunk Ave., Philadelphia at $5 per quart sample. Because such oil standards are subject to change they are checked annually.

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