

SPECIFIC GRAVITY BY ELECTRONICS

(The Chemical Trade Journal, 16 Novembro 56, pág. 1180)

An electronic liquid density instrument under development in the Electrical Engineering Division of the Laboratories of the Franklin Institute is the subject of a brief description in the Institute's "Journal" for October.

New Instrument under Development

The instrument is about the size of a table model radio, and powered from a 115-volt a-c line. Samples to be measured are placed in a small glass jar, the vessel requiring approximately 100 cc. of liquid for proper functioning. Once the container has been introduced into an opening in the side of the case, a knob is turned, actuating a miniature elevator which gently hoists the sample to a level at which the measuring float is properly immersed. When this has been done, the operator observes a zero-centre null-indicating meter while adjusting a second knob, the only other control save the on-off switch. The second knob simultaneously balances the instrument and drives a scale which is calibrated in density units. When balance is registered by the null indicator, the density may be read directly from the scale. A thermostatically-controlled, immersion-type heater of large area has been built into the apparatus to maintain a set temperature.

Density Range and Accuracy

The density range for which this particular instrument was designed is from 0.8000 to 1.0000, with the desired reproducibility over this range being one part in 2,000, but there should be no difficulty in increasing the range of the instrument, and owing to its principle of operation, very little change in accuracy should result from such increases.

Since transistors have been used throughout the electronics of the device, no warmup time is required before a precise density reading can be obtained. Depending upon the initial temperature of the sample, a brief period (less than a minute) is required for the thermostat to stabilise.