LIQUID THERMAL CONDUCTIVITY CELLS

C-600-L Thermal Conductivity Cell For Liquids

The model C-600-L Thermal Conductivity Cell is designed to measure the thermal conductivities of most liquids within the range of 0.5 to 15 Btu/hr.ft.°F/in.

INTERNATIONAL
THERMAL
INSTRUMENT
COMPANY

APPLICATION

The model C-600-L Thermal Conductivity Cell for liquids is designed to measure the thermal conductivities of most liquids within the range of 0.5 to 15 Btu/hr.ft.°F/in. The sample chamber measures approximately 5.75" x 5.75" x 1/8", having a total volume of 4 Cu in. Measurements may be made of all liquids or slurries which are compatible with copper Teflon, or nickel-Teflon substrates. The thermal conductivities can be determined over the temperature range of -50 to +250°F.

OPERATION

The model C-600-L Thermal Conductivity Cell requires for its operation a D.C. Millivolt meter, or potentiometer and a small Variac for the cell's heater element. Filling the cell is accomplished by means of a tubular riser. Natural convection in the cell is mitigated by establishing an inverted thermal gradient between the upper and lower sample chamber surfaces. Power to the heating element is adjusted such that an accurately measurable millivolt voltage is generated by the differential thermocouple. When the cell attains thermal equilibrium with its surroundings, the resulting temperature difference and heat flux signals may be read out on the millivolt meter. Converting these signals to a temperature difference and a heat flux by means of the calibration constants provided and substitution in the standard conduction equation yields the thermal conductivity.

SPECIFICATIONS

Range:
0.5 to 15 BTU/hr.ft.°F/in.

Size:
6" Sq. (Upper and Lower Units)

Temperature Range:
0°F to 250°F

Transducer Accuracy:
1%

Transducer Sensitivity (Nom):
7 BTU/hr ft^2 mv.

System Accuracy:
5%

Thermocouple:
Copper/Constantan

Switching Assembly:
2 Position, Incl.

Heat Sink:
Air Cooled

Cell Surfaces:
Copper (nickel plate opt.)

ACCURACY

Dual, matched, 1% accurate heat flux transducers monitor the heat flow to and from the specimen being measured. Signals from the heat flux transducers are electronically coupled to account for most edge losses from the specimen. The differential thermocouple which measures the temperature difference has known accuracy of better than 1%. At thermal equilibrium, the cell is capable of determining the thermal conductivities within 5% of true values. The cell is also standardized against pure water.

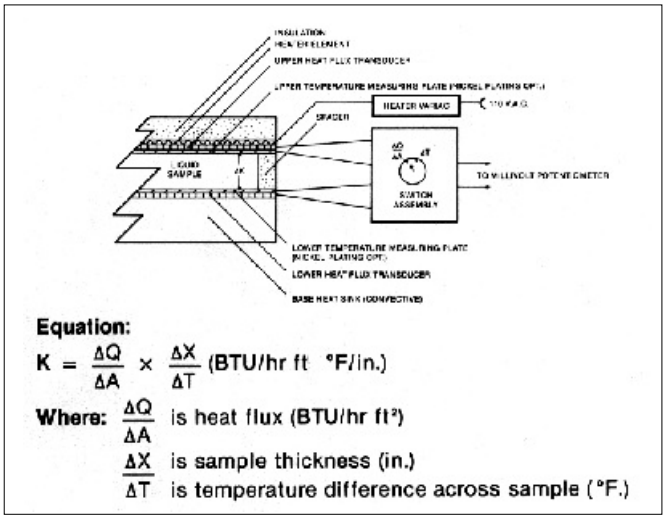

Figure 1

ORDERING INFORMATION

Delivery.....3-4 weeks, ARO
Shipping weight.....25 lbs (max.)
Terms.....Net 30 days to established customers
F.O.B.....Del Mar, California

OTHER ITI THERMAL INSTRUMENTS

Heat Flux Meters, HEAT-PROBE™, Accelerator target Calorimeters, Radiometers, Thermal Flux Standards.