



Thermal conductivity is the intrinsic property of a material which relates its ability to conduct heat. Heat transfer by conduction involves transfer of energy within a material without any motion of the material as a whole. Conduction takes place when a temperature gradient exists in a solid (or stationary fluid) medium. Conductive heat flow occurs in the direction of decreasing temperature because higher temperature equates to higher molecular energy or more molecular movement. Energy is transferred from the more energetic to the less energetic Molecules when neighboring molecules collide. Thermal conductivity is defined as the quantity of heat transmitted through a unit thickness in a direction normal to a surface of unit area due to a unit temperature gradient under steady state conditions and when the heat transfer is dependent only on the temperature gradient

Lee Disc Setup Description

The apparatus shown in Fig. consists of two parts. The lower part C is circular metal disc. The experimental specimen G, usually rubber, glass or ebonite (here it is glass) is placed on it. The diameter of G is equal to that of C and thickness is uniform throughout. A steam chamber is placed on C. The lower part of the steam chamber, B is made of a thick metal plate of the same

diameter as of C. The upper part is a hollow chamber in which two side tubes are provided for inflow and outflow of steam. Two thermometers T1 and T2 are inserted into two holes in C and B, respectively. There are three hooks attached to C. The complete setup is suspended from a clamp stand by attaching threads to these hooks

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|-------------------------|----------|
| Lee's Disc setup | - 1 nos. |
| Thermometers 110 degree | - 2 nos. |
| Optional : | |
| Steam Boiler | - 1 no. |
| Stop watch | - 1 no. |
| Hot Plate | - 1 no. |
| Screw gauge | - 1 no. |
| Vernier caliper | - 1 no. |
| Rubber pipe | - 1 roll |

Experiment : To find the coefficient of thermal conductivity of bad conductor using Lee's method

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