
EFFECTS OF HEAT SINK COMPOUNDS ON CONTACT RESISTANCE OF POROUS MEDIA.

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Abstract

High and low-conductivity heat sink compounds were applied in succession on a thermal probe, which was then used to determine the thermal conductivity and thermal diffusivity of some porous media at room temperature. The experiment was conducted separately under different packing densities and water contents to see the effects of the heat sink compounds on the thermal properties at such conditions. High conductivity grease increased the values of thermal conductivity considerably and thus reduces the contact resistance, with increase in bulk density at air-dry conditions, but had virtually no effects on its thermal diffusivity. It however decreased both the thermal conductivity and thermal diffusivity with water content increment. The thermal properties obtained without thermal grease vary considerably from those with the heat sink compounds as water was being applied. The variation however reduced also considerably towards saturation.