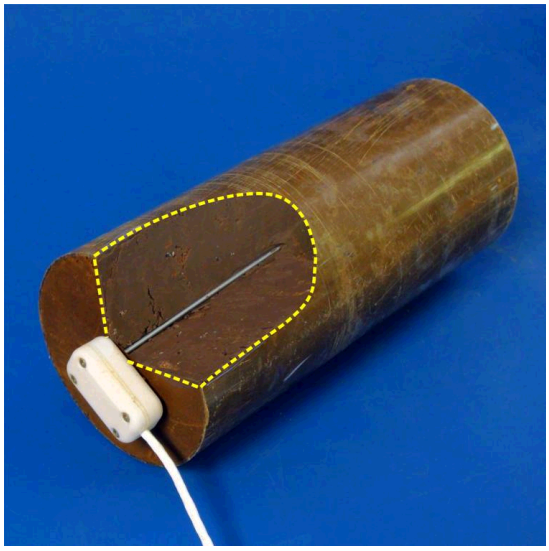
GEOLABS®

Independent Soil and Rock Geotechnical Laboratory Testing

Thermal Properties

Thermal conductivity under steady-state conditions is an important parameter in the design of infrastructure for the transport of electricity though high voltage cables and high temperature oil through pipelines. Geolabs provides a range of thermal property measurements of soils and rocks for both offshore and land-based projects.

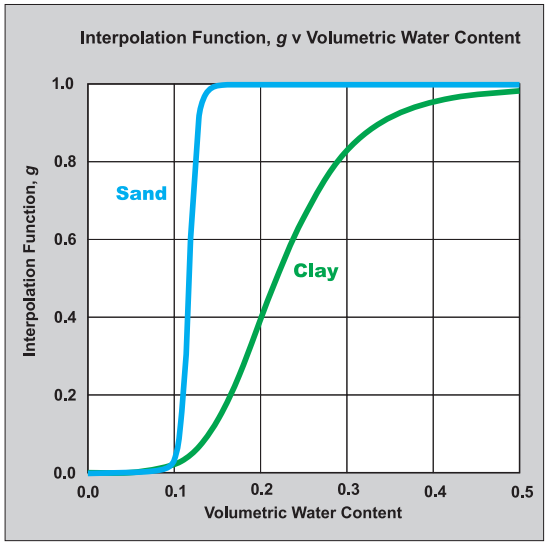
- Thermal conductivity by needle probe procedure (ASTM D5334-14)
- Thermal resistivity (IEEE 442-03 heat transfer theory)
- Volumetric specific heat capacity
- Thermal diffusivity



Thermal conductivity is the intrinsic ability of a material to transfer or conduct heat. **Thermal resistivity** is the capability of a material to resist the flow of heat and is the reciprocal of thermal conductivity.

The **volumetric specific heat capacity** of a material is the amount of energy in the form of heat that has to be added to one unit volume of the material in order to cause an increase of one unit temperature.

Thermal diffusivity is the rate of temperature change through a material or, alternatively, how quickly a material reacts to a change in temperature.



Thermal Dryout Curves

Thermal conductivity of a soil depends strongly on the water content.

Thermal dryout curves represent the effect on the conductivity of this variability.

Geolabs can provide dryout curves for various soil types by modelling, testing or a combination of both.

Wind Farms · Construction · Dams & Embankments · Landslide · Infrastructure · Offshore Structures · Earthquake · Piling · Tunnelling

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