

Thermal Resistivity Testing, Evaluation and Analysis of Native Soil / Backfill Material

Powertech provides field and laboratory testing services to measure the Thermal Resistivity (TR) of native soils or backfill materials required for underground transmission lines.

Importance of TR Testing

The ampacity rating of a cable is a function of the amount of heat that can be dissipated away from a cable. Elevated cable temperatures can shorten cable life and increase resistive power losses. The most important factor that controls thermal dissipation of a cable is the thermal resistivity of the surrounding soil or backfill material. This is true for underground cables buried directly in soil or in ducts, as well as fluid filled pipe type cable systems. Applications of TR measurements in the field and laboratory have also been used to design geothermal heat pump systems.

Estimating thermal behaviour of soil should be part of any cable design or any thermal storage facility design. It is the only way for you to receive a complete soil diagnostic that will allow you to determine the variations and/or characteristics of thermal dissipation that exist in the soil. This extremely valuable information helps you determine the correct cabling requirements, cable alignments, and if necessary, identify the suitable cable backfill material.

• Field Testing

Powertech is equipped to provide onsite testing in the area in which cables or thermal storage facilities are proposed to be installed. Representative samples can then be collected and brought back to the lab for further testing.

• Laboratory Testing

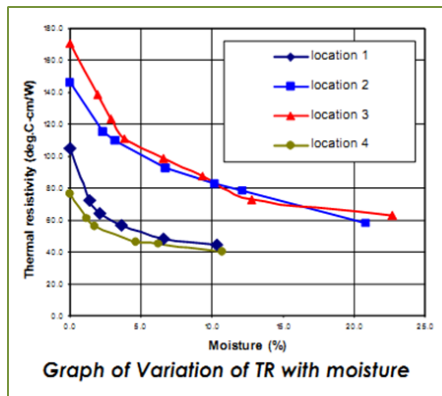
Soil samples taken back to the Powertech

laboratory undergo further evaluation. Thermal resistivity of backfill materials is measured by compacting the sample to the specified density and optimum moisture in the laboratory. Each sample will be dried to identify thermal resistivity with variations of moisture content. The density and water content play an important role in determining the soil thermal resistivity.

• Backfill Material Recommendation

In cases when the soil samples indicate that the thermal dissipation is not suitable, Powertech can provide testing and evaluation of various potential backfill materials for you and make a recommendation on the most suitable for your needs.

Powertech will be able to provide you with data throughout the testing. Upon completion, a final report detailing our findings will be issued including, if necessary, further design recommendations.



ABOUT POWERTECH LABS:

Powertech Labs Inc. is one of the largest testing and research laboratories in North America, situated in beautiful British Columbia, Canada. Our 11-acre facility offers 15 different testing labs for a one-stop-shop approach to managing electrical utilities, and testing gas components, pressure vessels and systems.

Outside of the utilities industry, Powertech provides routine testing capabilities, product development, research and consulting services to support an array of industrial-type operations, electrical equipment manufacturers and automotive original equipment manufacturers.

www.powertechlabs.com



FOR MORE INFORMATION CONTACT:

Sasi Sasitharan - 604.590.7412
Manager & Principal Engineer
Civil Services
Sasi.Sasitharan@powertechlabs.com

Reza Soltani- 604.590.6648
Division Manager
Field Asset Services & Testing
reza.soltani@powertechlabs.com

Powertech
www.powertechlabs.com