

Use of Impedance Spectroscopy for Determining Density of Low Conductivity or Non - Conductive Materials – This rather general program description refers to TransTech Systems' innovative electrical impedance spectroscopy technology that has currently been used successfully for asphalt pavement density and moisture, ceramic density, moisture and air void recognition, and a limited verification project with tobacco bales. TransTech is also in the early stages of a very promising major program to adapt the technology for use in determining the density and moisture of backfill soils used in utility cut and repair jobs. It is expected that this effort will expand the technology for use in the majority of general construction backfill soils. Through the use of physics-based modeling, Artificial Neural Networks (ANN) and signal processing/signature analysis, TransTech feels very confident that its pioneering work with impedance spectroscopy is capable of determining density/compaction and moisture levels of virtually any non-conductive material. Because of the experience that some of our engineers and scientists have with the National Institute of Health and in biomedical engineering applications, we are actively pursuing funding in these areas as well (skeletal muscle water content, extra-cellular versus intra-cellular water, tumor recognition, brain scanning, etc.).