Heat Signature for Quality Control Purposes: During the paving operation, consistent concrete is the key to a quality pavement. Heat Signatures will identify any changes in the chemical reaction of the hydration process. Calorimetry and unit weight testing can identify when mixture changes have occurred. Through the use of control charts, the contactor can be alerted to those changes and adjustments can be made to keep the process in control. Heat Signature curves can also be used to identify nonuniformity in real time that will otherwise only become known from later age test results, some of which may be acceptance tests. The following are some Heat Signature data obtained from MCTC field projects.

How does the test work?
- Cast a standard concrete cylinder during production
- Place it in the Semi-Adiabatic Calorimeter
- Record the time-temperature curve (Heat Signature)
- Compare Heat Signature curves of samples from the same mixture

Summary:
- Simple, quick, and inexpensive field test
- Monitors consistency in cementitious materials between batches
- Only for QC applications

Heat Signature for Quality Control Purposes: During the paving operation, consistent concrete is the key to a quality pavement. Heat Signatures will identify any changes in the chemical reaction of the hydration process. When paired with unit weight testing, calorimetry and unit weight can identify when mixture changes have occurred. Through the use of control charts, the contactor can be alerted to those changes and adjustments can be made to keep the process in control. Heat Signature curves can also be used to identify nonuniformity in real time that will otherwise only become known from later age test results, some of which may be acceptance tests. The following are some Heat Signature data obtained from MCTC field projects.

For more information, refer to “Evaluating Early Hydration of Hydraulic Cementitious Mixtures Using Thermal Measurements”, ASTM C1753