Electrical Resistivity of Concrete

Concepts, applications, and measurement techniques

Electrical resistivity measurement techniques are becoming popular among researchers and scholars for the quality control and durability assessment of concrete. Electrical resistivity measurement can be used for the performance-based evaluation of concrete. Resistivity test procedures, including sample preparation, are much easier and faster than that of the RCP test. Also, the resistivity value can be directly related to the chloride diffusion coefficient of concrete using the Nernst-Einstein equation.

The adoption of these techniques into standards and guidelines has been rather slow, with only surface electrical resistivity adopted as a test method by the American Association of State Highway and Transportation Officials (AASHTO TP 95).While ASTM Committee C09 is also developing a standard procedure for evaluating the surface electrical resistivity of concrete, the only resistivity test method that has been standardized to date is ASTM C1760, and this is used for measuring the bulk electrical resistivity. Thus, a gap exists between the state-of-the art knowledge and the current industry practice.

In a recent article published by the Concrete International magazine, the basic concept and measurement techniques as well as applications of electrical resistivity technique have been discussed.

Please read more at
http://www.giatecscientific.com/wp-content/uploads/2015/05/Concrete_Electrical_Resistivity.pdf.