Touching Lives Through Electrochemistry...

CSIR-CECRI

सीएसआईआर-केन्द्रीय विद्युतरसायन अनुसंधान संस्थान

CSIR-CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद् Council of Scientific & Industrial Research)

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31.01.2022

Test Report

Mr. Ashoklal, Proprietor, M/s Laal chemicals, Chennai wrote an email to CECRI on 27.08.21 requesting to carry out the performance evaluation of "CORROSTOP-15 corrosion inhibitor" by conducting the following tests as per the standard procedures:

(1) Initial & Final Setting time (BIS 4031)

(2) 28 days compression strength (BIS 10262-2009)

(3) Tensile strength of the concrete (BIS 5816 - 2004)

(4) Rapid Chloride Penetration test (RCPT) (ASTM C1202) and

(5) Electrochemical and gravimetric weight loss studies (ASTM G 106, G 59 & G1 0)

CECRI conducted all the above performance evaluation studies on "CORROSTOP-15 corrosion inhibitor" and the following broad conclusions have been arrived:

- The results of initial and final setting time clearly shows that the addition of CORROSTOP-15 corrosion inhibitor does not affect the minimum initial setting time of 30 minutes and does not exceed the maximum final setting time requirement of 600 minutes as given in BIS 4031.
- The results of compressive strength and splitting tensile strength tests illustrate that addition of CORROSTOP-15 corrosion inhibitor does not affect the compressive and splitting tensile strength of concrete. In fact, it improves the compressive strength.
- The RCPT conducted as per ASTM 1202 - 12, clearly specify that the total charge passed in Coulombs is low in CORROSTOP-15 corrosion inhibitor added specimens, when compared to uninhibited system.
- Electrochemical studies clearly reveals that CORROSTOP-15 corrosion inhibitor shows the **durability factor of around 1.40** even in the presence of higher chloride concentration of 10000 ppm.
- The results of gravimetric study clearly indicates that even in high chloride level i.e. 10,000 ppm of chloride, only negligible corrosion rate was found. This could be due to the excellent corrosion protection ability of CORROSTOP-15 corrosion inhibitor.
- ***In general, addition of CORROSTOP-15 corrosion inhibitor improves the corrosion resistant property even under higher chloride concentration and also it does not affect the basic physical properties of cement / concrete.***

31.01.22

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