(ISO 9001 : 2015)

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National Council for Cement and Building Materials
(Under the Administrative Control Ministry of Commerce & Industry, Govt. of India)
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(भारत सरकार के वाणिज्य एवं उद्योग मंत्रालय के प्रशासनिक शासनाधीन)
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Ref: CDR/SP-6615
09th May 2025

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09/05/25

Through: PN Ojha, Joint Director & HOC-CDR

Sub: Performance Evaluation of Bipolar Corrosion Inhibiting Admixture- "CORROSTOP-15" in Concrete

Ref: Final Report dated 29th April 2025

Dear Sir,

In reference to Final report dated 29th April 2025, "***Executive summary***" of the testing done so far is as follows

1. **Modified Accelerated Corrosion (Based on Japanese Standard JIS Z1535)**-With Bipolar Corrosion Inhibiting Admixture "CORROSTOP-15", Corrosion spots are significantly lesser in comparison to the control sample.

2. **Immersion Test for 720 Hrs. (Rebar weight loss method)** -With Bipolar Corrosion Inhibiting Admixture "CORROSTOP-15", corrosion rate is lesser in comparison to the control sample.

3. **Effect of corrosion inhibiting admixture on fresh and hardened properties**

3.1 Fresh properties

a) Visual observation: Addition of Bipolar Corrosion Inhibiting Admixture i.e., "CORROSTOP-15" did not cause any bleeding and segregation in concrete.
b) Workability: Addition of Bipolar Corrosion Inhibiting Admixture i.e"CORROSTOP-15" did not have any significant negative effect on workability in Concrete.
c) Initial and Final setting time of fresh concrete: Addition of Bipolar Corrosion Inhibiting Admixture i.e "CORROSTOP-15" led to a little decrease in initial and final setting time of concrete.

3.2 Hardened properties

a) Compressive strength: Addition of Bipolar Corrosion Inhibiting Admixture i.e"CORROSTOP-15" did not have any negative effect on the compressive strength of Concrete.
b) Flexural Strength: Addition of Bipolar Corrosion Inhibiting Admixture i.e"CORROSTOP-15" did not have any negative effect on the flexural strength of Concrete.
c) Drying shrinkage: Addition of Bipolar Corrosion Inhibiting Admixture i.e"CORROSTOP-15" did not have any adverse effect on the drying shrinkage characteristics of concrete

09/05/25

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4. **Polarization Test by Tafel Polarization with 3.5 % NaCl, for 20 days-** The corrosion rate of the concrete made with Bipolar Corrosion Inhibiting Admixture i.e. "CORROSTOP-15"is lower than that of control concrete.

5. **Effect of Corrosion inhibiting admixture in resisting chloride ion penetration as per AASTHO T259-** With the Addition of Bipolar Corrosion Inhibiting Admixture i.e. "CORROSTOP-15", there is an enhancement in the resistance of concrete against ingress of chloride ion.

6. **Effect of Corrosion inhibiting admixture in resisting chloride ion penetration as per ASTM C1202-** Addition of Bipolar Corrosion Inhibiting Admixture i.e"CORROSTOP-15" did not have any significant negative effect on the Charge passed in Concrete. Both control and *CORROSTOP-15* mixes fall within the "very low" chloride ion penetrability range (100–1000 Coulombs).

7. **Long Term Corrosion Test as per G-109-** Integrated macrocell charge passed was lower in concrete made with Bipolar Corrosion Inhibiting Admixture i.e. "CORROSTOP-15", indicating better corrosion resistance than control mix.

Thanking you

Yours faithfully
For National Council for Cement and Building Materials

09/08/25

Puneet Kaura
Group Manager
Centre for Construction Development & Research