

Impressed Current Cathodic Protection of Reinforcing Steel in Atmospherically Exposed Concrete Structures

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ABSTRACT

Presents guidelines for cathodic protection of reinforcing steel in concrete structures. The guidelines are limited to impressed current cathodic protection systems for new or existing atmospherically exposed reinforced concrete and are not intended for application to prestressed concrete. Criteria described include 100 mV polarization development/decay, statistical distribution analysis, and E-log I analysis. This standard includes sections that address criteria for achieving cathodic protection, design of ICCP systems, installation practices, energizing and system adjustment, operation and maintenance of ICCP systems, and records.

KEYWORDS

Impressed current cathodic protection, ICCP, reinforced concrete, reinforcing steel, 100 mV polarization criterion, TG 044

Foreword

The purpose of this NACE standard practice is to present guidelines for impressed current cathodic protection of reinforcing steel in atmospherically exposed concrete structures. This standard is aimed at owners, engineers, architects, contractors, and all those concerned with rehabilitation of corrosion-damaged reinforced concrete structures.

For more information on design, maintenance, and rehabilitation of reinforcing steel in concrete, refer to NACE SP0187¹ and NACE SP0390.² For a state-of-the-art overview regarding the use of reference electrodes for atmospherically exposed reinforced concrete structures, refer to NACE Publication 11100.³ For a state-of-the-art overview on criteria for cathodic protection of prestressed concrete structures, refer to NACE Publication 01102.⁴

This standard was originally prepared in 1990 by NACE Task Group (TG) T-3K-2, a component of Unit Committee T-3K on Corrosion and Other Deterioration Phenomena Associated with Concrete. It was revised by Work Group T-11-1a in 2000 and reaffirmed by Specific Technology Group (STG) 01, "Reinforced Concrete," in 2007. It was revised in 2019 by TG 044, "ICCP of Reinforcing Steel in Atmospherically Exposed Concrete Structures." TG 044 is administered by STG 01 and sponsored by STG 05 on "Cathodic/Anodic Protection." This standard is published by NACE under the auspices of STG 01.

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