



NSAI
Standards

Irish Standard
I.S. EN 16299:2013

Cathodic protection of external surfaces of above ground storage tank bases in contact with soil or foundations

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English Version

Cathodic protection of external surfaces of above ground storage tank bases in contact with soil or foundations

Protection cathodique des surfaces externes des fonds de réservoirs de stockage aériens en contact avec le sol ou les fondations

Kathodischer Korrosionsschutz für erdberührte und gegründete Außenflächen von oberirdischen Lagertanks aus Stahl

This European Standard was approved by CEN on 23 February 2013.

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Foreword

This document (EN 16299:2013) has been prepared by Technical Committee CEN/TC 219 "Cathodic protection", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2013, and conflicting national standards shall be withdrawn at the latest by October 2013.

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Introduction

It is important to maintain the integrity of above ground storage steel tanks (AST) for environmental and economical reasons.

This European Standard applies only for external corrosion prevention, which is independent of internal corrosion issues.

During the design of any new tank, a complete corrosion control study including the use of cathodic protection methods should be performed for preventing external corrosion of the surfaces in contact with soil, cushion or foundations. When cathodic protection is adopted, it is an effective method if designed, implemented, operated and maintained in accordance with this standard. The pre-requisites for the cathodic protection should be taken into account from the basic design. In case cathodic protection is not adopted, a documented technical justification on the equivalent effectiveness of alternative methods should be given.

For existing tanks, corrosion risks of external surfaces of tank bottoms may be important and possibly cause leaks, depending on the nature of soil, cushion, foundations, design of tank, and other equipment electrically connected to it such as an earthing system. Depending on the design and environmental conditions of the tank as detailed in the present standard, cathodic protection may be effective to mitigate corrosion when designed, implemented, operated and maintained in accordance with this standard.

Cathodic protection is aimed at supplying a direct current (d.c.) to the steel surface such that the steel-to-electrolyte potential is lowered to values where corrosion becomes insignificant.

Cathodic protection of above ground storage steel tanks is normally used in combination with a compatible protective coating system to protect the external surfaces of above ground storage steel tank bottoms from corrosion.

1 Scope

This European Standard defines the conditions necessary for an effective application of the cathodic protection method to mitigate corrosive attacks on the external surfaces of above ground storage steel tank bottoms in contact with soil, cushion or foundations.

This European Standard specifies the requirements for the design, implementation, commissioning, operation and maintenance of such a cathodic protection system.

This European Standard applies both for new and existing tanks.

NOTE 1 This European Standard is not applicable to reinforced concrete above ground storage tanks for which EN ISO 12696 applies.

NOTE 2 Detailed information concerning measurement techniques of cathodic protection given in EN 13509 are referred to in the present standard.

NOTE 3 Cathodic protection of internal surfaces of above ground storage steel tanks storing waters is addressed in EN 12499.

NOTE 4 Cathodic protection of external surfaces of buried tanks is addressed in EN 13636.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13509, *Cathodic protection measurement techniques*

EN 14015, *Specification for the design and manufacture of site built, vertical, cylindrical, flat-bottomed, above ground, welded, steel tanks for the storage of liquids at ambient temperature and above*

EN 14505, *Cathodic protection of complex structures*

EN 50162, *Protection against corrosion by stray current from direct current systems*

EN 60079-0, *Explosive atmospheres — Part 0: Equipment — General requirements (IEC 60079-0)*

EN 60079-1, *Explosive atmospheres — Part 1: Equipment protection by flameproof enclosures "d" (IEC 60079-1)*

EN 60079-2, *Explosive atmospheres — Part 2: Equipment protection by pressurized enclosures "p" (IEC 60079-2)*

EN 60079-5, *Explosive atmospheres — Part 5: Equipment protection by powder filling "q" (IEC 60079-5)*

EN 60079-7, *Explosive atmospheres — Part 7: Equipment protection by increased safety "e" (IEC 60079-7)*

EN 60079-10-1, *Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres (IEC 60079-10-1)*

EN 60079-11, *Explosive atmospheres — Part 11: Equipment protection by intrinsic safety "i" (IEC 60079-11)*

EN 60079-14, *Explosive atmospheres — Part 14: Electrical installations design, selection and erection (IEC 60079-14)*

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