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ILNAS-EN 12502-3:2004

Protection of metallic materials against corrosion - Guidance on the assessment of corrosion likelihood in water distribution and storage

Protection des matériaux métalliques
contre la corrosion - Recommandations
pour l'évaluation du risque de corrosion
dans les installations de distribution et

Korrosionsschutz metallischer Werkstoffe
- Hinweise zur Abschätzung der
Korrosionswahrscheinlichkeit in
Wasserverteilungs- und

12/2004



National Foreword

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**Protection of metallic materials against corrosion - Guidance on
the assessment of corrosion likelihood in water distribution and
storage systems - Part 3: Influencing factors for hot dip
galvanised ferrous materials**

Protection des matériaux métalliques contre la corrosion -
Recommandations pour l'évaluation du risque de corrosion
dans les installations de distribution et stockage d'eau -
Partie 3 : Facteurs à considérer pour les métaux ferreux
galvanisés à chaud

Korrosionsschutz metallischer Werkstoffe - Hinweise zur
Abschätzung der Korrosionswahrscheinlichkeit in
Wasserverteilungs- und speichersystemen - Teil 3:
Einflussfaktoren für schmelztauchverzinkte Eisenwerkstoffe

This European Standard was approved by CEN on 22 November 2004.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 12502-3:2004) has been prepared by Technical Committee CEN/TC 262 "Metallic and other inorganic coatings", 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of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

This standard is in five parts:

Part 1: General;

Part 2: Influencing factors for copper and copper alloys;

Part 3: Influencing factors for hot dip galvanized ferrous material;

Part 4: Influencing factors for stainless steels;

Part 5: Influencing factors for cast iron, unalloyed and low alloyed steels.

Together these five parts constitute a package of interrelated European Standards with a common date of withdrawal (dow) of 2005-06.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This document results mainly from investigations into and experience gained of the corrosion of hot dip galvanized ferrous materials, used as steel tubes and cast iron fittings (galvanized products), in drinking water distribution systems in buildings. However, it can be applied analogously to other water systems.

The corrosion likelihood of galvanized products depends on the formation of a corrosion product layer, which begins to form as soon as the galvanized surface comes in contact with water. The more this layer prevents ionic and electronic exchanges between the metal and water, the more protective it will be and the higher the durability of the galvanized products.

Drinking water systems with galvanized products, although showing visible corrosion effects, are, in general, resistant to corrosion damage in normal use. However, there are conditions under which they will sustain corrosion damage.

As a result of the complex interactions between the various influencing factors, the extent of corrosion can only be expressed in terms of likelihood. This document is a guidance document and does not set explicit rules for the use of hot dip galvanized ferrous materials in water systems. It can be used to minimize the likelihood of corrosion damages occurring by:

- assisting in designing, installing and operating systems from an anti-corrosion point of view;
- evaluating the need for additional corrosion protection methods for a new or existing system;
- assisting in failure analysis, when failures occur in order to prevent repeat failures occurring.

However, a corrosion expert, or at least a person with technical training and experience in the corrosion field is required to give an accurate assessment of corrosion likelihood or failure analysis.