International Standard

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Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness —

Part 16: Extraction of water soluble contaminants for analysis, the saturated filter paper method

Préparation des subjectiles d'acier avant application de peintures et de produits assimilés — Essais pour apprécier la propreté d'une surface —

Partie 16: Extraction des contaminants solubles dans l'eau pour analyse, méthode du papier filtre saturé

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CP 401 • CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
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Foreword

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This document was prepared by Technical Committee ISO/TC 35, *Paint and varnishes,* Subcommittee SC 12, *Preparation of steel substrates before application of paints and related products.*

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A list of all parts in ISO 8502 (all parts) [1] can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found atwww.iso.org/members.html.

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Introduction

The performance of protective coatings of paint and related products applied to steel is significantly affected by the state of the steel surface immediately prior to painting. The principal factors that are known to influence this performance are:

a) the presence of rust and mill scale;

b) the presence of surface contaminants, including salts, dust, oils and greases;

c) the surface profile.

The series of International Standards ISO 8501 (all parts) [2], ISO 8502 (all parts) [1] and ISO 8503 (all parts) [3] have been prepared to provide methods of assessing these factors, while ISO 8504 (all parts) [4] provides guidance on the preparation methods that are available for cleaning steel substrates, indicating the capabilities of each method in attaining specified levels of cleanliness. These International Standards do not contain recommendations for the protective coating systems to be applied to the steel surface. Nor do they contain recommendations for the surface quality requirements for specific situations, even though surface quality can have a direct influence on the choice of protective coating to be applied and on its performance. Such recommendations are found in other documents such as national standards and codes of practice. Users of these International Standards are expected to ensure that the qualities specified are:

— compatible and appropriate both for the environmental conditions to which the steel will be exposed and for the protective coating system to be used;

— within the capability of the cleaning procedure specified.

These series of International Standards referred to above deal with the following aspects of preparation of steel substrates:

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ISO 8501 (all parts) [2] — Visual assessment of surface cleanliness;

ISO 8502 (all parts) [1] — Tests for the assessment of surface cleanliness;

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ISO 8503 (all parts) [3] — Surface roughness characteristics of blast-cleaned steel substrates;

ISO 8504 (all parts) [4] — Surface preparation methods.

This is one of many parts of ISO 8502 (all parts) [1] that specify tests for the assessment of surface cleanliness. Relating to such tests, there are several methods for extracting soluble contaminants on surfaces to be painted, which are then used for subsequent analysis. One of these methods is based on the swabbing of comparatively large test surfaces. This technique provides average values of the contamination present, but it can conceal localized concentrations of contaminants. Also, it is possible that swabbing does not ensure sufficient penetration to dissolve all the deep-seated contamination such as ferrous salts.

There are other methods which use small cells for the liquid used to remove and collect the surface contaminants. The cells are attached to test surfaces where soluble contaminants can be expected. This closed cell technique usually provides more accurate, point values of the contamination present than the swabbing method.

This document describes a further, inexpensive field test using saturated filter paper to extract the soluble salts from the surface. This method combines the benefits of testing a large area with the benefit of greater accuracy and point measurements, as well as the detection of localized concentrations of contamination.

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