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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 18570.12-2008

**Preparation of steel substrates before application of paints and related products
-- Tests for the assessment of surface cleanliness -- Part 12: Field method for the
titrimetric determination of water-soluble ferrous ions**

(English Translation)

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Foreword

GB/T 18570 "steel substrates before application of paints and assessment of surface cleanliness" is divided into the following sections.

- Part 1. Field test (Technical Report) soluble iron corrosion products;
- Part 2. cleaned Laboratory determination of chloride on the surface;
- Part 3. dust on steel surfaces for painting Assessment (pressure-sensitive tape method);
- Part 4. before application of paints and Guidance for assessing the probability of condensation;
- Part 5. chloride coated steel surface before coating measurement (ion detection tube method);
- Part 6. Extraction of soluble contaminants Bresle sampling method;
- Part 7. Field of oil and lipid assay;
- Part 8. Determination of the moisture field refraction;
- Part 9. water-soluble salt conductivity assay site;
- Part 10. Determination of water soluble chloride-site titration method;
- Part 11. water-soluble sulfide scene nephelometry;
- Part 12. Water-soluble iron ion site titration assay;
- Part 13. Field soluble salt conductivity assay.

This section GB/T 18570 Part 12.

This part identical with ISO 8502-12:2003 "steel substrates before application of paints and

assessment of surface cleanliness test - part 12 Score. Water-soluble iron ion site titration assay "(in English).

This section is equivalent translation ISO 8502-12:2003.

For ease of use, this section made the following editorial changes.

--- "This International Standard" be replaced by "this section";

"," --- With a decimal point instead of a comma as the decimal point, "";

--- With a comma "," instead of a comma as described, "";

--- Remove International Standards, foreword and introduction;

--- Is clearly visible, add in Chapter 4, first paragraph Article number "4.1" and the article title "Overview", subsequently extended accordingly amend article number; in Chapter 7 Article added and column item number.

This part is proposed by the China State Shipbuilding Corporation.

This part of the National Standardization Technical Committee before painting and metal surface treatment and painting process under the jurisdiction of the Technical Committee paint pigment.

This section drafted by. China Shipbuilding Technology and Economy Research Institute, The 11th Institute of China Shipbuilding Industry.

1 Scope

GB/T 18570 provisions of this part of the front and back surfaces treated soluble iron ions on the surface of the steel site titration assay.

This method is mainly applied to the assessment of surface impurities. Easy to operate non-professionals, the accuracy can meet most practical purposes.

2 Normative references

The following documents contain provisions which, through reference GB/T 18570 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 18570.6-2005 before application of paints and surface-treated steel test assessment of surface cleanliness - Part 6. soluble hybrid Qualitative sampling Bresle method (ISO 8502-6:1995, IDT) ISO 3696. 19871) laboratory water analysis specifications and test

methods

1) GB/T 6682-1992 equivalent to a non-ISO 3696. 1987.

Principle 3

Water as a solvent, the Bresle method (see GB/T 18570.6-2005) or other conventional methods of surface impurities into the needs assessment Pipette row. After pipetting impurities, acidified with phosphoric them, the concentration of iron ions in solution dichromate solution as titrant, diphenylamine Sulfonate as an indicator titration.

Titration should select the appropriate concentration, size and droplet test surface area (usually 1250mm²), so that you can by titration Multiplied by the number of drops a simple conversion factor to obtain a surface concentration of soluble iron ions.

Reaction. $\text{Cr}_2\text{O}_7^{2-} + 6\text{Fe}^{2+} + 14\text{H}^+ \rightarrow 2\text{Cr}^{3+} + 6\text{Fe}^{3+} + 7\text{H}_2\text{O}$

4.1 Overview

During the analysis, the water should be at least meet the ISO 3696. 1987 requirements for grade 3 purity.

Note: In general conductivity lower than 0.5mS/m (5μS/cm) of distilled or deionized water to meet this requirement.

4.2 Phosphoric acid (H₃PO₄)

Phosphoric acid solution of 85% concentration in deionized water, the volume ratio is 1.2 (corresponding to 1 part by volume of phosphoric acid 2 parts by volume of water).

4.3 Indicator Solution

Colorless indicator solution, the concentration of 0.5% with sodium in deionized water (C₆H₅NHC₆H₄SO₃Na), save A bottle (5.2) in.

GB/T 18570.12-2008/ISO 8502-12:2003