



Paints and varnishes — Determination of “soluble” metal content —

Part 4: Determination of cadmium content — Flame atomic absorption spectrometric method and polarographic method

Peintures et vernis — Détermination de la teneur en métaux «solubles» — Partie 4: Détermination de la teneur en cadmium — Méthode par spectrométrie d'absorption atomique dans la flamme et méthode polarographique

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3856/4 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*.

ISO 3856/4 was first published in 1980. This second edition cancels and replaces the first edition, of which it constitutes a thorough revision.

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0 Introduction

This International Standard is a part of ISO 3856, *Paints and varnishes — Determination of “soluble” metal content*.

1 Scope and field of application

This part of ISO 3856 describes two methods for the determination of the cadmium content of the test solutions prepared according to ISO 6713 or other suitable International Standards.

The methods are applicable to paints having “soluble” cadmium contents in the range of about 0,05 to 5 % (*m/m*).

The flame atomic absorption spectrometric method (AAS) (clause 3) should be used as the referee method in cases of dispute. Other methods can be used by agreement between the interested parties. A polarographic method is given in clause 4.

2 References

ISO 385/1, *Laboratory glassware — Burettes — Part 1: General requirements*.¹⁾

ISO 648, *Laboratory glassware — One-mark pipettes*.

ISO 1042, *Laboratory glassware — One-mark volumetric flasks*.

ISO 3696, *Water for laboratory use — Specifications*.²⁾

ISO 6713, *Paints and varnishes — Preparation of acid extracts from paints in liquid or powder form*.

3 Flame atomic absorption spectrometric method

3.1 Principle

Aspiration of the test solution into an acetylene/air flame. Measurement of the absorption of the selected spectral line emitted by a cadmium hollow-cathode or cadmium discharge lamp, in the region of 228,8 nm.

3.2 Reagents and materials

During the analysis, use only reagents of recognized analytical grade and only water of at least grade 3 purity according to ISO 3696.

3.2.1 Hydrochloric acid, $c(\text{HCl}) = 0,07 \text{ mol/l}$.

Use the hydrochloric acid, identical to that used for the preparation of the test solutions in accordance with ISO 6713. (See 3.4.2.)

3.2.2 Acetylene, commercial grade, in a steel cylinder.

3.2.3 Compressed air.

3.2.4 Cadmium, standard stock solution containing 1 g of Cd per litre.

Either

- transfer the contents of an ampoule of standard cadmium solution containing exactly 1 g of Cd into a 1 000 ml one-mark volumetric flask, dilute to the mark with the hydrochloric acid (3.2.1) and mix well;

1) At present at the stage of draft. (Partial revision of ISO/R 385-1964.)

2) At present at the stage of draft.