International Standard 4524/5

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Metallic coatings — Test methods for electrodeposited gold and gold alloy coatings — Part 5 : Adhesion tests

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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.

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Metallic coatings — Test methods for electrodeposited gold and gold alloy coatings — Part 5 : Adhesion tests

1 Scope and field of application

This part of ISO 4524 specifies four methods for qualitatively assessing the adhesion of electrodeposited gold and gold alloy coatings for engineering, and decorative and protective purposes.

NOTE — Other methods are described in ISO 2819, *Metallic coatings on metallic substrates — Electrodeposited and chemically deposited coatings — Review of methods available for testing adhesion.*

2 Burnishing test

Select an area of not more than 6 cm^2 of the significant surface, and rub rapidly and firmly for 15 s with a suitable burnishing tool. Apply a pressure sufficient to burnish the coating metal at every stroke, but not so great as to cut the coating. Examine the specimen for signs of blistering of the coating under a magnification of X 8, or X 4 under an illuminated viewer.

NOTE — An agate dental spatula with a handle 60 to 100 mm long and agate blade 30 to 50 mm long, 5 to 10 mm wide, sharpened to a slightly radiused edge has been found satisfactory.

3 Adhesive tape test[1)]

Using a straight edge and a hardened steel scriber which has been ground to a sharp point, scribe a grid of 2 mm side squares over the test area. Apply a pressure sufficient to cut through the coating to the basis metal in a single stroke.

Then apply the adhesive side of a non-transferable adhesive tape, with an adhesion value of 2,9 to 3,1 N per centimetre of width (cellulose regenerated type) to the plating under test by finger pressure, taking care to exclude air bubbles. After an interval of 10 s, remove the tape rapidly by pulling in a direction perpendicular to the surface of the specimen. Check coatings for signs of removal under a magnification of X 8, or X 4 under an illuminated viewer.

4 Thermal shock test

Heat the sample in an oven at a temperature between 200 and 300 °C for approximately 30 min, and quench it by immersion in water at ambient temperature. Examine the coating for signs of blistering or detachment under a magnification of X 8, or X 4 under an illuminated viewer.

5 Bend test

Place the sample in a bend testing machine with a bending radius of 4 mm (or in the jaws of a suitable vice). Bend the sample through 90° and back to its original position. Carry out this procedure three times. Examine the coating for signs of detachment of the coating under a magnification of X 8, or X 4 under an illuminated viewer.

6 Test report

The test report shall include at least the following information :

a) a reference to this part of ISO 4524, including an identification of the specific method used;

b) the result(s) of the test(s) carried out and the form in which these are expressed;

c) any unusual features noticed during the determination;

d) any operation not included in this part of ISO 4524;

e) any other relevant information requested by the purchaser.

1) This test will only detect gross defects of adhesion.

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