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Kovinske in druge anorganske prevleke - Površinska obdelava kovinskih in drugih anorganskih prevlek - Slovar (ISO/DIS 2080:2020)

Metallic and other inorganic coatings - Surface treatment, metallic and other inorganic coatings - Vocabulary (ISO/DIS 2080:2020)

Metallische und andere anorganische Überzüge - Oberflächenbehandlung, metallische und andere anorganische Überzüge - Wörterbuch (ISO/DIS 2080:2020)

Revêtements métalliques et autres revêtements inorganiques - Traitement de surface, revêtements métalliques et autres revêtements inorganiques - Vocabulaire (ISO/DIS 2080:2020)

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Metallic and other inorganic coatings — Surface treatment, metallic and other inorganic coatings — Vocabulary

Revêtements métalliques et autres revêtements inorganiques — Traitement de surface, revêtements métalliques et autres revêtements inorganiques — Vocabulaire

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Foreword

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This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

This second/third/... edition cancels and replaces the first/second/... edition (ISO #####:####), which has been technically revised.

Introduction

The terms and definitions in this International Standard (a combined revision of ISO 2079 and ISO 2080) apply to electroplating and other related surface-finishing processes. The terms and definitions are not necessarily arranged in English alphabetical order. Related terms, giving different alternatives for a given process, have been grouped under a leading term, as, for example, in the case of “chemical plating”, “electrodeposition”, “blasting”, “cleaning” or “colour anodising”.

Basic terms and definitions relating to corrosion and electrochemical techniques used in corrosion science are given in ISO 8044 and are not included. Basic terms used in chemistry, electrochemistry or physics are also not included in this International Standard. The definitions for such terms can be found in handbooks or dictionaries of chemistry or physics.

Metallic and other inorganic coatings — Surface treatment, metallic and other inorganic coatings — Vocabulary

1 Scope

This International Standard describes general types of surface-finishing processes and provides a vocabulary that defines terms related to these processes. Emphasis is placed on practical usage in surface-finishing technology in the metal-finishing field. The vocabulary does not include definitions and terms for porcelain and vitreous enamel, thermally sprayed coatings and hot-dip galvanizing for which specialized vocabularies and glossaries exist or are in preparation. For the most part, basic terms that have the same meaning in surface finishing as in other fields of technology, and that are defined in handbooks and dictionaries of chemistry and physics, are not included.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

4 General types of surface-finishing processes and treatments

4.1
chemical plating
deposition of a metallic coating by chemical, non-electrolytic methods

4.1.1
autocatalytic painting
electroless plating (deprecated)
deposition of a metallic coating by a controlled chemical reduction that is catalysed by the metal or alloy being deposited

4.1.2
contact plating
deposition of a metal by use of an internal source of current by immersing the *work* (5.229) in contact with another metal in a solution containing a compound of the metal to be deposited

4.1.3
immersion coating
metallic coating produced by a displacement reaction in which one metal displaces another from a solution, for example, $Fe + Cu^{2+} \rightarrow Cu + Fe^{2+}$

4.2
chemical vapour deposition CVD
deposition of a coating by a chemical reaction, induced by heat or gaseous reduction of a vapour condensing on a *substrate* (5.210)

4.3
conversion coating
conversion layer
coating obtained by *conversion treatment* (4.4)

4.4
conversion treatment
chemical or electrochemical process producing a superficial layer containing a compound of the substrate metal

EXAMPLE Passivation coatings on zinc, zinc alloys, aluminium and phosphate coatings on steel; chromate conversion coating.

Note 1 to entry: *Anodizing* (5.9), although fulfilling the above definition, is not normally referred to as a conversion coating process.

4.5
diffusion treatment
process of producing a surface layer (diffusion layer) by diffusion of another metal or non-metal into the surface of the *substrate* (5.210) (often referred to as diffusion coating)

EXAMPLE <electroplating> diffusion treatment to form an alloy coating from two or more different electroplated coatings.

(non-electroplating). Nitriding, curburising, sherardizing are diffusion treatments

Note 1 to entry: Post-coating *heat treatment* (5.130) after *electroplating* (4.6), for example, to remove hydrogen, is not normally designated as a diffusion treatment.

4.6
Electroplating
Electrodeposition
deposition of an adherent coating of a metal or an alloy upon a *substrate* (5.210) by electrolysis for the purpose of imparting properties or dimensions to a surface different from those of the *basis metal* (5.26)

4.7
galvanising
term, in English language used to describe hot-dip metal coating, in German language [Galvanotechnik (noun), galvanisieren (verb)] used as synonym for *electroplating* (4.6)

4.8
hot dip metal coating
metallic coating obtained by dipping the *basis metal* (5.26) into a molten metal

Note 1 to entry: The traditional term “galvanizing” referring to zinc coatings obtained by immersion in a bath of molten zinc, should always be preceded by “hot-dip”. The term “spelter galvanizing” should not be used for “hot-dip metal coating”. For details of terms and definitions concerning “hot-dip galvanizing”, appropriate standards related to that process are to be consulted.

4.9
mechanical coating, mechanical plating
process whereby hard, small spherical objects (such as glass shot) are tumbled against a metallic surface, in the presence of finely divided metal powder (such as zinc dust) and appropriate chemicals for the purpose of covering such surfaces with metal

Note 1 to entry: The terms “peen plating” and “mechanical galvanising” are not recommended.

4.10
metal cladding
application of a coating of one metal to another by mechanical fabrication techniques

4.11
metallizing
application of a metallic coating to the surface of non-metallic or non-conducting materials

Note 1 to entry: It is not recommended to use this term as a synonym of *metal spraying* (4.12) or in the sense of depositing a metallic coating on a metal *substrate* (5.210).

4.12
metal spraying
application of a metal by thermal *spraying* (4.17)

4.13
porcelain enamelling
vitreous enamelling
process for applying a substantially vitreous or glassy inorganic coating bonded to metal by fusion at a temperature above approximately 425 °C

4.14
physical vapour deposition
PVD
process of depositing a coating by vaporizing and subsequently condensing an element or compound, usually in a high vacuum

Note 1 to entry: cf. *sputtering* (5.201) and *ion plating* (5.139)

4.15
sherardizing
zinc diffusion coating process or *diffusion treatment* (4.5 to form a zinc alloy with the *basis metals* (5.26) by heating the substrate with zinc. Mainly used to form a zinc/iron-alloy layer on a steel substrate

4.16
surface treatment
treatment involving a modification of the surface

Note 1 to entry: The term may be used in a restrictive sense excluding metallic coatings.

4.17
thermal spraying
application of a coating by a process of projecting molten or heat-softened material from a source (gun onto any *substrate* (5.210)

5 General terms

5.1
accelleration
see post nucleation

5.2
activation
elimination of a passive surface condition

5.3
addition agent
additive
a substance added to a solution, usually in small amounts, to modify the characteristics of the solution or the properties of the deposit obtained from the solution

5.4
adhesion
amount of force required to separate different layers of a coating, or a coating from its *substrate* (5.210) and the area of the corresponding surface

5.5
anode corrosion
gradual dissolution or oxidation of a metal (known as anode), or dissolution of an anode material by the electrochemical action in the electroplating cell

Note 1 to entry: The dissolution of the anode by chemical action of the electrolyte without current is generally not called corrosion, but dissolution.

5.6 anode film

5.6.1
anode film (anode itself)
outer layer of the anode itself consisting of oxidation or reaction products of the anode metal

5.6.2
anode film (solution contacting the anode)
layer of solution in contact with the anode that differs in composition from the bulk of the solution

5.7
anodic oxidation coating
protective, decorative or functional coating composed mainly of metal oxide formed on a metal surface (typically aluminium) by anodically polarising the metal in a suitable electrolytic solution

5.8
anodic coating
metallic coating that is less noble than the *basis metal* (5.26). Anodic coatings provide *cathodic protection* (5.32)

5.9
anodic oxidation anodizing
electrolytic oxidation process in which the surface of a metal, when anodically treated, is converted to a coating having desirable protective, decorative or functional properties

Note 1 to entry: cf. *anodic oxidation coating* (5.7)

5.10
anodic protection
anodic corrosion protection
protection of selected metals e.g. stainless steel by externally applied current. The metal to be protected is polarized as anode thus causing passivity to the metal protecting it from corrosion

Note 1 to entry: Anodic protection requires external current supply as contact between different metals (galvanic corrosion) cannot supply enough voltage cf. *cathodic protection* (5.32).

5.11
anodising line
the total process on a production line which includes anodic oxidation

5.12
anolyte
in a *divided cell* (5.103), the portion of the electrolyte on the anode side of the *diaphragm* (5.100)

5.13
anti-pitting agent
addition agent (5.2) for the specific purpose of preventing gas pits in electrodeposits

Note 1 to entry: See also *surface active agent* (5.211) and *wetting agent* (5.227).