AS 4108—1993
ISO 2080:1981

Australian Standard®

Metal finishing — Glossary of terms used in electroplating and related processes

[ISO title: Electroplating and related processes—Vocabulary]

This Australian Standard was prepared by Committee MT/9, Metal Finishing. It was approved on behalf of the Council of Standards Australia on 30 November 1992 and published on 15 March 1993.

The following interests are represented on Committee MT/9:

Aluminium Development Council
Australasian Institute of Metal Finishing
Australian and Overseas Telecommunications Corporation
Australian Chamber of Commerce and Industry
Department of Defence
Metal Trades Industry Association of Australia
Royal Australian Chemical Institute
University of Queensland

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First published as AS K178—1969.
Revised and redesignated AS 4108—1993.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140
ISBN 0 7262 8002 X

PREFACE

This Standard was prepared under the direction of the Multitechnics Standards Policy Board by the Standards Australia Committee on Metal Finishing to supersede AS K178—1969, *Glossary of terms used in electroplating*. It is identical with, and has been reproduced from, ISO 2080: 1981, *Electroplating and related processes — Vocabulary*.

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STANDARDS AUSTRALIA

Australian Standard

Metal finishing — Glossary of terms used in electroplating and related processes

SCOPE AND FIELD OF APPLICATION This Australian Standard establishes the vocabulary for electroplating and related processes. It includes terms widely used in the science and industry of electrodeposition and metal finishing.

It should be understood that the interpretations given are those corresponding to the practical usage in these fields and that they do not necessarily coincide with those used in other fields. In some extreme cases, attention is drawn to this fact by adding the words '..... *in electroplating*'.

Chemical, physical and electrical terms are not included in this vocabulary, even though they may be frequently used in electroplating, if their use in electroplating is identical with that in the original science and their meaning is believed to be generally known. Definitions of such expressions can be found in one of the well-known handbooks or dictionaries of chemistry or physics and in IEC Publication 50 (50), *International electrotechnical vocabulary; Electro-chemistry and electrometallurgy*, or in the publication of the International Union of Pure and Applied Chemistry (UPAC), Division of Physical Chemistry: *Manual of symbols and terminology for physico-chemical quantities and units*, Appendix 3, *Electrochemical nomenclature*.

Terms and definitions

100 activation: Elimination of a passive surface condition.

NOTE — Not to be confused with 231, *conditioning*.

101 addition agent; additive: A material added, usually in small quantities, to a solution to modify its characteristics or the properties of the deposit obtained from the solution.

102 adhesion: The strength of the bond between a coating and its substrate, expressed as the force per unit area required to separate them.

103 alkaline blackening; black finishing: Production of a black oxide or sulphide coating on steel or copper (copper alloys) by immersion in hot alkaline salt solutions.

105 anion: A negatively charged ion.

106 anode:

a) In electrolysis, the electrode at which negative ions are discharged, positive ions are formed or other oxidizing reactions occur.

b) The object which performs these functions.

107 anode corrosion: Dissolution of anode metal by the electrochemical action in the electrolytic cell. (The dissolution of the anode by chemical action of the electrolyte without current is generally not called corrosion, but dissolution.)

NOTE — The usage in French and German is inverse.

108 anode efficiency: Current efficiency of a specified anodic process.

109 anode film:

a) Solid film formed on the anode during electrolysis.

b) See 267, *diffusion layer*, which is the preferred term.

110 anode polarization: See 550, *polarization*.

111 anodic coating:

a) **anodic oxide coating:** A protective, decorative or functional coating formed by conversion of the surface of a metal in an ectrolytic oxidation process (see 112, *anodizing*). This coating is sometimes called anodic film, but should not be confused with 109, *anode film*.

b) **sacrificial coating:** A metallic coating less noble than the basis metal.

112 anodizing (USA: **anodising); anodic oxidation:** An electrolytic oxidation process in which the surface layer of a metal, such as aluminium, magnesium or zinc, is converted to a coating, usually an oxide, having protective, decorative or functional properties.

113 anolyte:

a) In a divided cell, the portion of electrolyte on the anode side of the diaphragm.

b) The portion of electrolyte in the vicinity of the anode. (*Uncommon usage*.)

114 autocatalytic plating: Deposition of a metallic coating by a controlled chemical reduction that is catalyzed by the metal or alloy being deposited.

NOTE — Autocatalytic plating is frequently referred to as *electroless plating* (see 293) though this usage is discouraged.

115 auxiliary anode: A supplementary anode employed during electrodeposition to achieve a desired thickness distribution of the deposit.

116 auxiliary cathode: See 653, *thief*.

130 baking: Heating to low temperatures before or after electroplating or autocatalytic plating process steps to reduce residual stresses or to remove gases causing embrittlement effects.

NOTE — The terms *baking* (in USA) and *stoving* (in UK) are also used in the paint industry, but the purpose of the treatment is different.

131 barrel electroplating: A barrel process (see 132) by which electrodeposits are applied to articles in bulk; in contrast to *vat plating* (USA: *still plating*), see 702.

132 barrel processing: Mechanical, chemical or electrolytic treatment of articles in bulk in a rotating container. Examples are barrel burnishing, barrel polishing, barrel cleaning, barrel electroplating.