

CPC**COOPERATIVE PATENT CLASSIFICATION****C25D****PROCESSES FOR THE ELECTROLYTIC OR ELECTROPHORETIC PRODUCTION OF COATINGS; ELECTROFORMING** (decorating textiles by metallising [D06Q 1/04](#); manufacturing printed circuits by metal deposition [H05K 3/18](#)); **APPARATUS THEREFOR****WARNING**

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups :[C25D 5/24](#) covered by [C25D 5/34](#) [C25D 5/26](#) covered by [C25D 5/36](#) [C25D 5/28](#) covered by [C25D 5/38](#) [C25D 5/30](#) covered by [C25D 5/42](#), [C25D 5/44](#) [C25D 5/32](#) covered by [C25D 5/46](#) [C25D 13/06](#) covered by [C09D 5/44](#) [C25D 13/08](#) covered by [C09D 5/4476](#) [C25D 13/10](#) covered by [C09D 5/448](#) [C25D 19/00](#) covered by [C25D 17/00](#)

C25D 1/00**Electroforming**

- [C25D 1/003](#) . { 3D structures, e.g. superposed patterned layers}
- [C25D 1/006](#) . { Nanostructures, e.g. aluminum anodic oxidation templates [AAO]}
- [C25D 1/02](#) . Tubes; Rings; Hollow bodies
- [C25D 1/04](#) . Wires; Strips; Foils
- [C25D 1/06](#) . Wholly-metallic mirrors
- [C25D 1/08](#) . Perforated or foraminous objects, e.g. sieves ([C25D 1/10](#) takes precedence)
- [C25D 1/10](#) . Moulds; Masks; Masterforms {, e.g. mandrels, stampers}
- [C25D 1/12](#) . by electrophoresis {(electrophoretic coating [C25D 13/00](#))}
- [C25D 1/14](#) . . of inorganic material
- [C25D 1/16](#) . . . Metals
- [C25D 1/18](#) . . of organic material
- [C25D 1/20](#) . Separation of the formed objects from the electrodes { with no destruction of said electrodes}
- [C25D 1/22](#) . . Separating compounds

C25D 3/00**Electroplating: Baths therefor**

- [C25D 3/02](#) . from solutions ([C25D 5/24](#) to [C25D 5/32](#) take precedence)
- [C25D 3/04](#) . . of chromium

C25D 3/06	...	from solutions of trivalent chromium
C25D 3/08	...	Deposition of black chromium { , e.g. hexavalent chromium, CrVI}
C25D 3/10	...	characterised by the organic bath constituents used
C25D 3/12	..	of nickel or cobalt {(C25D 3/56 takes precedence)}
C25D 3/14	...	from baths containing acetylenic or heterocyclic compounds
C25D 3/16	Acetylenic compounds
C25D 3/18	Heterocyclic compounds
C25D 3/20	..	of iron
C25D 3/22	..	of zinc
C25D 3/24	...	from cyanide baths
C25D 3/26	..	of cadmium
C25D 3/28	...	from cyanide baths
C25D 3/30	..	of tin
C25D 3/32	...	characterised by the organic bath constituents used
C25D 3/34	..	of lead
C25D 3/36	...	characterised by the organic bath constituents used
C25D 3/38	..	of copper
C25D 3/40	...	from cyanide baths { , e.g. with Cu+}
C25D 3/42	..	of light metals
C25D 3/44	...	Aluminium
C25D 3/46	..	of silver
C25D 3/48	..	of gold
C25D 3/50	..	of platinum group metals
C25D 3/52	...	characterised by the organic bath constituents used
C25D 3/54	..	of metals not provided for in groups C25D 3/04 to C25D 3/50
C25D 3/56	..	of alloys
C25D 3/562	...	{ containing more than 50% by weight of iron or nickel or cobalt { ; NiP, FeP, CoP (Phosphatising C25D 11/36) }}
C25D 3/565	...	{containing more than 50% by weight of zinc}
C25D 3/567	...	{containing more than 50% by weight of platinum group metals}
C25D 3/58	...	containing more than 50% by weight of copper
C25D 3/60	...	containing more than 50% by weight of of tin { ; SnP}
C25D 3/62	...	containing more than 50% by weight of gold
C25D 3/64	...	containing more than 50% by weight of silver
C25D 3/66	.	from melts
C25D 3/665	..	{ from ionic liquids}

WARNING

Group C25D 3/665 is not complete, pending reorganization, see also C25D 3/66]

C25D 5/00**Electroplating characterised by the process; Pretreatment or after-treatment of work-pieces**

C25D 5/003

- . { Electroplating characterised by the use of gases, e.g. pressure influence (removal or gases or vapours, [C25D 21/04](#)) }

WARNING

Groups [C25D 5/00B](#), [C25D 5/006](#) are not complete, pending reorganization, see also [C25D 5/00](#)

C25D 5/006

- . { Electroplating with applied electromagnetic field, not locally , e.g. for plating magnetic layers }

C25D 5/02

- . Electroplating of selected surface areas

C25D 5/022

- .. { using masking means {([C25D 11/022](#) takes precedence)} }

C25D 5/024

- .. {using locally applied electromagnetic radiation e.g. lasers}

C25D 5/026

- .. {using locally applied jets of electrolyte}

C25D 5/028

- .. { one side electroplating {, e.g. substrate conveyed in a bath with inhibited background plating} }

C25D 5/04

- . Electroplating with moving electrodes

C25D 5/06

- .. Brush or pad plating {(electrodes for pad plating [C25D 17/14](#)) }

C25D 5/08

- . Electroplating with moving electrolyte {, characterised by electrolyte flow}, e.g. jet electroplating {(spraying of electrolyte on wires strip or foils [C25D 7/0642](#), means or devices for moving the electrolyte [C25D 21/10](#), [C25D 5/026](#) takes precedence) }

C25D 5/10

- . Electroplating with more than one layer of the same or of different metals (for bearings [C25D 7/10](#))

C25D 5/12

- .. at least one layer being of nickel or chromium

C25D 5/14

- ... two or more layers being of nickel or chromium, e.g. duplex or triplex layers

C25D 5/16

- . Electroplating with layers of varying thickness {, e.g. rough surfaces} { ; Hull cells }

C25D 5/18

- . Electroplating using modulated, pulsed or reversing current

C25D 5/20

- . Electroplating using ultrasonics { , vibrations }

C25D 5/22

- . Electroplating combined with mechanical treatment during the deposition

C25D 5/34

- . Pretreatment of metallic surfaces to be electroplated

C25D 5/36

- .. of iron or steel

C25D 5/38

- .. of refractory metals or nickel

C25D 5/40

- ... Nickel; Chromium

C25D 5/42

- .. of light metals

C25D 5/44

- ... Aluminium

C25D 5/46

- .. of actinides

- C25D 5/48 . After-treatment of electroplated surfaces
- C25D 5/50 . . by heat-treatment
- C25D 5/505 . . . {of electroplated tin coatings, e.g. by melting}
- C25D 5/52 . . by brightening or burnishing
- C25D 5/54 . Electroplating {on } non-metallic surfaces { ,e.g. on carbon or carbon composites}(C25D 7/12 takes precedence)
- C25D 5/56 . . on { thin or conductive} plastics {(coating metallic material C23C)}

C25D 7/00 Electroplating characterised by the article coated

- C25D 7/001 . { Magnets}

WARNING

Groups [C25D 7/00B](#)-[C25D 7/008](#) are not complete, pending reorganization, see also [C25D 7/00](#)

- C25D 7/003 . { Threaded pieces, e.g. bolts, nuts}
- C25D 7/005 . { Jewels or clockworks}
- C25D 7/006 . { Nanoparticles}
- C25D 7/008 . { Thermal barrier coatings}
- C25D 7/02 . Slide fasteners
- C25D 7/04 . Tubes; Rings; Hollow bodies
- C25D 7/06 . Wires; Strips; Foils
- C25D 7/0607 . . {Wires}
- C25D 7/0614 . . {Strips or foils}
- C25D 7/0621 . . . {In horizontal cells}
- C25D 7/0628 . . . {In vertical cells}
- C25D 7/0635 . . . {In radial cells}
- C25D 7/0642 . . . {Anodes}
- C25D 7/065 . . . {Diaphragms}
- C25D 7/0657 . . . {Conducting rolls}
- C25D 7/0664 . . . {Isolating rolls}
- C25D 7/0671 . . . {Selective plating}
- C25D 7/0678 {using masks}
- C25D 7/0685 . . . {Spraying of electrolyte}
- C25D 7/0692 . . . {Regulating the thickness of the coating}
- C25D 7/08 . Mirrors; Reflectors

C25D 7/10 . Bearings

C25D 7/12 . Semiconductors { without seed layer}

C25D 7/123 . . { Semiconductors first coated with a seed layer for filling vias}

WARNING

Groups [C25D 7/12B](#)-[C25D 7/126](#) are not complete, pending reorganization, see also [C25D 7/12](#)

C25D 7/126 . . { Semiconductors first coated with a seed layer for solar cells}

C25D 9/00 **Electrolytic coating other than with metals** ([C25D 11/00](#), [C25D 15/00](#) take precedence; electrophoretic coating [C25D 13/00](#))

C25D 9/02 . with organic materials

C25D 9/04 . with inorganic materials

C25D 9/06 . . by anodic processes

C25D 9/08 . . by cathodic processes

C25D 9/10 . . . on iron or steel

C25D 9/12 . . . on light metals

C25D 11/00 **Electrolytic coating by surface reaction, i.e. forming conversion layers**

C25D 11/005 . { Apparatus specially adapted for electrolytic conversion coating (apparatus in general for electrolytic coating [C25D 17/00](#))}

WARNING

Groups **C25B 11/00B**, [C25D 11/022](#)-[C25D 11/02F](#), [C25D 11/045](#) are not complete, pending reorganization, see also [C25D 11/00](#)

C25D 11/02 . Anodisation

C25D 11/022 . . { Anodisation on selected surface areas}

C25D 11/024 . . {Anodisation under pulsed or modulated current or potential}

C25D 11/026 . . { Anodisation with spark discharge [ANOF]}

C25D 11/028 . . { Borodising,, i.e. borides formed electrochemically}

C25D 11/04 . . of aluminium or alloys based thereon

C25D 11/045 . . . { for forming AAO templates}

C25D 11/06 . . . characterised by the electrolytes used

C25D 11/08 containing inorganic acids

C25D 11/10 containing organic acids

C25D 11/12 . . . Anodising more than once, e.g. in different baths

C25D 11/14 . . . Producing integrally coloured layers

C25D 11/16 . . . Pretreatment {, e.g. desmutting}

- C25D 11/18 . . . After-treatment, e.g. pore sealing ([lacquering B44D](#))
- C25D 11/20 Electrolytic after-treatment
- C25D 11/22 for colouring layers
- C25D 11/24 Chemical after-treatment
- C25D 11/243 {[using organic dyestuffs](#)}
- C25D 11/246 {[for sealing layers](#)}
- C25D 11/26 . . of refractory metals or alloys based thereon
- C25D 11/28 . . of actinides or alloys based thereon
- C25D 11/30 . . of magnesium or alloys based thereon
- C25D 11/32 . . of semiconducting materials
- C25D 11/34 . . of metals or alloys not provided for in groups [C25D 11/04](#) to [C25D 11/32](#)

- C25D 11/36 . Phosphatising {, e.g. [NiP](#), [CoP](#), [FeP](#) ([bath solutions of NiP, CoP, FeP C25D 3/562](#))}
- C25D 11/38 . Chromatising

- C25D 13/00** **Electrophoretic coating** ([C25D 15/00](#) takes precedence; apparatus for continuously conveying articles into baths [B65G](#), e.g. [B65G 49/00](#))

- C25D 13/02 . with inorganic material
- C25D 13/04 . with organic material
- C25D 13/06 . . with polymers {[not used, see C09D 5/44](#)}
- C25D 13/08 . . . by polymerisation in situ of monomeric materials {[not used, see C09D 5/4476](#)}

- C25D 13/10 . characterised by the additives used{[not used, see C09D 5/448](#)}
- C25D 13/12 . characterised by the article coated
- C25D 13/14 . . Tubes; Rings; Hollow bodies
- C25D 13/16 . . Wires; Strips; Foils

- C25D 13/18 . using modulated, pulsed, or reversing current

- C25D 13/20 . Pre-treatment

- C25D 13/22 . Servicing or operating { [apparatus or multistep processes](#)}
- C25D 13/24 . . Regeneration of process liquids

- C25D 15/00** **Electrolytic or electrophoretic production of coatings containing { [uncharged](#)}**
embedded materials, e.g. particles, whiskers, wires

- C25D 15/02 . Combined electrolytic and electrophoretic processes { [with charged materials](#)}

- C25D 17/00** **Constructional parts, or assemblies thereof, of cells for electrolytic coating**
([apparatus for continuously conveying articles into baths B65G](#), e.g. [B65G 49/00](#); electric devices see the relevant classes, e.g. [H01B](#), [H02G](#)){([C25D 7/06](#), [C25D 11/42](#),

[C25D 13/22](#), C25 takes precedence)}

- C25D 17/001 . { Apparatus specially adapted for plating wafers, e.g. semiconductors, solar cells}

WARNING

Groups **C25B 17/00B**-[C25D 17/008](#) are not complete, pending reorganization, see also [C25D 17/00](#)

- C25D 17/002 . { Cell separation, e.g. membranes, diaphragms}

- C25D 17/004 . { Sealing devices}

- C25D 17/005 . { Contacting devices}

- C25D 17/007 . { Current conducting devices}

- C25D 17/008 . { Current insulating devices}

- C25D 17/02 . Tanks; Installations therefor

- C25D 17/04 . . External supporting frames or structures

- C25D 17/06 . Suspending or supporting devices for articles to be coated

- C25D 17/08 . . { Supporting} racks{ i.e. not for suspending}

- C25D 17/10 . Electrodes { e.g. composition, counter electrode}

- C25D 17/12 . . Shape or form ([C25D 17/14](#) takes precedence)

- C25D 17/14 . . for pad-plating

- C25D 17/16 . Apparatus for electrolytic coating of small objects in bulk

- C25D 17/18 . . having closed containers

- C25D 17/20 . . . Horizontal barrels

- C25D 17/22 . . having open containers

- C25D 17/24 . . . Oblique barrels

- C25D 17/26 . . . Oscillating baskets

- C25D 17/28 . . with means for moving the objects individually through the apparatus during treatment

C25D 21/00 Processes for servicing or operating cells for electrolytic coating

- C25D 21/02 . Heating or cooling

- C25D 21/04 . Removal of gases or vapours {; gas or pressure control (electroplating characterized by the use of gases [C25D 5/003](#))}

- C25D 21/06 . Filtering { particles other than ions (filtering ions [C25D 21/22](#))}

- C25D 21/08
 - . Rinsing
- C25D 21/10
 - . Agitating of electrolytes; Moving of racks
- C25D 21/11
 - . Use of protective surface layers on electrolytic baths
- C25D 21/12
 - . Process control or regulation ([controlling or regulating in general G05](#))
- C25D 21/14
 - .. Controlled addition of electrolyte components
- C25D 21/16
 - . Regeneration of process solutions {([C25D 13/24](#) takes precedence)}
- C25D 21/18
 - .. of electrolytes ([C25D 21/22](#) takes precedence)
- C25D 21/20
 - .. of rinse-solutions ([C25D 21/22](#) takes precedence)
- C25D 21/22
 - .. by ion-exchange