

ECLA EUROPEAN CLASSIFICATION

C25D PROCESSES FOR THE ELECTROLYTIC OR ELECTROPHORETIC PRODUCTION OF COATINGS; ELECTROFORMING (decorating textiles by metallising [D06Q1/04](#); manufacturing printed circuits by metal deposition [H05K3/18](#)); APPARATUS THEREFOR

[N: **WARNING**[N9602] [M1207]

The following IPC groups are not used in the internal ECLA classification system. Subject matter covered by these groups is classified in the following ECLA groups : [C25D5/24](#) covered by [C25D5/34](#) [C25D5/26](#) covered by [C25D5/36](#) [C25D5/28](#) covered by [C25D5/38](#) [C25D5/30](#) covered by [C25D5/42](#), [C25D5/44](#) [C25D5/32](#) covered by [C25D5/46](#) [C25D13/06](#) covered by [C09D5/44](#) [C25D13/08](#) covered by [C09D5/44F](#) [C25D13/10](#) covered by [C09D5/44H](#) [C25D19/00](#) covered by [C25D17/00](#)

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C25D1/00 Electroforming

- C25D1/00B . [N: 3D structures, e.g. superposed patterned layers] [N1204]
- C25D1/00D . [N: Nanostructures, e.g. aluminum anodic oxidation templates [AAO]] [N1204]
- C25D1/02 . Tubes; Rings; Hollow bodies
- C25D1/04 . Wires; Strips; Foils
- C25D1/06 . Wholly-metallic mirrors
- C25D1/08 . Perforated or foraminous objects, e.g. sieves ([C25D1/10](#) takes precedence)
- C25D1/10 . Moulds; Masks; Masterforms [N:, e.g. mandrels, stampers] [N1204]
- C25D1/12 . by electrophoresis [N: (electrophoretic coating C25D13/00)] [N1204]
- C25D1/14 . . of inorganic material
- C25D1/16 . . . Metals
- C25D1/18 . . of organic material
- C25D1/20 . Separation of the formed objects from the electrodes [N: with no destruction of said electrodes] [N1204]
- C25D1/22 . . Separating compounds

C25D3/00 Electroplating: Baths therefor

- C25D3/02 . from solutions ([C25D5/24](#) to [C25D5/32](#) take precedence)
- C25D3/04 . . of chromium
- C25D3/06 . . . from solutions of trivalent chromium
- C25D3/08 . . . Deposition of black chromium [N: , e.g. hexavalent chromium, CrVI] [N1204]
- C25D3/10 . . . characterised by the organic bath constituents used

- C25D3/12 . . of nickel or cobalt [N: ([C25D3/56](#) takes precedence)]
- C25D3/14 . . . from baths containing acetylenic or heterocyclic compounds
- C25D3/16 Acetylenic compounds
- C25D3/18 Heterocyclic compounds
- C25D3/20 . . of iron
- C25D3/22 . . of zinc
- C25D3/24 . . . from cyanide baths
- C25D3/26 . . of cadmium
- C25D3/28 . . . from cyanide baths
- C25D3/30 . . of tin
- C25D3/32 . . . characterised by the organic bath constituents used
- C25D3/34 . . of lead
- C25D3/36 . . . characterised by the organic bath constituents used
- C25D3/38 . . of copper
- C25D3/40 . . . from cyanide baths [N: , e.g. with Cu+] [[N1204](#)]
- C25D3/42 . . of light metals
- C25D3/44 . . . Aluminium
- C25D3/46 . . of silver
- C25D3/48 . . of gold
- C25D3/50 . . of platinum group metals
- C25D3/52 . . . characterised by the organic bath constituents used
- C25D3/54 . . of metals not provided for in groups [C25D3/04](#) to [C25D3/50](#)
- C25D3/56 . . of alloys
- C25D3/56B . . . [N: containing more than 50% by weight of iron or nickel or cobalt [N: ; NiP, FeP, CoP (Phosphatising [C25D11/36](#))] [[N1204](#)]
- C25D3/56C . . . [N: containing more than 50% by weight of zinc]
- C25D3/56D . . . [N: containing more than 50% by weight of platinum group metals]
- C25D3/58 . . . containing more than 50% by weight of copper
- C25D3/60 . . . containing more than 50% by weight of tin [N: ; SnP] [[N1204](#)]
- C25D3/62 . . . containing more than 50% by weight of gold
- C25D3/64 . . . containing more than 50% by weight of silver

- C25D3/66 . from melts
- C25D3/66B . . [[N: from ionic liquids](#)] [[N1204](#)]

- [N: **WARNING** [[M1207](#)]
- Group [C25D3/66B](#) is not complete, pending reorganization, see also [C25D3/66](#)]

- C25D5/00 Electroplating characterised by the process; Pretreatment or after-treatment of work-pieces**

- C25D5/00B . [[N: Electroplating characterised by the use of gases, e.g. pressure influence \(removal or gases or vapours, \[C25D21/04\]\(#\)\)](#)] [[N1204](#)]

- [N: **WARNING** [[M1207](#)]

Groups [C25D5/00B](#), [C25D5/00D](#) are not complete, pending reorganization, see also [C25D5/00](#)
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- C25D5/00D . [N: Electroplating with applied electromagnetic field, not locally , e.g. for plating magnetic layers] [N1204]
- C25D5/02 . Electroplating of selected surface areas
- C25D5/02B . . [N: using masking means [N: (C25D11/02B takes precedence)]] [N1204]
- C25D5/02C . . [N: using locally applied electromagnetic radiation e.g. lasers]
- C25D5/02D . . [N: using locally applied jets of electrolyte]
- C25D5/02E . . [N: one side electroplating [N:, e.g. substrate conveyed in a bath with inhibited background plating] [N1204]
- C25D5/04 . Electroplating with moving electrodes
- C25D5/06 . . Brush or pad plating [N: (electrodes for pad plating C25D17/14)] [N1204]
- C25D5/08 . Electroplating with moving electrolyte [N:, characterised by electrolyte flow], e.g. jet electroplating [N: (spraying of electrolyte on wires strip or foils C25D7/06C8, means or devices for moving the electrolyte C25D21/10, C25D5/02D takes precedence)] [N1204]
- C25D5/10 . Electroplating with more than one layer of the same or of different metals (for bearings [C25D7/10](#))
- C25D5/12 . . at least one layer being of nickel or chromium
- C25D5/14 . . . two or more layers being of nickel or chromium, e.g. duplex or triplex layers
- C25D5/16 . Electroplating with layers of varying thickness [N:, e.g. rough surfaces] [N: ; Hull cells] [N1204]
- C25D5/18 . Electroplating using modulated, pulsed or reversing current
- C25D5/20 . Electroplating using ultrasonics [N: , vibrations] [M1207]
- C25D5/22 . Electroplating combined with mechanical treatment during the deposition
- C25D5/34 . Pretreatment of metallic surfaces to be electroplated
- C25D5/36 . . of iron or steel
- C25D5/38 . . of refractory metals or nickel
- C25D5/40 . . . Nickel; Chromium
- C25D5/42 . . of light metals
- C25D5/44 . . . Aluminium
- C25D5/46 . . of actinides
- C25D5/48 . After-treatment of electroplated surfaces
- C25D5/50 . . by heat-treatment
- C25D5/50B . . . [N: of electroplated tin coatings, e.g. by melting]
- C25D5/52 . . by brightening or burnishing

- C25D5/54 . Electroplating [N: on] non-metallic surfaces [N: ,e.g. on carbon or carbon composites] (C25D7/12 takes precedence) [C1204]
- C25D5/56 . . on [N: thin or conductive] plastics [N: (coating metallic material C23C)] [N1204]
- C25D7/00 Electroplating characterised by the article coated**
- C25D7/00B . [N: Magnets] [N1204]
- [N: **WARNING** [M1207]
Groups C25D7/00B-C25D7/00K are not complete, pending reorganization, see also C25D7/00]
- C25D7/00D . [N: Threaded pieces, e.g. bolts, nuts] [N1204]
- C25D7/00F . [N: Jewels or clockworks] [N1204]
- C25D7/00H . [N: Nanoparticles] [N1204]
- C25D7/00K . [N: Thermal barrier coatings] [N1204]
- C25D7/02 . Slide fasteners
- C25D7/04 . Tubes; Rings; Hollow bodies
- C25D7/06 . Wires; Strips; Foils
- C25D7/06B . . [N: Wires] [N9708]
- C25D7/06C . . [N: Strips or foils] [N9708]
- C25D7/06C2 . . . [N: In horizontal cells] [N9708]
- C25D7/06C4 . . . [N: In vertical cells] [N9708]
- C25D7/06C6 . . . [N: In radial cells] [N9708]
- C25D7/06C8 . . . [N: Anodes] [N9708]
- C25D7/06C10 . . . [N: Diaphragms] [N9708]
- C25D7/06C12 . . . [N: Conducting rolls] [N9708]
- C25D7/06C14 . . . [N: Isolating rolls] [N9708]
- C25D7/06C16 . . . [N: Selective plating] [N9708]
- C25D7/06C16B [N: using masks] [N9708]
- C25D7/06C18 . . . [N: Spraying of electrolyte] [N9708]
- C25D7/06C20 . . . [N: Regulating the thickness of the coating] [N9708]
- C25D7/08 . Mirrors; Reflectors
- C25D7/10 . Bearings
- C25D7/12 . Semiconductors [N: without seed layer] [N1204]
- C25D7/12B . . [N: Semiconductors first coated with a seed layer for filling vias] [N1204]
- [N: **WARNING** [M1207]

Groups [C25D7/12B](#)-[C25D7/12C](#) are not complete, pending reorganization, see also [C25D7/12](#)
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[C25D7/12C](#) . . [N: Semiconductors first coated with a seed layer for solar cells] [N1204]

[C25D9/00](#) **Electrolytic coating other than with metals** ([C25D11/00](#), [C25D15/00](#) take precedence; electrophoretic coating [C25D13/00](#))

[C25D9/02](#) . with organic materials

[C25D9/04](#) . with inorganic materials

[C25D9/06](#) . . by anodic processes

[C25D9/08](#) . . by cathodic processes

[C25D9/10](#) . . . on iron or steel

[C25D9/12](#) . . . on light metals

[C25D11/00](#) **Electrolytic coating by surface reaction, i.e. forming conversion layers**

[C25D11/00B](#) . [N: Apparatus specially adapted for electrolytic conversion coating (apparatus in general for electrolytic coating [C25D17/00](#))] [N1204]

[N: **WARNING**[M1207]

Groups [C25B11/00B](#), [C25D11/02B](#)-[C25D11/02F](#), [C25D11/04B](#) are not complete, pending reorganization, see also [C25D11/00](#)
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[C25D11/02](#) . Anodisation

[C25D11/02B](#) . . [N: Anodisation on selected surface areas] [N1204]

[C25D11/02C](#) . . [N: Anodisation under pulsed or modulated current or potential] [N1204]

[C25D11/02D](#) . . [N: Anodisation with spark discharge [ANOF]] [N1204]

[C25D11/02F](#) . . [N: Borodising,, i.e. borides formed electrochemically] [N1204]

[C25D11/04](#) . . of aluminium or alloys based thereon

[C25D11/04B](#) . . . [N: for forming AAO templates] [N1204]

[C25D11/06](#) . . . characterised by the electrolytes used

[C25D11/08](#) containing inorganic acids

[C25D11/10](#) containing organic acids

[C25D11/12](#) . . . Anodising more than once, e.g. in different baths

[C25D11/14](#) . . . Producing integrally coloured layers

[C25D11/16](#) . . . Pretreatment [N:, e.g. desmutting] [N1204]

[C25D11/18](#) . . . After-treatment, e.g. pore sealing ([lacquering B44D](#))

[C25D11/20](#) Electrolytic after-treatment

[C25D11/22](#) for colouring layers

[C25D11/24](#) Chemical after-treatment

[C25D11/24B](#) [N: using organic dyestuffs]

[C25D11/24D](#) [N: for sealing layers]

- C25D11/26 . . of refractory metals or alloys based thereon
- C25D11/28 . . of actinides or alloys based thereon
- C25D11/30 . . of magnesium or alloys based thereon
- C25D11/32 . . of semiconducting materials
- C25D11/34 . . of metals or alloys not provided for in groups [C25D11/04](#) to [C25D11/32](#)

- C25D11/36 . Phosphatising [N:, e.g. NiP, CoP, FeP (bath solutions of NiP, CoP, FeP C25D3/56B)]
[N1204]
- C25D11/38 . Chromatising

- C25D13/00** **Electrophoretic coating** ([C25D15/00](#) takes precedence; apparatus for continuously conveying articles into baths [B65G](#), e.g. [B65G49/00](#))

- C25D13/02 . with inorganic material
- C25D13/04 . with organic material
- C25D13/06 . . with polymers [N: not used, see [C09D5/44](#)]
- C25D13/08 . . . by polymerisation in situ of monomeric materials [N: not used, see [C09D5/44F](#)]
- C25D13/10 . characterised by the additives used[N: not used, see [C09D5/44H](#)]
- C25D13/12 . characterised by the article coated
- C25D13/14 . . Tubes; Rings; Hollow bodies
- C25D13/16 . . Wires; Strips; Foils
- C25D13/18 . using modulated, pulsed, or reversing current
- C25D13/20 . Pre-treatment
- C25D13/22 . Servicing or operating [N: apparatus or multistep processes] [N1204]
- C25D13/24 . . Regeneration of process liquids

- C25D15/00** **Electrolytic or electrophoretic production of coatings containing [N: uncharged] embedded materials, e.g. particles, whiskers, wires** [N1204]

- C25D15/02 . Combined electrolytic and electrophoretic processes [N: with charged materials]
[N1204]

- C25D17/00** **Constructional parts, or assemblies thereof, of cells for electrolytic coating (apparatus for continuously conveying articles into baths [B65G](#), e.g. [B65G49/00](#); electric devices see the relevant classes, e.g. [H01B](#), [H02G](#)) [N: ([C25D7/06](#), [C25D11/42](#), [C25D13/22](#), [C25](#) takes precedence)]** [N1204]

- C25D17/00B . [N: Apparatus specially adapted for plating wafers, e.g. semiconductors, solar cells]
[N1204]

- [N: **WARNING**]

Groups [C25B17/00B-C25D17/00M](#) are not complete, pending reorganization, see also [C25D17/00](#)
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- C25D17/00D . [N: Cell separation, e.g. membranes, diaphragms] [N1204]
- C25D17/00F . [N: Sealing devices] [N1204]
- C25D17/00H . [N: Contacting devices] [N1204]
- C25D17/00K . [N: Current conducting devices] [N1204]
- C25D17/00M . [N: Current insulating devices] [N1204]
- C25D17/02 . Tanks; Installations therefor
- C25D17/04 . . External supporting frames or structures
- C25D17/06 . Suspending or supporting devices for articles to be coated
- C25D17/08 . . [N: Supporting] racks[N: i.e. not for suspending] [N1204]
- C25D17/10 . Electrodes [N: e.g. composition, counter electrode] [N1204]
- C25D17/12 . . Shape or form ([C25D17/14](#) takes precedence)
- C25D17/14 . . for pad-plating
- C25D17/16 . Apparatus for electrolytic coating of small objects in bulk
- C25D17/18 . . having closed containers
- C25D17/20 . . . Horizontal barrels
- C25D17/22 . . having open containers
- C25D17/24 . . . Oblique barrels
- C25D17/26 . . . Oscillating baskets
- C25D17/28 . . with means for moving the objects individually through the apparatus during treatment

- C25D21/00 **Processes for servicing or operating cells for electrolytic coating****
- C25D21/02 . Heating or cooling
- C25D21/04 . Removal of gases or vapours [N:; gas or pressure control (electroplating characterized by the use of gases C25D5/00B)] [N1204]
- C25D21/06 . Filtering [N: particles other than ions (filtering ions C25D21/22)] [N1204]
- C25D21/08 . Rinsing
- C25D21/10 . Agitating of electrolytes; Moving of racks
- C25D21/11 . Use of protective surface layers on electrolytic baths

- C25D21/12 . Process control or regulation ([controlling or regulating in general G05](#))
- C25D21/14 . . Controlled addition of electrolyte components

- C25D21/16 . Regeneration of process solutions [N: (C25D13/24 takes precedence)] [[N1204](#)]
- C25D21/18 . . of electrolytes ([C25D21/22 takes precedence](#))
- C25D21/20 . . of rinse-solutions ([C25D21/22 takes precedence](#))
- C25D21/22 . . by ion-exchange