SECTION C — CHEMISTRY; METALLURGY

C23 COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL; CHEMICAL SURFACE TREATMENT; DIFFUSION TREATMENT OF METALLIC MATERIAL; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL; INHIBITING CORROSION OF METALLIC MATERIAL OR INCRUSTATION IN GENERAL

C23C COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL; SURFACE TREATMENT OF METALLIC MATERIAL BY DIFFUSION INTO THE SURFACE, BY CHEMICAL CONVERSION OR SUBSTITUTION; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL

(making metal-coated products by extrusion B21C 23/22; covering with metal by connecting pre-existing layers to articles, see the relevant places, e.g. B21D 39/00, B23K; metallising of glass C03C; metallising mortars, concrete, artificial stone, ceramics or natural stone C04B 41/00; enamelling of, or applying a vitreous layer to, metals C23D; treating metal surfaces or coating of metals by electrolysis or electrophoresis C25D; single-crystal film growth C30B; by metallising textiles D06M 11/83; decorating textiles by locally metallising D06Q 1/04) **[4]**

Note(s) [4]

In this subclass, an operation is considered as pretreatment or after-treatment when it is specially adapted for, but quite distinct from, the coating process concerned and constitutes an independent operation. If an operation results in the formation of a permanent sub- or upper layer, it is not considered as pretreatment or after-treatment and is classified as a multi-coating process.

Subclass index

Coating by applying the coating material in the molten state [4]

2/00 Hot-dipping or immersion processes for applying the coating material in the molten state without affecting the shape; Apparatus therefor [4, 2006.01]

2/02 • Pretreatment of the material to be coated, e.g. for coating on selected surface areas (C23C 2/30 takes precedence) **[4, 2006.01]**

2/04 • characterised by the coating material **[4, 2006.01]**

2/06 • • Zinc or cadmium or alloys based thereon **[4, 2006.01]**

2/08 • • Tin or alloys based thereon **[4, 2006.01]**

2/10 • • Lead or alloys based thereon **[4, 2006.01]**

2/12 • • Aluminium or alloys based thereon **[4, 2006.01]**

2/14 • Removing excess of molten coatings; Controlling or regulating the coating thickness **[4, 2006.01]**

2/16 • • using fluids under pressure, e.g. air knives **[4, 2006.01]**

2/18 • • • Removing excess of molten coatings from elongated material **[4, 2006.01]**

2/20 • • • • Strips; Plates **[4, 2006.01]**

2/22 • • by rubbing, e.g. using knives **[4, 2006.01]**

2/24 • • using magnetic or electric fields **[4, 2006.01]**

2/26 • After-treatment (C23C 2/14 takes precedence) **[4, 2006.01]**

2/28 • • Thermal after-treatment, e.g. treatment in oil bath **[4, 2006.01]**

2/30 • Fluxes or coverings on molten baths (C23C 2/22 takes precedence) **[4, 2006.01]**

2/32 • using vibratory energy applied to the bath or substrate (C23C 2/14 takes precedence) **[4, 2006.01]**

2/34 • characterised by the shape of the material to be treated (C23C 2/14 takes precedence) **[4, 2006.01]**

2/36 • • Elongated material **[4, 2006.01]**

2/38 • • • Wires; Tubes **[4, 2006.01]**

2/40 • • • Plates; Strips **[4, 2006.01]**

4/00 Coating by spraying the coating material in the molten state, e.g. by flame, plasma or electric discharge (build-up welding B23K, e.g. B23K 5/18, B23K 9/04) **[4, 2006.01, 2016.01]**

4/01 • Selective coating, e.g. pattern coating, without pre-treatment of the material to be coated **[2016.01]**

4/02 • Pretreatment of the material to be coated, e.g. for coating on selected surface areas **[4, 2006.01]**
4/04 • characterised by the coating material **[4, 2006.01]**
4/06 • • Metallic material **[4, 2006.01, 2016.01]**
4/067 • • • containing free particles of non-metal elements, e.g. carbon, silicon, boron, phosphorus or arsenic **[2016.01]**
4/073 • • • containing MCrAl or MCrAlY alloys, where M is nickel, cobalt or iron, with or without non-metal elements **[2016.01]**
4/08 • • • containing only metal elements (C23C 4/073 takes precedence) **[4, 2006.01, 2016.01]**
4/10 • • Oxides, borides, carbides, nitrides or silicides; Mixtures thereof **[4, 2006.01, 2016.01]**
4/11 • • • Oxides **[2016.01]**
4/12 • characterised by the method of spraying **[4, 2006.01, 2016.01]**
4/123 • • Spraying molten metal **[2016.01]**
4/126 • • Detonation spraying **[2016.01]**
4/129 • • Flame spraying **[2016.01]**
4/131 • • Wire arc spraying **[2016.01]**
4/134 • • Plasma spraying **[2016.01]**
4/137 • • Spraying in vacuum or in an inert atmosphere **[2016.01]**
4/14 • • for coating elongate material **[4, 2006.01, 2016.01]**
4/16 • • • Wires; Tubes **[4, 2006.01, 2016.01]**
4/18 • After-treatment **[4, 2006.01]**

6/00 Coating by casting molten material on the substrate [4, 2006.01]

Solid state diffusion into metallic material surfaces [4]

8/00 Solid state diffusion of only non-metal elements into metallic material surfaces (diffusion of silicon C23C 10/00)**; Chemical surface treatment of metallic material by reaction of the surface with a reactive gas, leaving reaction products of surface material in the coating, e.g. conversion coatings, passivation of metals** (C23C 14/00 takes precedence) **[4, 2006.01]**
8/02 • Pretreatment of the material to be coated (C23C 8/04 takes precedence) **[4, 2006.01]**
8/04 • Treatment of selected surface areas, e.g. using masks **[4, 2006.01]**
8/06 • using gases **[4, 2006.01]**
8/08 • • only one element being applied **[4, 2006.01]**
8/10 • • • Oxidising **[4, 2006.01]**
8/12 • • • • using elemental oxygen or ozone **[4, 2006.01]**
8/14 • • • • • Oxidising of ferrous surfaces **[4, 2006.01]**
8/16 • • • • using oxygen-containing compounds, e.g. H_2O, CO_2 **[4, 2006.01]**
8/18 • • • • • Oxidising of ferrous surfaces **[4, 2006.01]**
8/20 • • • Carburising **[4, 2006.01]**
8/22 • • • • of ferrous surfaces **[4, 2006.01]**
8/24 • • • Nitriding **[4, 2006.01]**
8/26 • • • • of ferrous surfaces **[4, 2006.01]**
8/28 • • more than one element being applied in one step **[4, 2006.01]**
8/30 • • • Carbo-nitriding **[4, 2006.01]**
8/32 • • • • of ferrous surfaces **[4, 2006.01]**
8/34 • • more than one element being applied in more than one step **[4, 2006.01]**
8/36 • • using ionised gases, e.g. ionitriding **[4, 2006.01]**
8/38 • • • Treatment of ferrous surfaces **[4, 2006.01]**
8/40 • using liquids, e.g. salt baths, liquid suspensions **[4, 2006.01]**
8/42 • • only one element being applied **[4, 2006.01]**
8/44 • • • Carburising **[4, 2006.01]**
8/46 • • • • of ferrous surfaces **[4, 2006.01]**
8/48 • • • Nitriding **[4, 2006.01]**
8/50 • • • • of ferrous surfaces **[4, 2006.01]**
8/52 • • more than one element being applied in one step **[4, 2006.01]**
8/54 • • • Carbo-nitriding **[4, 2006.01]**
8/56 • • • • of ferrous surfaces **[4, 2006.01]**
8/58 • • more than one element being applied in more than one step **[4, 2006.01]**
8/60 • using solids, e.g. powders, pastes (using liquid suspensions of solids C23C 8/40) **[4, 2006.01]**
8/62 • • only one element being applied **[4, 2006.01]**
8/64 • • • Carburising **[4, 2006.01]**
8/66 • • • • of ferrous surfaces **[4, 2006.01]**
8/68 • • • Boronising **[4, 2006.01]**
8/70 • • • • of ferrous surfaces **[4, 2006.01]**
8/72 • • more than one element being applied in one step **[4, 2006.01]**
8/74 • • • Carbo-nitriding **[4, 2006.01]**
8/76 • • • • of ferrous surfaces **[4, 2006.01]**
8/78 • • more than one element being applied in more than one step **[4, 2006.01]**
8/80 • After-treatment **[4, 2006.01]**

10/00 Solid state diffusion of only metal elements or silicon into metallic material surfaces [4, 2006.01]
10/02 • Pretreatment of the material to be coated (C23C 10/04 takes precedence) **[4, 2006.01]**
10/04 • Diffusion into selected surface areas, e.g. using masks **[4, 2006.01]**
10/06 • using gases **[4, 2006.01]**
10/08 • • only one element being diffused **[4, 2006.01]**
10/10 • • • Chromising **[4, 2006.01]**
10/12 • • • • of ferrous surfaces **[4, 2006.01]**
10/14 • • more than one element being diffused in one step **[4, 2006.01]**
10/16 • • more than one element being diffused in more than one step **[4, 2006.01]**
10/18 • using liquids, e.g. salt baths, liquid suspensions **[4, 2006.01]**
10/20 • • only one element being diffused **[4, 2006.01]**
10/22 • • • Metal melt containing the element to be diffused **[4, 2006.01]**
10/24 • • • Salt bath containing the element to be diffused **[4, 2006.01]**
10/26 • • more than one element being diffused **[4, 2006.01]**
10/28 • using solids, e.g. powders, pastes **[4, 2006.01]**
10/30 • • using a layer of powder or paste on the surface (using liquid suspensions of solids C23C 10/18) **[4, 2006.01]**
10/32 • • • Chromising **[4, 2006.01]**
10/34 • • Embedding in a powder mixture, i.e. pack cementation **[4, 2006.01]**
10/36 • • • only one element being diffused **[4, 2006.01]**
10/38 • • • • Chromising **[4, 2006.01]**
10/40 • • • • • of ferrous surfaces **[4, 2006.01]**
10/42 • • • • • • in the presence of volatile transport additives, e.g. halogenated substances **[4, 2006.01]**

10/44 • • • • Siliconising **[4, 2006.01]**
10/46 • • • • • of ferrous surfaces **[4, 2006.01]**
10/48 • • • • Aluminising **[4, 2006.01]**
10/50 • • • • • of ferrous surfaces **[4, 2006.01]**
10/52 • • • more than one element being diffused in one step **[4, 2006.01]**
10/54 • • • • Diffusion of at least chromium **[4, 2006.01]**
10/56 • • • • • and at least aluminium **[4, 2006.01]**
10/58 • • • more than one element being diffused in more than one step **[4, 2006.01]**
10/60 • After-treatment **[4, 2006.01]**

12/00 Solid state diffusion of at least one non-metal element other than silicon and at least one metal element or silicon into metallic material surfaces [4, 2006.01]
12/02 • Diffusion in one step **[4, 2006.01]**

Coating by vacuum evaporation, by sputtering or by ion implantation [4]

14/00 Coating by vacuum evaporation, by sputtering or by ion implantation of the coating forming material [4, 2006.01]

14/02 • Pretreatment of the material to be coated (C23C 14/04 takes precedence) **[4, 2006.01]**
14/04 • Coating on selected surface areas, e.g. using masks **[4, 2006.01]**
14/06 • characterised by the coating material (C23C 14/04 takes precedence) **[4, 2006.01]**
14/08 • • Oxides (C23C 14/10 takes precedence) **[4, 2006.01]**
14/10 • • Glass or silica **[4, 2006.01]**
14/12 • • Organic material **[4, 2006.01]**
14/14 • • Metallic material, boron or silicon **[4, 2006.01]**
14/16 • • • on metallic substrates or on substrates of boron or silicon **[4, 2006.01]**
14/18 • • • on other inorganic substrates **[4, 2006.01]**
14/20 • • • on organic substrates **[4, 2006.01]**
14/22 • characterised by the process of coating **[4, 2006.01]**
14/24 • • Vacuum evaporation **[4, 2006.01]**
14/26 • • • by resistance or inductive heating of the source **[4, 2006.01]**
14/28 • • • by wave energy or particle radiation (C23C 14/32-C23C 14/48 take precedence) **[4, 2006.01]**
14/30 • • • • by electron bombardment **[4, 2006.01]**
14/32 • • • by explosion; by evaporation and subsequent ionisation of the vapours (C23C 14/34-C23C 14/48 take precedence) **[4, 2006.01]**
14/34 • • Sputtering **[4, 2006.01]**
14/35 • • • by application of a magnetic field, e.g. magnetron sputtering **[5, 2006.01]**
14/36 • • • Diode sputtering (C23C 14/35 takes precedence) **[4, 5, 2006.01]**
14/38 • • • • by direct current glow discharge **[4, 2006.01]**
14/40 • • • • with alternating current discharge, e.g. high-frequency discharge **[4, 2006.01]**
14/42 • • • Triode sputtering (C23C 14/35 takes precedence) **[4, 5, 2006.01]**
14/44 • • • • by application of high frequencies and additional direct voltages **[4, 2006.01]**
14/46 • • • by ion beam produced by an external ion source (C23C 14/40 takes precedence) **[4, 2006.01]**
14/48 • • Ion implantation **[4, 2006.01]**
14/50 • • Substrate holders **[4, 2006.01]**
14/52 • • Means for observation of the coating process **[4, 2006.01]**
14/54 • • Controlling or regulating the coating process **[4, 2006.01]**
14/56 • • Apparatus specially adapted for continuous coating; Arrangements for maintaining the vacuum, e.g. vacuum locks **[4, 2006.01]**
14/58 • After-treatment **[4, 2006.01]**

Chemical deposition or plating by decomposition; Contact plating [4]

16/00 Chemical coating by decomposition of gaseous compounds, without leaving reaction products of surface material in the coating, i.e. chemical vapour deposition [CVD] processes (reactive sputtering or vacuum evaporation C23C 14/00) **[4, 2006.01]**
16/01 • on temporary substrates, e.g. on substrates subsequently removed by etching **[7, 2006.01]**
16/02 • Pretreatment of the material to be coated (C23C 16/04 takes precedence) **[4, 2006.01]**
16/04 • Coating on selected surface areas, e.g. using masks **[4, 2006.01]**
16/06 • characterised by the deposition of metallic material **[4, 2006.01]**
16/08 • • from metal halides **[4, 2006.01]**
16/10 • • • Deposition of chromium only **[4, 2006.01]**
16/12 • • • Deposition of aluminium only **[4, 2006.01]**
16/14 • • • Deposition of only one other metal element **[4, 2006.01]**
16/16 • • from metal carbonyl compounds **[4, 2006.01]**
16/18 • • from metallo-organic compounds **[4, 2006.01]**
16/20 • • • Deposition of aluminium only **[4, 2006.01]**
16/22 • characterised by the deposition of inorganic material, other than metallic material **[4, 2006.01]**
16/24 • • Deposition of silicon only **[4, 2006.01]**
16/26 • • Deposition of carbon only **[4, 2006.01]**
16/27 • • • Diamond only **[7, 2006.01]**
16/28 • • Deposition of only one other non-metal element **[4, 2006.01]**
16/30 • • Deposition of compounds, mixtures or solid solutions, e.g. borides, carbides, nitrides **[4, 2006.01]**
16/32 • • • Carbides **[4, 2006.01]**
16/34 • • • Nitrides **[4, 2006.01]**
16/36 • • • Carbo-nitrides **[4, 2006.01]**
16/38 • • • Borides **[4, 2006.01]**
16/40 • • • Oxides **[4, 2006.01]**
16/42 • • • Silicides **[4, 2006.01]**
16/44 • characterised by the method of coating (C23C 16/04 takes precedence) **[4, 2006.01]**
16/442 • • using fluidised bed processes **[7, 2006.01]**
16/448 • • characterised by the method used for generating reactive gas streams, e.g. by evaporation or sublimation of precursor materials **[7, 2006.01]**
16/452 • • • by activating reactive gas streams before introduction into the reaction chamber, e.g. by ionization or by addition of reactive species **[7, 2006.01]**
16/453 • • passing the reaction gases through burners or torches, e.g. atmospheric pressure CVD (C23C 16/513 takes precedence; for flame or plasma spraying of coating material in the molten state C23C 4/00) **[7, 2006.01]**

16/455 • • characterised by the method used for introducing gases into the reaction chamber or for modifying gas flows in the reaction chamber **[7, 2006.01]**
16/458 • • characterised by the method used for supporting substrates in the reaction chamber **[7, 2006.01]**
16/46 • • characterised by the method used for heating the substrate (C23C 16/48, C23C 16/50 take precedence) **[4, 2006.01]**
16/48 • • by irradiation, e.g. photolysis, radiolysis, particle radiation **[4, 2006.01]**
16/50 • • using electric discharges **[4, 2006.01]**
16/503 • • • using dc or ac discharges **[7, 2006.01]**
16/505 • • • using radio frequency discharges **[7, 2006.01]**
16/507 • • • • using external electrodes, e.g. in tunnel type reactors **[7, 2006.01]**
16/509 • • • • using internal electrodes **[7, 2006.01]**
16/511 • • • using microwave discharges **[7, 2006.01]**
16/513 • • • using plasma jets **[7, 2006.01]**
16/515 • • • using pulsed discharges **[7, 2006.01]**
16/517 • • • using a combination of discharges covered by two or more of groups C23C 16/503-C23C 16/515 **[7, 2006.01]**
16/52 • • Controlling or regulating the coating process **[4, 2006.01]**
16/54 • • Apparatus specially adapted for continuous coating **[4, 2006.01]**
16/56 • After-treatment **[4, 2006.01]**

18/00 Chemical coating by decomposition of either liquid compounds or solutions of the coating forming compounds, without leaving reaction products of surface material in the coating; Contact plating [4, 2006.01]

Note(s) [4]

This group covers also suspensions containing reactive liquids and non-reactive solid particles.

18/02 • by thermal decomposition **[4, 2006.01]**
18/04 • • Pretreatment of the material to be coated (C23C 18/06 takes precedence) **[4, 2006.01]**
18/06 • • Coating on selected surface areas, e.g. using masks **[4, 2006.01]**
18/08 • • characterised by the deposition of metallic material **[4, 2006.01]**
18/10 • • • Deposition of aluminium only **[4, 2006.01]**
18/12 • • characterised by the deposition of inorganic material other than metallic material **[4, 2006.01]**
18/14 • Decomposition by irradiation, e.g. photolysis, particle radiation **[4, 2006.01]**
18/16 • by reduction or substitution, i.e. electroless plating (C23C 18/54 takes precedence) **[4, 2006.01]**
18/18 • • Pretreatment of the material to be coated **[4, 2006.01]**
18/20 • • • of organic surfaces, e.g. resins **[4, 2006.01]**
18/22 • • • • Roughening, e.g. by etching **[4, 2006.01]**
18/24 • • • • • using acid aqueous solutions **[4, 2006.01]**
18/26 • • • • • using organic liquids **[4, 2006.01]**
18/28 • • • • Sensitising or activating **[4, 2006.01]**
18/30 • • • • • Activating **[4, 2006.01]**
18/31 • • Coating with metals **[5, 2006.01]**
18/32 • • • Coating with one of iron, cobalt or nickel; Coating with mixtures of phosphorus or boron with one of these metals **[4, 5, 2006.01]**
18/34 • • • • using reducing agents **[4, 5, 2006.01]**
18/36 • • • • • using hypophosphites **[4, 5, 2006.01]**
18/38 • • • Coating with copper **[4, 5, 2006.01]**
18/40 • • • • using reducing agents **[4, 5, 2006.01]**
18/42 • • • Coating with noble metals **[4, 5, 2006.01]**
18/44 • • • • using reducing agents **[4, 5, 2006.01]**
18/48 • • Coating with alloys **[4, 5, 2006.01]**
18/50 • • • with alloys based on iron, cobalt or nickel (C23C 18/32 takes precedence) **[4, 5, 2006.01]**
18/52 • • using reducing agents for coating with metallic material not provided for in a single one of groups C23C 18/32-C23C 18/50 **[4, 2006.01]**
18/54 • Contact plating, i.e. electroless electrochemical plating **[4, 2006.01]**

20/00 Chemical coating by decomposition of either solid compounds or suspensions of the coating forming compounds, without leaving reaction products of surface material in the coating [4, 2006.01]

Note(s) [4]

This group covers also suspensions containing non-reactive liquids and reactive solid particles.

20/02 • Coating with metallic material **[4, 2006.01]**
20/04 • • with metals **[4, 2006.01]**
20/06 • Coating with inorganic material, other than metallic material **[4, 2006.01]**
20/08 • • with compounds, mixtures or solid solutions, e.g. borides, carbides, nitrides **[4, 2006.01]**

22/00 Chemical surface treatment of metallic material by reaction of the surface with a reactive liquid, leaving reaction products of surface material in the coating, e.g. conversion coatings, passivation of metals [4, 2006.01]

Note(s) [4]

1. This group covers also suspensions containing reactive liquids and non-reactive solid particles.
2. Rejuvenating of the bath is classified in the appropriate place for the specific bath composition.

Note(s) [4]

In groups C23C 22/02-C23C 22/86, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.

22/02 • using non-aqueous solutions **[4, 2006.01]**
22/03 • • containing phosphorus compounds **[4, 2006.01]**
22/04 • • containing hexavalent chromium compounds **[4, 2006.01]**
22/05 • using aqueous solutions **[5, 2006.01]**
22/06 • • using aqueous acidic solutions with pH < 6 **[4, 5, 2006.01]**
22/07 • • • containing phosphates **[4, 5, 2006.01]**
22/08 • • • • Orthophosphates **[4, 5, 2006.01]**
22/10 • • • • • containing oxidants **[4, 5, 2006.01]**
22/12 • • • • • containing zinc cations **[4, 5, 2006.01]**
22/13 • • • • • • containing also nitrate or nitrite anions **[4, 5, 2006.01]**
22/14 • • • • • • containing also chlorate anions **[4, 5, 2006.01]**
22/16 • • • • • • containing also peroxy-compounds **[4, 5, 2006.01]**
22/17 • • • • • • containing also organic acids **[4, 5, 2006.01]**
22/18 • • • • • containing manganese cations **[4, 5, 2006.01]**

22/20 • • • • • containing aluminium cations **[4, 5, 2006.01]**
22/22 • • • • • containing alkaline earth metal cations **[4, 5, 2006.01]**
22/23 • • • • Condensed phosphates **[4, 5, 2006.01]**
22/24 • • • containing hexavalent chromium compounds **[4, 5, 2006.01]**
22/26 • • • • containing also organic compounds **[4, 5, 2006.01]**
22/27 • • • • • Acids **[4, 5, 2006.01]**
22/28 • • • • • Macromolecular compounds **[4, 5, 2006.01]**
22/30 • • • • containing also trivalent chromium **[4, 5, 2006.01]**
22/32 • • • • containing also pulverulent metals **[4, 5, 2006.01]**
22/33 • • • • containing also phosphates **[4, 5, 2006.01]**
22/34 • • • containing fluorides or complex fluorides **[4, 5, 2006.01]**
22/36 • • • • containing also phosphates **[4, 5, 2006.01]**
22/37 • • • • containing also hexavalent chromium compounds **[4, 5, 2006.01]**
22/38 • • • • • containing also phosphates **[4, 5, 2006.01]**
22/40 • • • containing molybdates, tungstates or vanadates **[4, 5, 2006.01]**
22/42 • • • • containing also phosphates **[4, 5, 2006.01]**
22/43 • • • • containing also hexavalent chromium compounds **[4, 5, 2006.01]**
22/44 • • • • containing also fluorides or complex fluorides **[4, 5, 2006.01]**
22/46 • • • containing oxalates **[4, 5, 2006.01]**
22/47 • • • • containing also phosphates **[4, 5, 2006.01]**
22/48 • • • not containing phosphates, hexavalent chromium compounds, fluorides or complex fluorides, molybdates, tungstates, vanadates or oxalates **[4, 5, 2006.01]**
22/50 • • • • Treatment of iron or alloys based thereon **[4, 5, 2006.01]**
22/52 • • • • Treatment of copper or alloys based thereon **[4, 5, 2006.01]**
22/53 • • • • Treatment of zinc or alloys based thereon **[4, 5, 2006.01]**
22/54 • • • • Treatment of refractory metals or alloys based thereon **[4, 5, 2006.01]**
22/56 • • • • Treatment of aluminium or alloys based thereon **[4, 5, 2006.01]**
22/57 • • • • Treatment of magnesium or alloys based thereon **[4, 5, 2006.01]**
22/58 • • • • Treatment of other metallic material **[4, 5, 2006.01]**
22/60 • • using alkaline aqueous solutions with pH > 8 **[4, 5, 2006.01]**
22/62 • • • Treatment of iron or alloys based thereon **[4, 5, 2006.01]**
22/63 • • • Treatment of copper or alloys based thereon **[4, 5, 2006.01]**
22/64 • • • Treatment of refractory metals or alloys based thereon **[4, 5, 2006.01]**
22/66 • • • Treatment of aluminium or alloys based thereon **[4, 5, 2006.01]**
22/67 • • • • with solutions containing hexavalent chromium **[4, 5, 2006.01]**
22/68 • • using aqueous solutions with pH between 6 and 8 **[4, 5, 2006.01]**
22/70 • using melts **[4, 2006.01]**
22/72 • • Treatment of iron or alloys based thereon **[4, 2006.01]**
22/73 • characterised by the process **[4, 2006.01]**
22/74 • • for obtaining burned-in conversion coatings **[4, 2006.01]**
22/76 • • Applying the liquid by spraying **[4, 2006.01]**
22/77 • • Controlling or regulating of the coating process **[4, 2006.01]**
22/78 • Pretreatment of the material to be coated **[4, 2006.01]**
22/80 • • with solutions containing titanium or zirconium compounds **[4, 2006.01]**
22/82 • After-treatment **[4, 2006.01]**
22/83 • • Chemical after-treatment **[4, 2006.01]**
22/84 • • Dyeing **[4, 2006.01]**
22/86 • Regeneration of coating baths **[4, 2006.01]**

24/00 **Coating starting from inorganic powder** (spraying of the coating material in molten state C23C 4/00; solid state diffusion C23C 8/00-C23C 12/00) **[4, 2006.01]**
24/02 • by application of pressure only **[4, 2006.01]**
24/04 • • Impact or kinetic deposition of particles **[4, 2006.01]**
24/06 • • Compressing powdered coating material, e.g. by milling **[4, 2006.01]**
24/08 • by application of heat or pressure and heat (C23C 24/04 takes precedence) **[4, 2006.01]**
24/10 • • with intermediate formation of a liquid phase in the layer **[4, 2006.01]**

26/00 **Coating not provided for in groups C23C 2/00-C23C 24/00 [4, 2006.01]**
26/02 • applying molten material to the substrate **[4, 2006.01]**

28/00 **Coating for obtaining at least two superposed coatings either by methods not provided for in a single one of main groups C23C 2/00-C23C 26/00, or by combinations of methods provided for in subclasses C23C and C25D [4, 2006.01]**
28/02 • only coatings of metallic material **[4, 2006.01]**
28/04 • only coatings of inorganic non-metallic material **[4, 2006.01]**

30/00 **Coating with metallic material characterised only by the composition of the metallic material, i.e. not characterised by the coating process** (C23C 26/00, C23C 28/00 take precedence) **[4, 2006.01]**