COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING
(NOTES omitted)

SEPARATING; MIXING

B05 SPRAYING OR ATOMISING IN GENERAL; APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL
(NOTE omitted)

B05D PROCESSES FOR APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL (apparatus for applying liquids or other fluent materials to surfaces B05B, B05C; {coating of foodstuffs A23P 20/17, A23P 20/15, A23P 20/18})

NOTES
1. This subclass covers:
   • processes for applying liquids or other fluent materials to a surface or part of a surface, in general, by any mechanical or physical method and particularly processes producing a uniform distribution of liquids or other fluent materials on a surface;
   • pretreatment of surfaces to which liquids or other fluent materials are to be applied;
   • after-treatment of applied coatings.
2. Attention is drawn to the Note following the title of class B05.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00 Processes for applying liquids or other fluent materials (B05D 5/00, B05D 7/00 take precedence)

1/02 . performed by spraying
1/04 . involving the use of an electrostatic field
1/05 . {the substrate being rotated}
1/07 . {using gas close to its critical state}
1/08 . {using an electrostatic field}
1/09 . {on non-conductive substrates}
1/10 . Applying particulate materials
1/12 . Applying particulate materials (B05D 1/06, B05D 1/10 take precedence)
1/14 . Flocking
1/16 . Flocking otherwise than by spraying
1/18 . performed by dipping
1/19 . {after-treatment of monomolecular films}
1/20 . substances to be applied floating on a fluid
1/22 . using fluidised-bed technique (fluidised-bed technique in general B01J 8/24)
1/24 . Applying particulate materials

1/26 . performed by applying the liquid or other fluent material from an outlet device in contact with, or almost in contact with, the surface
1/265 . {Extrusion coatings}
1/28 . performed by transfer from the surfaces of elements carrying the liquid or other fluent material, e.g. brushes, pads, rollers
1/283 . {Transferring monomolecular layers or solutions of molecules adapted for forming monomolecular layers from carrying elements}
1/286 . {using a temporary backing to which the coating has been applied}
1/30 . performed by gravity only, i.e. flow coating
1/305 . {Curtain coating}
1/32 . using means for protecting parts of a surface not to be coated, e.g. using stencils, resists
1/322 . {Removable films used as masks}
1/325 . . {Masking layer made of peelable film}
1/327 . . {Masking layer made of washable film}
1/34 . Applying different liquids or other fluent materials simultaneously
1/36 . Successively applying liquids or other fluent materials, e.g. without intermediate treatment
1/38 . . with intermediate treatment (intermediate treatment per se B05D 3/00)
1/40 . Distributing applied liquids or other fluent materials by members moving relatively to surface
1/42 . . by non-rotary members
1/60 . {Deposition of organic layers from vapour phase (vapour phase deposition in general C23C 14/00, C23C 16/00)
3/00 Pretreatment of surfaces to which liquids or other fluent materials are to be applied; After-treatment of applied coatings, e.g., intermediate treating of an applied coating preparatory to subsequent applications of liquids or other fluent materials (successively applying liquids or other fluent materials B05D 1/36; drying ovens F26B)

3/002 . . . (Pretreatment)
3/005 . . . (Pretreatment for allowing a non-conductive substrate to be electrostatically coated)
3/007 . . . (After-treatment)
3/02 . . . by baking (B05D 3/04 takes precedence)
3/0209 . . . {Multistage baking}
3/0218 . . . {Pretreatment, e.g., heating the substrate}
3/0227 . . . {with IR heaters}
3/0236 . . . {with ovens (B05D 3/0227 takes precedence)}
3/0245 . . . {with induction heating}
3/0254 . . . {After-treatment}
3/0263 . . . {with IR heaters}
3/0272 . . . {with ovens}
3/0281 . . . {with induction heating}
3/029 . . . {with microwaves}
3/04 . . . by exposure to gases
3/0406 . . . {the gas being air}
3/0413 . . . {Heating with air}
3/042 . . . {Directing or stopping the fluid to be coated with air}
3/0426 . . . {Cooling with air}
3/0433 . . . {the gas being a reactive gas}
3/044 . . . {Pretreatment}
3/0446 . . . . . . {of a polymeric substrate}
3/0453 . . . {After-treatment}
3/046 . . . {Curing or evaporating the solvent}
3/0466 . . . {the gas being a non-reacting gas (B05D 3/0406 takes precedence)}
3/0473 . . . . . . {for heating, e.g., vapour heating}
3/048 . . . . . . {for cooling}
3/0486 . . . . . . {Operating the coating or treatment in a controlled atmosphere}
3/0493 . . . . . . {using vacuum}
3/06 . . . by exposure to radiation (B05D 3/02 takes precedence; plasma treatment B05D 3/141)}
3/061 . . . {using U.V.}
3/062 . . . {Pretreatment}
3/063 . . . . . . {of polymeric substrates (B05D 3/064 takes precedence)}
3/064 . . . . . . {involving also the use of a gas}
3/065 . . . . . . {After-treatment}
3/066 . . . . . . {involving also the use of a gas}
3/067 . . . . . . {Curing or cross-linking the coating}
3/068 . . . . . . {using ionising radiations (gamma, X, electrons)}
3/08 . . . . . . . by flames
3/10 . . . . by other chemical means
3/101 . . . . . . {Pretreatment of polymeric substrate}
3/102 . . . . . . {Pretreatment of metallic substrates (C23C takes precedence)}
3/104 . . . . . . {Pretreatment of other substrates}
3/105 . . . . . . {Intermediate treatments}
3/107 . . . . . . {Post-treatment of applied coatings}
3/108 . . . . {Curing}

3/12 . . . by mechanical means
3/14 . . . by electrical means
3/141 . . . {Pretreatment}
3/142 . . . . . . {Pretreatment}
3/144 . . . . . . . {of polymeric substrates}
3/145 . . . . . . . {After-treatment}
3/147 . . . . . . . {Curing}
3/148 . . . . . . . {affecting the surface properties of the coating}
3/20 . . . . {by magnetic fields}
3/203 . . . . {pre-treatment by magnetic fields}
3/207 . . . . {post-treatment by magnetic fields}

5/00 Processes for applying liquids or other fluent materials to surfaces to obtain special surface effects, finishes or structures

5/005 . . . (Repairing damaged coatings)
5/02 . . . to obtain a matt or rough surface
5/04 . . . to obtain a surface receptive to ink or other liquid (B05D 3/02, B41M 5/52) take precedence)
5/06 . . . to obtain multicolour or other optical effects (B05D 5/02 takes precedence)
5/061 . . . {Special surface effect}
5/062 . . . . . . . {Wrinkled, cracked or ancient-looking effect}
5/063 . . . . . . . {Reflective effect (B05D 5/067 takes precedence)}
5/065 . . . . . . . {having colour interferences or colour shifts or opalescent looking, flip-flop, two tones}
5/066 . . . . . . . {achieved by multilayers}
5/067 . . . . . . . {Metallic effect}
5/068 . . . . . . . {achieved by multilayers (B05D 5/066 takes precedence)}
5/08 . . . to obtain an anti-friction or anti-adhesive surface (rendering particulate materials free-flowing in general, e.g., making them hydrophobic B01J 2/30)
5/083 . . . . . . . {involving the use of fluoropolymers}
5/086 . . . . . . . {having an anchoring layer}
5/10 . . . to obtain an adhesive surface
5/12 . . . to obtain a coating with specific electrical properties

7/00 Processes, other than flocking, especially adapted for applying liquids or other fluent materials to particular surfaces or for applying particular liquids or other fluent materials (coating of foodstuffs A23P 20/17, A23P 20/15, A23P 20/18)

7/02 . . . to macromolecular substances, e.g., rubber (treatment or coating of shaped articles made of macromolecular substances C08J 7/00)
7/04 . . . to surfaces of films or sheets (producing layered products by applying coatings of pasty or pulvulent plastics B29C 41/00)
7/06 . . . to wood
7/08 . . . using synthetic lacquers or varnishes
7/10 . . . . based on cellulose derivatives
7/12 . . . to leather (chemical treatment of leather C14C; dyeing leather D06P)
7/14 . . . to metal, e.g., car bodies (involving a chemical reaction between the metal and the coating C23)
7/142 . . . {Auto-deposited coatings, i.e., autophoretic coatings}
7/144 . . . . {After-treatment of auto-deposited coatings}
7/146 . . . . {to metallic pipes or tubes (processes for coating the interior of pipes B05D 7/222)}
mostly multilayers

NOTE
A possible inorganic pretreatment or coating on the substrate such as chromatation, phosphatation, plating, is not counted as a layer. This group covers mostly multilayers characterised by each layer and the succession of them (laminates in general B32B)

7/51 . . . [One specific pretreatment, e.g. phosphatation, chromatation, in combination with one specific coating (pretreatment of metallic substrates C23C; pretreatment before coating in general B05D 3/00)]

7/52 . . . [Two layers]
7/53 . . . . [Base coat plus clear coat type]
7/532 . . . . [the two layers being cured or baked together, i.e. wet on wet]
7/5323 . . . . . [the two layers being applied simultaneously]
7/534 . . . . . [the first layer being let to dry at least partially before applying the second layer (B05D 7/538 takes precedence)]
7/536 . . . . . [each layer being cured, at least partially, separately]
7/538 . . . . . [No curing step for the last layer]
7/5383 . . . . . . . . [No curing step for any layer]
7/5385 . . . . . . . . [the two layers being applied simultaneously]
7/54 . . . . . [No clear coat specified]
7/542 . . . . . [the two layers being cured or baked together]
7/5423 . . . . . [the two layers being applied simultaneously]
7/544 . . . . . [the first layer is let to dry at least partially before applying the second layer]
7/546 . . . . . [each layer being cured, at least partially, separately]
7/548 . . . . . [No curing step for the last layer]
7/5483 . . . . . [No curing step for any layer]
7/5485 . . . . . [the two layers being applied simultaneously]
7/56 . . . . [Three layers or more]
7/57 . . . . [the last layer being a clear coat]
7/572 . . . . . [all layers being cured or baked together]
7/5723 . . . . . [all layers being applied simultaneously]
7/574 . . . . . [at least some layers being let to dry at least partially before applying the next layer (B05D 7/577 takes precedence)]
2256/00 Wires or fibres
2258/00 Small objects (e.g. screws)
2258/02 . The objects being coated one after the other
2259/00 Applying the material to the internal surface of hollow articles other than tubes

2301/00 Inorganic additives or organic salts thereof
2301/10 . Phosphates, phosphoric acid or organic salts thereof
2301/20 . Chromates, chromic acid or organic salts thereof
2301/30 . Acids
2301/50 . Bases

2320/00 Organic additives
2320/10 . Detergents

2350/00 Pretreatment of the substrate
2350/10 . Phosphatation
2350/20 . Chromatation
2350/30 . Change of the surface
2350/33 . . Roughening
2350/35 . . by chemical means
2350/38 . . by mechanical means
2350/40 . . by adding a porous layer
2350/50 . . Smoothing
2350/60 . . Adding a layer before coating
2350/63 . . ceramic layer
2350/65 . . metal layer

2400/00 Indexing scheme for single layers or multilayers
2401/00 Form of the coating product, e.g. solution, water dispersion, powders or the like
2401/10 . Organic solvent (B05D 2401/21 takes precedence)
2401/20 . Aqueous dispersion or solution
2401/21 . . Mixture of organic solvent and water
2401/30 . . the coating being applied in other forms than involving eliminable solvent, diluent or dispersant
2401/31 . . . applied as mixtures of monomers and polymers
2401/32 . . . applied as powders
2401/33 . . . applied as vapours polymerising in situ

2401/40 . where the carrier is not clearly specified
2401/50 . where organic solvent or water can be used as alternative
2401/60 . non aqueous inorganic solvent (B05D 2401/90 takes precedence)
2401/90 . at least one component of the composition being in supercritical state or close to supercritical state

2420/00 Indexing scheme corresponding to the position of each layer within a multilayer coating relative to the substrate
2420/01 . first layer from the substrate side
2420/02 . second layer from the substrate side
2420/03 . third layer from the substrate side
2420/04 . fourth layer from the substrate side
2420/05 . fifth layer from the substrate side

2425/00 Indexing scheme corresponding to the position of each layer within a multilayer coating relative to the surface
2425/01 . top layer/ last layer, i.e. first layer from the top surface
2425/02 . second layer from the top surface
2425/03 . third layer from the top surface
2425/04 . fourth layer from the top surface
2425/05 . fifth layer from the top surface

2430/00 Component used as a filler in the composition
2451/00 Type of carrier, type of coating (Multilayers)
2490/00 Intermixed layers
2490/50 . compositions varying with a gradient perpendicular to the surface
2490/60 . compositions varying with a gradient parallel to the surface

2500/00 Indexation scheme for the composition of layers

2501/00 Varnish or unspecified clear coat
2501/10 . Wax

2502/00 Acrylic polymers
2502/005 . modified
2503/00 Polyurethanes
2504/00 Epoxy polymers
2505/00 Polyamides
2505/50 . Polymides
2505/60 . Polyamides

2506/00 Halogenated polymers
2506/10 . Fluorinated polymers
2506/15 . . Polytetrafluoroethylene [PTFE]
2506/20 . Chlorinated polymers
2506/25 . . PVC (B05D 2520/10 takes precedence)

2507/00 Polylefins
2507/005 . modified
2507/01 . Polyethylene
2507/015 . . modified
2507/02 . Polypropylene
2507/025 . . modified

2508/00 Polysters
2518/00 Other type of polymers
2518/10 . Silicon-containing polymers
2518/12 . . Ceramic precursors (polysiloxanes, polysilazanes)
2520/00 Water-based dispersions
2520/05 . Latex
2520/10 . PVC [Plastisol]
2530/00 Rubber or the like

2601/00 Inorganic fillers
2601/02 . used for pigmentation effect, e.g. metallic effect
2601/04 . . Mica
2601/06 . . . Coated Mica
2601/08 . . Aluminium flakes or platelets
2601/10 . . Other metals
2601/20 . used for non-pigmentation effect
2601/22 . . Silica
2601/24 . . Titanium dioxide, e.g. rutile
2601/26 . . Abrasives
2601/28 . . Metals
2602/00 Organic fillers

2701/00 Coatings being able to withstand changes in the shape of the substrate or to withstand welding
2701/10 . withstanding draw and redraw process, punching
2701/20 . withstanding rolling
2701/30 . withstanding bending
2701/40 . withstanding welding