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; [N: coating of foodstuffs A23P1/084, A23P1/085])

Definition statement

This subclass/group covers:

Processes for coating substrates in general only. Coating processes for specific application should be classified in the application field first, they should only be classified in B05D if they have a more general interest.

Relationship between large subject matter areas

Apparatus for applying liquids or other fluent materials to surfaces B05B, B05C.

References relevant to classification in this subclass

This subclass/group does not cover:

Coating on glass	C03C
Coating on ceramic	C04B 41/00
Coating on paper	D21H
Coating on semi-conductors	H01L
Coating on textiles	D06N
Coating on foodstuffs	A23P 1/084, A23P 1/085

Special rules of classification within this subclass

Coating processes for specific application should be classified in the application field first, they should only be classified in B05D if they have a more general interest.

Glossary of terms

In this subclass/group, the following terms (or expressions) are used with the meaning indicated:

Coating	The applied material. A coating may be a solidified layer originally applied as a liquid (e.g. dried paint) or a layer of material which, once applied, remains in a liquid or semi-liquid state (e.g. lubricant).
Flocking	The deposition of fibre particles (‘flock’) upon a surface where the particles land non-parallel to the surface. The process may be facilitated by the application of electrostatic charge to the flock to cause its attraction to an adhesive-coated surface (‘electrostatic flocking’). This results in the fibres standing perpendicular to the surface.
Fluidised-bed technique	A technique used to cause dry particulate material to behave like a fluid. This is commonly achieved by the introduction of a pressurised fluid into the material and promotes a high degree of contact between the fluid and material.
Liquid or fluent	designates materials which can flow, e.g. liquids, including solutions, dispersions and suspensions, as well as semi-liquids, pastes, melts and particulate materials.
Particulate materials	Solid materials in the form of very small pieces, e.g. powders, granules, short fibres or chips.
Langmuir-Blodgett films (LB)	Contains one or more monolayers of an organic material, deposited from the surface of a liquid onto a solid by immersing (emersing) the solid substrate into (or from) the liquid, the layer being compressed before deposition
SAM	Self assembled monolayers that are formed spontaneously by adsorption of amphifunctional molecules at solid-liquid and solid-gas interfaces,

	forming organised molecular assemblies

B05D 1/00

Processes for applying liquids or other fluent materials (B05D5/00, B05D7/00 take precedence)

B05D 1/002

[N: the substrate being rotated]

Definition statement

This subclass/group covers:

Processes where the substrate is rotated during coating or during drying/curing of the coating.

B05D 1/005

[N: Spin coating]

References relevant to classification in this group

This subclass/group does not cover:

Spin coating on wafers	H01L 21/00

B05D 1/007

[N: using an electrostatic field (B05D1/02 to B05D1/16 take precedence)]

References relevant to classification in this group

This subclass/group does not cover:

Electrodeposition	C25D
Electrostatic spraying	B05D 1/04-B05D 1/06

B05D 1/02

performed by spraying

Relationship between large subject matter areas

Spraying apparatus are in B05B.

B05D 1/025

[N: using gas close to its critical state]

Definition statement

This subclass/group covers:

Spraying with supercritical solvents or solvent close to their supercritical state.

B05D 1/045

[N: on non-conductive substrates]

Definition statement

This subclass/group covers:

Electrostatic spraying of substrates which are normally non-conductive e.g. wood, plastic, whether they got a treatment for enhancing their conductivity or not. The treatment for enhancing the substrate conductivity per se is classified in B05D 3/005. The type of substrate can be classified with additional information symbols.

Special rules of classification within this group

- The treatment for enhancing the substrate conductivity per se is classified in B05D 3/005.

- The type of substrate can be classified with symbols chosen from L05D 251/00-B05D 2210/00.

B05D 1/06

Applying particulate materials

Definition statement

This subclass/group covers:

Processes for applying fluent materials by spraying only particulate materials, e.g. powder involving the use of an electrostatic field

Special rules of classification within this group

If the substrate is non-conductive, then classify also in B05D 1/045.

B05D 1/08

Flame spraying

Definition statement

This subclass/group covers:
Spraying with flames or plasma of polymers only.

References relevant to classification in this group

This subclass/group does not cover:

Flame/plasma spraying of inorganic compounds.	C23C 4/00

B05D 1/10

Applying particulate materials

Definition statement

This subclass/group covers:
Flame/plasma spraying of polymeric powders.

References relevant to classification in this group

This subclass/group does not cover:

Flame/plasma spraying of inorganic powders.	C23C 4/00

B05D 1/14

Flocking

References relevant to classification in this group

This subclass/group does not cover:

Flocking on textiles	D06Q 1/14

Informative references

Attention is drawn to the following places, which may be of interest for search:

Non-woven pile fabrics	D04H 11/00

B05D 1/16

Flocking otherwise than by spraying

References relevant to classification in this group

This subclass/group does not cover:

Flocking on textiles	D06Q 1/14

B05D 1/18

performed by dipping

Informative references

Attention is drawn to the following places, which may be of interest for search:

Impregnating wood	B27K 3/00
Treatment of fibers or yarn, not provided for elsewhere in classD06	D06M
Immersion processes for applying the coating material in the molten state, e.g molten metal immersion	C23C 2/00

B05D 1/185

[N: applying monomolecular layers (B05D1/204 takes precedence)]

Definition statement

This subclass/group covers:

Process for making self assembled monolayers (SAM).

B05D 1/202

[N: Langmuir Blodgett films (LB films)]

Special rules of classification within this group

Apparatus for LB deposition are classified in B05D 7/20C5 and not B05C.

B05D 1/206

[N: LB troughs]

Definition statement

This subclass/group covers:

Langmuir-Blodgett troughs that are laboratory apparatus used to compress monolayers of molecules on the surface of the subphase before deposition. It can be used to deposit single or multiple monolayers on a solid substrate.

Special rules of classification within this group

LB troughs are not classified in B05C but here.

B05D 1/22

using fluidised-bed technique (fluidised-bed technique in general B01J8/24)

References relevant to classification in this group

This subclass/group does not cover:

Coating of powders	B01J 2/00

B05D 1/32

using means for protecting parts of a surface not to be coated, e.g. using stencils, resists

Special rules of classification within this group

Mask per se are classified in B05B/B05C.

B05D 1/322

[N: Removable films used as masks]

Definition statement

This subclass/group covers:

Films used as masks when they are obtained by a coating process.

Special rules of classification within this group

Adhesive tapes for using as mask are classified in B05B 15/04 or C09J.

B05D 1/36

Successively applying liquids or other fluent materials, e.g. without intermediate treatment

Definition statement

This subclass/group covers:

Coating made of two layers wherein an important interaction exists

between the layers ,e.g. one layer can only harden when in contact with the other layer or with a specific component of the other layer.

Relationship between large subject matter areas

Other multilayers are classified in B05D 7/50.

Special rules of classification within this group

Symbols as invention or additional information of the multilayers classes (B05D 7/50) should also be given.

B05D 1/38

with intermediate treatment (intermediate treatment per se B05D3/00)

Definition statement

This subclass/group covers:

Coating made of two layers wherein an important interaction exists between the layers ,e.g. one layer can only harden when in contact with the other layer or with a specific component of the other layer.

Intermediate treatemt corresponds to any treatment done after the deposition of the first layer and before the deposition of the next layer, e.g. drying

Relationship between large subject matter areas

Other multilayers are classified in B05D 7/50.

Special rules of classification within this group

Symbols as invention or additional information of the multilayers classes (B05D 7/50) should also be given.

B05D 1/40

Distributing applied liquids or other fluent materials by members moving relatively to surface

Definition statement

This subclass/group covers:

The redistribution of the coating after it is applied (e.g. flattening).

B05D 1/60

[N: Deposition of organic layers from vapour phase (vapour phase deposition in general C23C14/00, C23C16/00)]

References relevant to classification in this group

This subclass/group does not cover:

PVD/CVD of inorganic layers.	C23C 14/00-C23C 16/56

B05D 1/62

[N: Plasma-deposition of organic layers (plasma deposition in general C23C14/00, C23C16/00)]

References relevant to classification in this group

This subclass/group does not cover:

PVD/CVD of inorganic layers.	C23C 14/00-C23C 16/00

B05D 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

Relationship between large subject matter areas

Drying ovens are classified in F26B

B05D 3/002

[N: Pretreatement]

Definition statement

This subclass/group covers:

Pretreatments when not covered by the other subgroups of B05D 3/00

B05D 3/005

[N: Pretreatment for allowing a non-conductive substrate to be electrostatically coated]

Special rules of classification within this group

A symbol in B05D 1/045 should also be given.

B05D 3/0209

[N: Multistage baking]

Definition statement

This subclass/group covers:

Processes wherein several baking/curing steps are used even when they are radiation post treatments (B05D 3/06).

Special rules of classification within this group

Symbols chosen from B05D 3/02-B05D 3/08 corresponding to each curing / hardening process) should be given.

B05D 3/06

by exposure to radiation (B05D3/02 takes precedence; [N: plasma treatment B05D3/141])

Special rules of classification within this group

Laser treatments when nor specifically UV laser are classified in B05D 3/06.

B05D 3/067

[N: Curing or cross-linking the coating]

Definition statement

This subclass/group covers:

UV after-treatment of applied coatings being the curing or cross-linking of the coatings

Relationship between large subject matter areas

Discharge lamps including tubes emitting UV light are classified in H01J

Light filters for filtering UV are classified in F21V 9/06

LEDs emitting UV light are classified in H01L 33/00

Special rules of classification within this group

Some UV curing apparatus are classified here when the apparatus is characterised by technical details other than only the UV lamp.

B05D 3/20

[N: by magnetic fields]

Informative references

Attention is drawn to the following places, which may be of interest for search:

Magnetic information supports	G11B 5/00

Special rules of classification within this group

Magnetic information supports are not classified in B05D 3/20.

B05D 5/00

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

Definition statement

This subclass/group covers:

Processes for applying liquid or other fluent materials to surfaces in order to have surface effects, finishes or structures, e.g. decorative effects.

The subgroups characterise a specific surface effect or structure, e.g. B05D 5/06 concerns multicolour or optical effects

B05D 5/063

[N: Reflective effect (B05D5/067 takes precedence)]

Relationship between large subject matter areas

Optical elements, systems: G02B.

B05D 5/066

[N: achieved by multilayers]

Definition statement

This subclass/group covers:

Processes for applying liquids or other fluents materials to surfaces to obtain colour interferences or colour shifts or opalescent looking by multilayers

Special rules of classification within this group

Symbols in the multilayers classes (L05D 7/00N) should be given when appropriate.

B05D 5/068

[N: achieved by multilayers (B05D5/066 takes precedence)]

Definition statement

This subclass/group covers:

Processes for applying liquids or other fluents materials to surfaces to obtain metallic effect by multilayers

Special rules of classification within this group

Symbols in the multilayers classes (L05D 7/00N) should be given when appropriate.

B05D 5/08

to obtain an anti-friction or anti-adhesive surface (rendering particulate materials free-flowing in general, e.g. making them hydrophobic B01J2/30)

Informative references

Attention is drawn to the following places, which may be of interest for search:

See also anti-adhesive pans.	A47J 36/02

B05D 5/10

to obtain an adhesive surface

Special rules of classification within this group

Not used See C09J 5/00.

B05D 5/12

to obtain a coating with specific electrical properties

Special rules of classification within this group

Not used, see more pertinent fields: H01B, H01G, H01M, H01L, H05K etc.

B05D 7/00

Processes, other than flocking, specially adapted for applying liquids or other fluent materials to particular surfaces or for applying particular liquids or other fluent materials [N: (coating of foodstuffs A23P1/084, A23P1/085)]

References relevant to classification in this group

This subclass/group does not cover:

Coating of foodstuff	A23P 1/084, A23P 1/085

B05D 7/02

to macromolecular substances, e.g. rubber (treatment or coating of shaped articles made of macromolecular

substances C08J7/00)

Informative references

Attention is drawn to the following places, which may be of interest for search:

Chemical treatment or coating of shaped articles made of macromolecular substances	C08J 7/00

Special rules of classification within this group

Used as Invention symbol but not as additional symbol, B05D 2201/00-B05D 2201/06 symbols are used instead.

B05D 7/04

to surfaces of films or sheets (producing layered products by applying coatings of pasty or pulverulent plastics B29C41/00)

References relevant to classification in this group

This subclass/group does not cover:

Production of layered product by applying coatings of pasty or pulverulent plastics if the layers are not coated on a definitive substrate (e.g. if the substrate is used as moulding surface and separated afterwards or if there is no substrate)	B29C 41/00, B29D 9/00

Special rules of classification within this group

Used as invention symbol but not as additional symbol, B05D 2201/00-B05D 2201/06 symbols are used instead

B05D 7/06

to wood

Relationship between large subject matter areas

Impregnation of wood is classified in B27K.

Special rules of classification within this group

Used as invention information symbol but not as additional information symbol, B05D 2203/20 symbol is used instead

B05D 7/08

using synthetic lacquers or varnishes

Special rules of classification within this group

Used as invention information symbol but not as additional information symbol, B05D 2203/20 symbol is used.

B05D 7/10

based on cellulose derivatives

Definition statement

This subclass/group covers:

Processes other than flocking, specially adapted for applying synthetic lacquers or varnishes based on cellulose derivatives

to wood

Special rules of classification within this group

Used as invention information symbol but not as additional information symbol , use instead B05D 2203/20.

B05D 7/12

to leather (chemical treatment of leather C14C; dyeing leather D06P)

Relationship between large subject matter areas

Surface finishing of leather C14C 11/00

References relevant to classification in this group

This subclass/group does not cover:

Dyeing of leather	D06P

Special rules of classification within this group

Used as invention information symbol but not as additional information symbol, B05D 2203/24 symbol is used instead.

B05D 7/14

to metal, e.g. car bodies (involving a chemical reaction between the metal and the coating C23)

Informative references

Attention is drawn to the following places, which may be of interest for search:

Anticorrosive treatments	C23C
Anticorrosive compositions	C09D

Special rules of classification within this group

Used as invention information symbol but not as additional information symbol, B05D 2202/00-B05D 2202/45 symbols are used instead.

B05D 7/142

[N: Auto-deposited coatings, i.e. autophoretic coatings]

References relevant to classification in this group

This subclass/group does not cover:

Autophoretic compositions.	C09D 5/08

B05D 7/148

[N: using epoxy-polyolefin systems in mono- or multilayers]

Special rules of classification within this group

Symbols in the multilayer range (L05D 7/00N) should also be given.

B05D 7/16

using synthetic lacquers or varnishes

Definition statement

This subclass/group covers:

Processes other than flocking, specially adapted for applying synthethic lacquers or varnishes to metal

Special rules of classification within this group

Used as invention information symbol but not as additional informtion symbol, B05D 2202/00-B05D 2202/45 symbols are used instead.

B05D 7/18

based on cellulose derivatives

Definition statement

This subclass/group covers:

Processes other than flocking, specially adapted for applying synthetic lacquers or varnishes based on cellulose derivatives

to metal

Special rules of classification within this group

Used as invention symbol but not asadditional symbol, B05D 2202/00-B05D 2202/45 symbols are used instead.

B05D 7/20

to wires (for insulating electric cables H01B13/16)

References relevant to classification in this group

This subclass/group does not cover:

Apparatus or processes specially adapted for insulating conductors or cables	H01B 13/06

B05D 7/26

synthetic lacquers or varnishes (B05D7/08, B05D7/16 take precedence)

Definition statement

This subclass/group covers:

Processes for applying synthethic lacquers or varnishes

Relationship between large subject matter areas

Coating compositions are classified in C09D.

References relevant to classification in this group

This subclass/group does not cover:

Processes other than flocking, specially adapted for applying synthethic lacquers or varnishes to wood	B05D 7/08
Processes other than flocking, specially adapted for applying synthethic lacquers or varnishes to metal	B05D 7/16

Special rules of classification within this group

Almost not used, only used if no other relevant class can be found.

B05D 7/50

Multilayers

Definition statement

This subclass/group covers:

Multilayers are made from several coatings made from fluid materials or powders on a substrate.

Relationship between large subject matter areas

When a layer is applied as a self sustainable film, then it should be classified in B32B.

INDEXING SCHEME RELATING TO PROCESSES FOR APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL

B05D 2401/00

Type of carrier, type of coating (Monolayers)

Definition statement

This subclass/group covers:

The type of coating or carrier , e.g. powder coating, organic solvent solution, etc. when they are specified and are of interest in the invention.

Special rules of classification within this group

The symbols are given when the type of coatings are specified and are of interest in the invention.

B05D 2420/00

Position of each layer within a multilayer coating relative to the substrate

Definition statement

This subclass/group covers:

Symbols for indicating in a multilayer coating, the position of the layer concerned by particular information.

Special rules of classification within this group

These symbols are used in combination with other type of symbols by using a C-set : adding the part of the B05D 2420/00 symbols after B05D subgroups symbols, the symbols being separated by a "," sign.

Example: B05D 2503/00, B05D 2420/02 means that the second layer (from the substrate) is mainly composed of polyurethane.

B05D 2425/00

Position of each layer within a multilayer coating relative to the surface

Definition statement

This subclass/group covers:

Symbols for indicating in a multilayer coating, the position of the layer concerned by certain information.

Special rules of classification within this subclass/group

These symbols are used in combination with other type of symbols by using a

C-set: adding the part of the B05D 2425/00 symbols after B05D subgroups symbols, the symbols being separated by a "," sign.

Example: B05D 2503/00, B05D 2425/01 means that the top layer is mainly composed of polyurethane.

B05D 2451/00

Type of carrier, type of coating (Multilayers)

Definition statement

This subclass/group covers:

The type of coating in the meaning of B05D 2401/00 symbols for multilayers.

Special rules of classification within this group

For multilayers, the types of coating are indicated by using a C-set: adding the part of the B05D 2401/00 symbols after B05D subgroups symbols in the order of the layers (from substrate to surface) separated by a "," sign.

Example: B05D 2451/00, B05D 2401/32, B05D 2401/20, B05D 2401/20

401/32 = first layer (closer to substrate) being a coating applied as powder

401/20 = 2nd layer being applied as aqueous dispersion or solution

401/20 = 3rd layer being applied as aqueous dispersion or solution

B05D 2500/00

Type of polymer coating.

Definition statement

This subclass/group covers:

Type of polymer coating. The subgroups in the B05D 2500/00 range concerns a broad information on the type of coating as far as this is a process feature, The coating composition should be classified in C09D.

References relevant to classification in this group

This subclass/group does not cover:

Coating compositions.	C09D

Special rules of classification within this group

In this range , a C-set combination is used: after the symbol of B05D 2500/00 subgroups and separated by a "," sign, it is desirable for multilayers to add a symbol from the B05D 2400/00 subgroups to indicated which layer is concerned or any other information that can give these symbols.