

## B05D

**PROCESSES FOR APPLYING FLUENT MATERIALS TO SURFACES, IN GENERAL** (conveying articles or workpieces through baths of liquid [B65G](#), e.g. [B65G 49/02](#))

### Definition statement

*This place 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.

### Relationships with other classification places

Apparatus for applying liquids or other fluent materials to surfaces [B05B](#), [B05C](#).

### References

#### Limiting references

*This place does not cover:*

Coating on foodstuffs	<a href="#">A23P 20/17</a> , <a href="#">A23P 20/15</a> , <a href="#">A23P 20/18</a>
Coating on glass	<a href="#">C03C</a>
Coating on ceramic	<a href="#">C04B 41/00</a>
Coating on textiles	<a href="#">D06N</a>
Coating on paper	<a href="#">D21H</a>
Coating on semi-conductors	<a href="#">H01L</a>

### Special rules of classification

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 place, 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 (emerging) 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 1/002**

**{the substrate being rotated}**

### **Definition statement**

*This place covers:*

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

## **B05D 1/005**

**{Spin coating}**

### **References**

#### **Limiting references**

*This place does not cover:*

Spin coating on wafers	<a href="#">H01L 21/00</a>
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## **B05D 1/007**

**{using an electrostatic field ([B05D 1/02](#) - [B05D 1/16](#) take precedence)}**

### **References**

#### **Limiting references**

*This place does not cover:*

Electrostatic spraying	<a href="#">B05D 1/04</a> - <a href="#">B05D 1/06</a>
Electrodeposition	<a href="#">C25D</a>

## **B05D 1/02**

**performed by spraying**

### **Relationships with other classification places**

Spraying apparatus are in [B05B](#).

**B05D 1/025****{using gas close to its critical state}****Definition statement***This place covers:*

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

**B05D 1/045****{on non-conductive substrates}****Definition statement***This place 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**

- 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 [B05D 2203/00](#) -[B05D 2210/00](#).

**B05D 1/06****Applying particulate materials****Definition statement***This place 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**If the substrate is non-conductive, then classify also in [B05D 1/045](#).**B05D 1/08****Flame spraying****Definition statement***This place covers:*

Spraying with flames or plasma of polymers only.

**References****Limiting references***This place does not cover:*

Flame/plasma spraying of inorganic compounds.	<a href="#">C23C 4/00</a>
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**B05D 1/10****Applying particulate materials****Definition statement**

*This place covers:*

Flame/plasma spraying of polymeric powders.

**References****Limiting references**

*This place does not cover:*

Flame/plasma spraying of inorganic powders.	<a href="#">C23C 4/00</a>
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**B05D 1/14****Flocking****References****Limiting references**

*This place does not cover:*

Flocking on textiles	<a href="#">D06Q 1/14</a>
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**Informative references**

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

Non-woven pile fabrics	<a href="#">D04H 11/00</a>
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**B05D 1/16****Flocking otherwise than by spraying****References****Limiting references**

*This place does not cover:*

Flocking on textiles	<a href="#">D06Q 1/14</a>
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**B05D 1/18****performed by dipping****References****Informative references**

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

Impregnating wood	<a href="#">B27K 3/00</a>
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Immersion processes for applying the coating material in the molten state, e.g molten metal immersion	<a href="#">C23C 2/00</a>
Treatment of fibers or yarn, not provided for elsewhere in class <a href="#">D06</a>	<a href="#">D06M</a>

## B05D 1/185

{applying monomolecular layers ([B05D 1/204](#) takes precedence)}

### Definition statement

*This place covers:*

Process for making self assembled monolayers (SAM).

## B05D 1/202

{Langmuir Blodgett films (LB films)}

### Special rules of classification

Apparatus for LB deposition are classified in [B05D 1/206](#) and not [B05C](#).

## B05D 1/206

{LB troughs}

### Definition statement

*This place 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

LB troughs are not classified in [B05C](#) but here.

## B05D 1/22

using fluidised-bed technique (fluidised-bed technique in general [B01J 8/24](#))

### References

#### Limiting references

*This place does not cover:*

Coating of powders	<a href="#">B01J 2/00</a>
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## B05D 1/32

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

### Special rules of classification

Mask per se are classified in [B05B/B05C](#).

**B05D 1/322****{Removable films used as masks}****Definition statement**

*This place covers:*

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

**Special rules of classification**

Adhesive tapes for using as mask are classified in [B05B 12/16](#), [B05B 12/32](#) or [C09J](#).

**B05D 1/36****Successively applying liquids or other fluent materials, e.g. without intermediate treatment****Definition statement**

*This place 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.

**Relationships with other classification places**

Other multilayers are classified in [B05D 7/50](#).

**Special rules of classification**

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 [B05D 3/00](#))****Definition statement**

*This place 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 treatment corresponds to any treatment done after the deposition of the first layer and before the deposition of the next layer, e.g. drying

**Relationships with other classification places**

Other multilayers are classified in [B05D 7/50](#).

**Special rules of classification**

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 place covers:*

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

**B05D 1/60**

**{Deposition of organic layers from vapour phase (vapour phase deposition in general [C23C 14/00](#), [C23C 16/00](#))}**

**References****Limiting references**

*This place does not cover:*

PVD/CVD of inorganic layers.	<a href="#">C23C 14/00</a> - <a href="#">C23C 16/56</a>
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**B05D 1/62**

**{Plasma-deposition of organic layers (plasma deposition in general [C23C 14/00](#), [C23C 16/00](#))}**

**References****Limiting references**

*This place does not cover:*

PVD/CVD of inorganic layers.	<a href="#">C23C 14/00</a> - <a href="#">C23C 16/00</a>
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**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 (successively applying liquids or other fluent materials [B05D 1/36](#); drying ovens [F26B](#))**

**Relationships with other classification places**

Drying ovens are classified in [F26B](#)

**B05D 3/002**

**{Pretreatment}**

**Definition statement**

*This place covers:*

Pretreatments when not covered by the other subgroups of [B05D 3/00](#)

**B05D 3/005**

**{Pretreatment for allowing a non-conductive substrate to be electrostatically coated}**

**Special rules of classification**

A symbol in [B05D 1/045](#) should also be given.

**B05D 3/0209**

**{Multistage baking}**

**Definition statement**

*This place covers:*

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

**Special rules of classification**

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 ([B05D 3/02](#) takes precedence {; plasma treatment [B05D 3/141](#)})**

**Special rules of classification**

Laser treatments when not specifically UV laser are classified in [B05D 3/06](#).

**B05D 3/067**

**{Curing or cross-linking the coating}**

**Definition statement**

*This place covers:*

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

**Relationships with other classification places**

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 [H10H 20/00](#)

**Special rules of classification**

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



**B05D 3/20****{by magnetic fields}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Magnetic information supports	<a href="#">G11B 5/00</a>
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**Special rules of classification**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 place 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****{Reflective effect ([B05D 5/067](#) takes precedence)}****Relationships with other classification places**Optical elements, systems: [G02B](#).**B05D 5/066****{achieved by multilayers}****Definition statement***This place 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**Symbols in the multilayers classes ([B05D 7/50](#) ) should be given when appropriate.

**B05D 5/068**

{achieved by multilayers ([B05D 5/066](#) takes precedence)}

**Definition statement**

*This place covers:*

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

**Special rules of classification**

Symbols in the multilayers classes ([B05D 7/50](#)) 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 [B01J 2/30](#))

**References****Informative references**

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

See also anti-adhesive pans.	<a href="#">A47J 36/02</a>
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**B05D 5/10**

to obtain an adhesive surface

**Special rules of classification**

Not used See [C09J 5/00](#).

**B05D 5/12**

to obtain a coating with specific electrical properties

**Special rules of classification**

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 {(coating of foodstuffs [A23P 20/17](#), [A23P 20/15](#), [A23P 20/18](#))}

**References****Limiting references**

*This place does not cover:*

Coating of foodstuff	<a href="#">A23P 20/17</a> , <a href="#">A23P 20/15</a> , <a href="#">A23P 20/18</a>
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**B05D 7/02**

to macromolecular substances, e.g. rubber (treatment or coating of shaped articles made of macromolecular substances [C08J 7/00](#))

**References****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	<a href="#">C08J 7/00</a>
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**Special rules of classification**

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 [B29C 41/00](#))

**References****Limiting references**

This place 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)	<a href="#">B29C 41/00</a>
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**Special rules of classification**

Used as invention symbol but not as additional symbol, [B05D 2201/00-B05D 2201/06](#) symbols are used instead

**B05D 7/06**

to wood

**Relationships with other classification places**

Impregnation of wood is classified in [B27K](#).

**Special rules of classification**

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**

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 place covers:*

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

**Special rules of classification**

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](#))****Relationships with other classification places**

Surface finishing of leather [C14C 11/00](#)

**References****Limiting references**

*This place does not cover:*

Dyeing of leather	<a href="#">D06P</a>
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**Special rules of classification**

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](#))****References****Informative references**

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

Anticorrosive compositions	<a href="#">C09D</a>
Anticorrosive treatments	<a href="#">C23C</a>

**Special rules of classification**

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

**B05D 7/142**

**{Auto-deposited coatings, i.e. autophoretic coatings}**

**References****Limiting references**

*This place does not cover:*

Autophoretic compositions.	<a href="#">C09D 5/08</a>
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**B05D 7/148**

**{using epoxy-polyolefin systems in mono- or multilayers}**

**Special rules of classification**

Symbols in the multilayer range ([B05D 7/50](#)) should also be given.

**B05D 7/16**

**using synthetic lacquers or varnishes**

**Definition statement**

*This place covers:*

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

**Special rules of classification**

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

**B05D 7/18**

**based on cellulose derivatives**

**Definition statement**

*This place covers:*

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

**Special rules of classification**

Used as invention symbol but not as additional symbol, [B05D 2202/00-B05D 2202/45](#) symbols are used instead.

**B05D 7/20**

to wires (for insulating electric cables [H01B 13/16](#))

**References****Limiting references**

*This place does not cover:*

Apparatus or processes specially adapted for insulating conductors or cables	<a href="#">H01B 13/06</a>
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**B05D 7/26**

synthetic lacquers or varnishes ([B05D 7/08](#), [B05D 7/16](#) take precedence)

**Definition statement**

*This place covers:*

Processes for applying synthetic lacquers or varnishes

**Relationships with other classification places**

Coating compositions are classified in [C09D](#).

**References****Limiting references**

*This place does not cover:*

Processes other than flocking, specially adapted for applying synthetic lacquers or varnishes to wood	<a href="#">B05D 7/08</a>
Processes other than flocking, specially adapted for applying synthetic lacquers or varnishes to metal	<a href="#">B05D 7/16</a>

**Special rules of classification**

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

**B05D 7/50****{Multilayers}****Definition statement**

*This place covers:*

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

**Relationships with other classification places**

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**

**Form of the coating product, e.g. solution, water dispersion, powders or the like**

**Definition statement**

*This place 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**

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

**B05D 2420/00**

**Indexing scheme corresponding to the position of each layer within a multilayer coating relative to the substrate**

**Definition statement**

*This place covers:*

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

**Special rules of classification**

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**

**Indexing scheme corresponding to the position of each layer within a multilayer coating relative to the surface**

**Definition statement**

*This place covers:*

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

**Special rules of classification**

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 place covers:*

The type of coating in the meaning of [B05D 2401/00](#) symbols for multilayers.

#### Special rules of classification

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

### Indexation scheme for the composition of layers

#### Definition statement

*This place 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

##### Limiting references

*This place does not cover:*

Coating compositions.	<a href="#">C09D</a>
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#### Special rules of classification

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.