

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

SHAPING

B32 LAYERED PRODUCTS

B32B LAYERED PRODUCTS, i.e. PRODUCTS BUILT-UP OF STRATA OF FLAT OR NON-FLAT, e.g. CELLULAR OR HONEYCOMB, FORM

NOTES

1. This subclass covers:
 - layered products comprising different kinds of material or layered products not characterised by the particular kind of material used;
 - a product similar to a layered product but comprising only material in the form of a sheet or network embedded in a mass of plastics or of physically-similar substances which mass penetrates the said sheet or network and lies on both sides of the latter (e.g. so that the sheet or network reinforces the plastics substance) PROVIDED THAT the embedded sheet or network extends coherently or connectedly over substantially the whole area of the product; thus the embedded sheet or network may be a fabric or a series of rods connected by cross wires. The manner of making such a product is, however, classified in this subclass only if it is essentially a process of building-up an assembly of layers of which at least one outer layer is preformed. If the embedded material comprises only a series of unconnected rods, the product is not classified in this subclass.
2. This subclass does not cover:
 - processes or apparatus used in, or in connection with, the production or treatment of any product, if the process or apparatus is fully classifiable in a single other class or subclass for processes or apparatus, e.g. [B05](#), [B29](#), [B44D](#), [C08J](#), [C09J](#), [C23](#);
 - compositions or preparation or treatment thereof, unless they are essentially restricted to layered products and cannot be fully classified in another class without ignoring this restriction;
 - etched metallic pattern on the surface of a printed circuit board.
3. In this subclass:
 - a film formed on a layer by spreading a substance thereon is not considered to constitute a layer itself if it serves only as an adhesive or its purpose is merely to finish a surface of a product
 - {with exclusion to [B32B 15/01](#) - [B32B 15/018](#), a coating formed directly onto a substrate layer is not considered to constitute a layer when at the moment of its contact with the substrate it does not have the form of a layer with the exception of layers that come under the meaning of Note (4).}
 - {groups designating products cover also methods or apparatus specially adapted for producing such products.}
4. In this subclass, the following terms or expressions are used with the meanings indicated:
 - "layer" is a sheet or strip or anything else having a small thickness relatively to its other dimensions which, together with at least one other layer, exists in a product, whether it pre-existed, e.g. as a separate sheet or strip, or was formed during the production of the layered product{, e.g. formed in-situ as with casting, extrusion or moulding. It may be deformed out of the flat plane to form a three-dimensional shape}. It may or may not be homogeneous or cohesive; it may be an assembly of fibres or pieces of material. It may be discontinuous, e.g. in the form of a grating, honeycomb, or frame. It may or may not be in complete contact with the next layer, e.g. a corrugated layer against a flat layer;
 - "layered product" comprises at least two layers secured together. The term "secured" includes any method of uniting layers, e.g. needling, stitching, gluing, nailing, dovetailing or the interposition of an adhesive or adhesive impregnated support. It may also be an intermediate stage in the production of an article which is not layered in its final form, e.g. a panel with a protective layer {that} is stripped off when the panel is placed in its position of use. The layers are preformed layers or layers formed IN SITU on a preformed layer and may consist of coherent solid materials, including honeycombs and other cellular materials or of non-coherent solid materials composed of assemblies of strands, strips, fibres, tiles or the like;
 - "filamentary layer" means a layer of threads or filaments of any substance (e.g. wires) of more or less unlimited length placed in an orderly arrangement and secured together; it may be woven, knitted, braided, or netted, or formed of threads crossed or laid side by side and bonded together;
 - "fibrous layer" means a random assembly of fibres or filaments, usually of limited length, e.g. felt, fleece; the fibres {being} interengaged or connected, e.g. by adhesive.
5. If a layered product is characterised by the way it is produced and not by its structure or composition, the production method should be classified in groups [B32B 37/00](#) or [B32B 38/00](#), or in subclass [B29C](#), for example in groups [B29C 45/16](#) or [B29C 48/18](#).
6. {In this subclass,}

B32B

B32B

(continued)

- The classification of layered products is provided for in many classes, most of which are confined to a particular kind of material. However, in order that this subclass may provide a basis for making a complete search with respect to layered products, all relevant subject matter is classified in this subclass even though it may also be classified in other classes.
- 7. {In groups [B32B 37/00](#), [B32B 38/00](#), [B32B 41/00](#) and [B32B 39/00](#), the following expressions are used with the meaning indicated:
 - "lay-up" is considered to be the action of combining separate layers, one on top of the other, in order to form a half-product for entering the laminating process
 - "laminating" means the action of combining previously unconnected but possibly laid up layers to become one product whose layers will remain together;
 - "partial laminating" occurs when one layer does not fully cover a surface of another layer, whereby the layer with the greater surface area is laminated on only part of its surface or when two coextensive layers are bonded on only part of their facing surfaces;
 - "adhesive" means a substance applied in any state or in any manner, which has bonding properties.}
- 8. {In this subclass, combination sets [C-Sets] are used. The detailed information about the C-Sets construction and the associated syntax rules are found in the definitions of [B32B](#).}

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

B32B 3/24	covered by	B32B 3/266
B32B 17/12	covered by	B32B 17/067

1/00	Layered products having a non-planar shape	3/16	. . . secured to a flexible backing
	NOTE	3/18	. . characterised by an internal layer formed of separate pieces of material {which are juxtaposed side-by-side (B32B 5/02 takes precedence)}
	For classification of a product in this group, surface unevennesses or non-uniformities and the shape of individual layers are ignored.	3/20	. . . of hollow pieces, e.g. tubes; of pieces with channels or cavities
1/08	. Tubular products	3/22	. . . of spaced pieces {(not used)}
3/00	Layered products comprising a layer with external or internal discontinuities or unevennesses, or a layer of non-planar shape; Layered products comprising a layer having particular features of form	3/26	. characterised by a particular shape of the outline of the cross-section of a continuous layer; characterised by a layer with cavities or internal voids {(foam layer B32B 5/18 ; layer of synthetic resin characterised by fillers that create voids or cavities B32B 27/205); characterised by an apertured layer}
3/02	. characterised by features of form at particular places, e.g. in edge regions {(non-uniform thickness B32B 3/263)}	3/263	. . {characterised by a layer having non-uniform thickness}
3/04	. . characterised by {at least one} layer folded at the edge, e.g. over another layer {; characterised by at least one layer enveloping or enclosing a material}	3/266	. . {characterised by an apertured layer, the apertures going through the whole thickness of the layer, e.g. expanded metal, perforated layer, slit layer regular cells B32B 3/12 }
3/06	. . for securing layers together; for attaching the product to another member, e.g. to a support {, or to another product, e.g. groove/tongue, interlocking}	3/28	. . characterised by a layer comprising a deformed thin sheet {, i.e. the layer having its entire thickness deformed out of the plane}, e.g. corrugated, crumpled (B32B 29/08 takes precedence)
3/08	. . characterised by added members at particular parts {(layer formed of separate pieces of material which are juxtaposed side-by-side B32B 3/14 , B32B 3/18)}	3/30	. . characterised by a layer formed with recesses or projections, e.g. {hollows, grooves, protuberances, ribs (apertured layer B32B 3/266 ; layer with cavities or internal voids B32B 3/26)}
3/085	. . . {spaced apart pieces on the surface of a layer}		
3/10	. characterised by a discontinuous layer, i.e. formed of separate pieces of material	5/00	Layered products characterised by the non-homogeneity or physical structure {, i.e. comprising a fibrous, filamentary, particulate or foam layer; Layered products characterised by having a layer differing constitutionally or physically in different parts}
	NOTE		
	In this group, a series of spaced separate elements forming in effect a broken surface should {not} be regarded as a layer.		
3/12	. . characterised by a layer of regularly- arranged cells, e.g. a honeycomb structure		
3/14	. . characterised by a face layer formed of separate pieces of material {which are juxtaposed side-by-side (B32B 5/02 takes precedence)}		

- 5/02 . characterised by structural features of a {fibrous or filamentary} layer {(layer formed of metallic wires [B32B 15/02](#); layer formed of natural mineral fibres [B32B 19/02](#); layer formed of wood fibres [B32B 21/02](#))}
- NOTES**
1. This group covers, in addition to filamentary and fibrous layers as defined in Note (4) following the title of this subclass, layers of substances having an intrinsic fibrous nature (e.g. paper, wood), if the fibrous nature is important and the particular substance is not important.
 2. {When classifying in group [B32B 5/02](#), the chemical composition of the fibres is further classified by using the Indexing symbols [B32B 2262/00](#) - [B32B 2262/16](#).}
- 5/022 . . {Non-woven fabric}
- 5/024 . . {Woven fabric}
- 5/026 . . {Knitted fabric}
- 5/028 . . {Net structure, e.g. spaced apart filaments bonded at the crossing points}
- 5/04 . . characterised by a layer being specifically extensible by reason of its structure or arrangement {, e.g. by reason of the chemical nature of the fibres or filaments}
- 5/06 . . characterised by a fibrous {or filamentary} layer {mechanically connected, e.g. by needling} to another layer, e.g. of fibres, of paper
- WARNING**
- Group [B32B 5/06](#) is impacted by reclassification into groups [B32B 5/067](#) and [B32B 5/073](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 5/067 . . . {characterised by the fibrous or filamentary layer being mechanically connected by hydroentangling}
- WARNING**
- Group [B32B 5/067](#) is incomplete pending reclassification of documents from group [B32B 5/06](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 5/073 . . . {characterised by the fibrous or filamentary layer being mechanically connected to another layer by sewing, stitching, hook-and-loop fastening or stitchbonding}
- WARNING**
- Group [B32B 5/073](#) is incomplete pending reclassification of documents from group [B32B 5/06](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 5/08 . . the fibres or filaments of a layer being of different substances {, e.g. conjugate fibres, mixture of different fibres}
- 5/10 . . characterised by a fibrous {or filamentary} layer reinforced with filaments
- 5/12 . . characterised by the relative arrangement of fibres or filaments of {different layers, e.g. the fibres or filaments being parallel or perpendicular to each other}
- 5/14 . characterised by a layer differing constitutionally or physically in different parts, e.g. denser near its faces
- 5/142 . . {Variation across the area of the layer}
- 5/145 . . {Variation across the thickness of the layer}
- 5/147 . . {by treatment of the layer}
- 5/16 . characterised by features of a layer formed of particles, e.g. chips, powder {or granules (layer formed of natural mineral particles [B32B 19/00](#); layer being formed of wood fibres, chips or particles [B32B 21/02](#))}
- 5/18 . characterised by features of a layer {of} foamed material
- 5/20 . . foamed in situ
- 5/22 . characterised by the presence of two or more layers which {are next to each other and are fibrous, filamentary, formed of particles or foamed (layer formed of natural mineral fibres or particles next to a foam layer [B32B 19/047](#), next to a layer made of particles [B32B 19/048](#), or next to a fibrous or filamentary layer [B32B 19/06](#); paper layer or cardboard layer next to a paper layer or cardboard layer [B32B 29/005](#), next to a foam layer [B32B 29/007](#), next to a fibrous or filamentary layer [B32B 29/02](#), or next to a particulate layer [B32B 29/04](#))}
- 5/24 . . one layer being a fibrous or filamentary layer
- 5/245 . . . {another layer next to it being a foam layer}
- 5/26 . . . another layer {next to it} also being fibrous or filamentary {(relative arrangement of fibres or filaments of different layers [B32B 5/12](#))}
- WARNING**
- Group [B32B 5/26](#) is impacted by reclassification into groups [B32B 5/262](#), [B32B 5/263](#), [B32B 5/265](#), [B32B 5/266](#), [B32B 5/267](#), [B32B 5/268](#), [B32B 5/269](#), [B32B 5/271](#), [B32B 5/273](#), [B32B 5/275](#), [B32B 5/277](#), [B32B 5/279](#) and [B32B 5/2795](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 5/262 {characterised by one fibrous or filamentary layer being a woven fabric layer}
- WARNING**
- Groups [B32B 5/262](#) and [B32B 5/263](#) are incomplete pending reclassification of documents from group [B32B 5/26](#).
- Groups [B32B 5/26](#), [B32B 5/262](#) and [B32B 5/263](#) should be considered in order to perform a complete search.
- 5/263 {next to one or more woven fabric layers}

5/265 {characterised by one fibrous or filamentary layer being a non-woven fabric layer}

WARNING

Groups [B32B 5/265](#), [B32B 5/266](#), [B32B 5/267](#), [B32B 5/268](#), [B32B 5/269](#), [B32B 5/271](#) and [B32B 5/273](#) are incomplete pending reclassification of documents from group [B32B 5/26](#).

All groups listed in this Warning should be considered in order to perform a complete search.

5/266 {next to one or more non-woven fabric layers}

5/267 {characterised by at least one non-woven fabric layer that is a spunbonded fabric}

5/268 {characterised by at least one non-woven fabric layer that is a melt-blown fabric}

5/269 {characterised by at least one non-woven fabric layer that is a melt-blown fabric next to a non-woven fabric layer that is a spunbonded fabric}

5/271 {characterised by separate non-woven fabric layers that comprise chemically different strands or fibre material}

5/273 {including a separate net structure layer}

5/275 {characterised by one woven fabric layer next to a non-woven fabric layer}

WARNING

Groups [B32B 5/275](#) and [B32B 5/277](#) are incomplete pending reclassification of documents from group [B32B 5/26](#).

Groups [B32B 5/26](#), [B32B 5/275](#) and [B32B 5/277](#) should be considered in order to perform a complete search.

5/277 {including an additional non-woven fabric layer}

5/279 {characterised by a knit fabric layer next to a non-woven fabric layer}

WARNING

Group [B32B 5/279](#) is incomplete pending reclassification of documents from group [B32B 5/26](#).

Groups [B32B 5/26](#) and [B32B 5/279](#) should be considered in order to perform a complete search.

5/2795 {characterised by a knit fabric layer next to a woven fabric layer}

WARNING

Group [B32B 5/2795](#) is incomplete pending reclassification of documents from group [B32B 5/26](#).

Groups [B32B 5/26](#) and [B32B 5/2795](#) should be considered in order to perform a complete search.

5/28 impregnated with or embedded in a plastic substance {(not used)}

5/30 one layer {being formed of particles, e.g. chips,} granules, powder

5/32 {at least two} layers being foamed {and next to each other}

7/00 Layered products characterised by the relation between layers; Layered products characterised by the relative orientation of features between layers, or by the relative values of a measurable parameter between layers, i.e. products comprising layers having different physical, chemical or physicochemical properties; Layered products characterised by the interconnection of layers

7/02 Physical, chemical or physicochemical properties

7/022 Mechanical properties

7/023 Optical properties

7/025 Electric or magnetic properties

7/027 Thermal properties

7/028 Heat-shrinkability

7/03 with respect to the orientation of features (direction of fibres or filaments [B32B 5/12](#))

7/035 using arrangements of stretched films, e.g. of mono-axially stretched films arranged alternately

7/04 Interconnection of layers

7/05 the layers not being connected over the whole surface, e.g. discontinuous connection or patterned connection (using interposed adhesives or bonding materials applied in spaced arrangements [B32B 7/14](#))

7/06 permitting easy separation

7/08 by mechanical means

7/09 by stitching, needling or sewing (by {mechanically connecting} fibrous layers {to another layer} [B32B 5/06](#))

7/10 at least one layer having inter-reactive properties

7/12 using interposed adhesives or interposed materials with bonding properties

7/14 applied in spaced arrangements, e.g. in stripes

Layered products characterised by particular substances used

NOTE

In groups [B32B 9/00](#) - [B32B 29/00](#), the following expressions are used with the meanings indicated:

- "specific substance" covers specified alternative substances if they are all covered by a single main group;
- "particulate layer" means a layer of particles, e.g. chips, chopped fibres, powder;
- {"essentially" means that if an alteration or removal of such a layer occurred it would alter the scope of the invention}

9/00 Layered products comprising a {layer of a} particular substance not covered by groups [B32B 11/00](#) - [B32B 29/00](#)

9/002 {comprising natural stone or artificial stone}

9/005 {comprising one layer of ceramic material, e.g. porcelain, ceramic tile (layered products with at least two ceramic layers composed mainly of ceramic [B32B 18/00](#))}

9/007 {comprising carbon, e.g. graphite, composite carbon}

9/02 comprising animal or vegetable substances {, e.g. cork, bamboo, starch}

9/025 {comprising leather}

- 9/04 . . comprising such {particular} substance as the main or only constituent of a layer, {which is} next to another layer of {the same or of} a {different material (next to a glass layer [B32B 17/06](#); layered products with at least two ceramic layers composed mainly of ceramic [B32B 18/00](#))}
- 9/041 . . {of metal}
- 9/042 . . {of wood}
- 9/043 . . {of natural rubber or synthetic rubber}
- 9/045 . . {of synthetic resin}
- 9/046 . . {of foam}
- 9/047 . . {made of fibres or filaments}
- 9/048 . . {made of particles}
- 9/06 . . of paper or cardboard
- 11/00 Layered products comprising {a layer of} bituminous or tarry substances**
- 11/02 . . with fibres or particles {being present as additives in the layer}
- 11/04 . . comprising such {bituminous or tarry} substance as the main or only constituent of a layer, {which is} next to another layer of {the same or of} a {different material (next to a glass layer [B32B 17/06](#))}
- 11/042 . . {of wood}
- 11/044 . . {of natural rubber or synthetic rubber}
- 11/046 . . {of synthetic resin}
- 11/048 . . {of foam}
- 11/06 . . of paper or cardboard
- 11/08 . . of metal
- 11/10 . . next to a fibrous or filamentary layer
- 11/12 . . next to a particulate layer
- 13/00 Layered products comprising a {a layer of} water-setting substance, e.g. concrete, plaster, asbestos cement, or like builders' material**
- 13/02 . . with fibres or particles {being present as additives in the layer}
- 13/04 . . comprising such {water setting} substance as the main or only constituent of a layer, {which is} next to another layer of {the same or of} a {different material (next to a glass layer [B32B 17/06](#))}
- 13/042 . . {of natural rubber or synthetic rubber}
- 13/045 . . {of foam}
- 13/047 . . {made of particles}
- 13/06 . . of metal
- 13/08 . . of paper or cardboard
- 13/10 . . of wood; of wood particle board
- 13/12 . . of synthetic resin
- 13/14 . . next to a fibrous or filamentary layer
- 15/00 Layered products comprising {a layer of} metal**
- 15/01 . . all layers being exclusively metallic {(making layered metal workpieces by pressure cladding [B23K 20/22](#); making coatings with a metallic material characterised by its composition [C23C 30/00](#))}
- 15/011 . . {all layers being formed of iron alloys or steels}
- 15/012 . . {one layer being formed of an iron alloy or steel, another layer being formed of aluminium or an aluminium alloy}
- 15/013 . . {one layer being formed of an iron alloy or steel, another layer being formed of a metal other than iron or aluminium}
- 15/015 . . . {the said other metal being copper or nickel or an alloy thereof}
- 15/016 . . {all layers being formed of aluminium or aluminium alloys}
- 15/017 . . {one layer being formed of aluminium or an aluminium alloy, another layer being formed of an alloy based on a non ferrous metal other than aluminium}
- 15/018 . . {one layer being formed of a noble metal or a noble metal alloy}
- 15/02 . . {Layer formed of wires, e.g. mesh}
- 15/04 . . comprising metal as the main or only constituent of a layer, {which is} next to another layer of {the same or of} a {different material (next to a bituminous or tarry layer [B32B 11/08](#); next to a water-setting substance layer [B32B 13/06](#); next to a glass layer [B32B 17/06](#); next to a cellulosic plastic layer [B32B 23/04](#))}
- 15/043 . . {of metal ([B32B 15/01](#) takes precedence)}
- 15/046 . . {of foam}
- 15/06 . . of {natural rubber or synthetic} rubber
- 15/08 . . of synthetic resin
- 15/082 . . . comprising vinyl resins; comprising acrylic resins
- 15/085 . . . comprising polyolefins
- 15/088 . . . comprising polyamides
- 15/09 . . . comprising polyesters
- 15/092 . . . comprising epoxy resins
- 15/095 . . . comprising polyurethanes
- 15/098 . . . comprising condensation resins of aldehydes, e.g. with phenols, ureas or melamines
- 15/10 . . of wood
- 15/12 . . of paper or cardboard
- 15/14 . . next to a fibrous or filamentary layer
- 15/16 . . next to a particulate layer
- 15/18 . . comprising iron or steel {([B32B 15/011](#), [B32B 15/012](#) and [B32B 15/013](#) take precedence)}
- 15/20 . . comprising aluminium or copper {([B32B 15/016](#) and [B32B 15/017](#) take precedence)}
- 17/00 Layered products essentially comprising sheet glass, or glass, slag, or like fibres**
- NOTE**
- {In this group, a layer of organic glass is not considered as a glass layer but as a synthetic resin layer.}
- 17/02 . . in the form of fibres or filaments
- 17/04 . . bonded with or embedded in a plastic substance
- 17/06 . . comprising glass as the main or only constituent of a layer, next to another layer of a specific {material}
- 17/061 . . {of metal}
- 17/062 . . {of wood}
- 17/063 . . {of rubber}
- 17/065 . . {of paper or cardboard}
- 17/066 . . {of foam}
- 17/067 . . {of fibres or filaments}
- 17/068 . . {of particles}
- 17/069 . . {of intumescent material ([B32B 17/10311](#) takes precedence)}
- 17/08 . . of cellulosic plastic substance {or gelatin}
- 17/10 . . of synthetic resin

17/10005	{ laminated safety glass or glazing }	17/10321	{ Laminated safety glass or glazing containing liquid layers }
	NOTE	17/1033	{ Laminated safety glass or glazing containing temporary protective coatings or layers }
	{ In this group, C-Sets are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the Definitions of B32B . }	17/10339	{ Specific parts of the laminated safety glass or glazing being colored or tinted (tinted glass sheet B32B 17/1011 ; tinted interlayer B32B 17/10651) }
17/10009	{ characterized by the number, the constitution or treatment of glass sheets }	17/10348	{ comprising an obscuration band }
17/10018	{ comprising only one glass sheet }	17/10357	{ comprising a tinted intermediate film }
17/10027	{ the glass sheet not being an outer layer }	17/10366	{ Reinforcements of the laminated safety glass or glazing against impact or intrusion (containing metal wires for reinforcement B32B 17/10412) }
17/10036	{ comprising two outer glass sheets }	17/10376	{ Laminated safety glass or glazing containing metal wires }
17/10045	{ with at least one intermediate layer consisting of a glass sheet }	17/10385	{ for ohmic resistance heating }
17/10055	{ with at least one intermediate air space }	17/10394	{ Alarm wires }
17/10064	{ comprising at least two glass sheets, only one of which being an outer layer }	17/10403	{ for radiation shielding }
17/10073	{ comprising at least two glass sheets, neither of which being an outer layer }	17/10412	{ for reinforcement }
17/10082	{ Properties of the bulk of a glass sheet }	17/10422	{ for aesthetic reasons }
17/10091	{ thermally hardened }	17/10431	{ Specific parts for the modulation of light incorporated into the laminated safety glass or glazing }
17/101	{ having a predetermined coefficient of thermal expansion [CTE] }	17/1044	{ Invariable transmission }
17/1011	{ having predetermined tint or excitation purity }	17/10449	{ Wavelength selective transmission }
17/10119	{ having a composition deviating from the basic composition of soda-lime glass, e.g. borosilicate }	17/10458	{ Polarization selective transmission }
17/10128	{ Treatment of at least one glass sheet }	17/10467	{ Variable transmission }
17/10137	{ Chemical strengthening }	17/10477	{ thermochromic }
17/10146	{ Face treatment, e.g. etching, grinding or sand blasting }	17/10486	{ photochromic }
17/10155	{ Edge treatment or chamfering }	17/10495	{ optoelectronic, i.e. optical valve }
17/10165	{ Functional features of the laminated safety glass or glazing }	17/10504	{ Liquid crystal layer }
17/10174	{ Coatings of a metallic or dielectric material on a constituent layer of glass or polymer }	17/10513	{ Electrochromic layer }
17/10183	{ being not continuous, e.g. in edge regions }	17/10522	{ Electrophoretic layer }
17/10192	{ patterned in the form of columns or grids }	17/10532	{ Suspended particle layer }
17/10201	{ Dielectric coatings }	17/10541	{ comprising a light source or a light guide }
17/10211	{ Doped dielectric layer, electrically conductive, e.g. SnO ₂ :F }	17/1055	{ characterized by the resin layer, i.e. interlayer }
17/1022	{ Metallic coatings }	17/10559	{ Shape of the cross-section }
17/10229	{ Metallic layers sandwiched by dielectric layers }	17/10568	{ varying in thickness }
17/10238	{ in the form of particles }	17/10577	{ Surface roughness }
17/10247	{ Laminated safety glass or glazing containing decorations or patterns for aesthetic reasons (containing metal wires for aesthetic reasons B32B 17/10422) }	17/10587	{ created by embossing }
17/10256	{ created by printing techniques }	17/10596	{ created by melt fracture }
17/10266	{ on glass pane }	17/10605	{ Type of plasticiser }
17/10275	{ on interlayer }	17/10614	{ comprising particles for purposes other than dyeing }
17/10284	{ on intermediate layer }	17/10623	{ Whitening agents reflecting visible light }
17/10293	{ Edge features, e.g. inserts or holes }	17/10633	{ Infrared radiation absorbing or reflecting agents }
17/10302	{ Edge sealing }	17/10642	{ Thermally conductive agents }
17/10311	{ Intumescent layers for fire protection }	17/10651	{ comprising colorants, e.g. dyes or pigments }
		17/1066	{ imparting a tint in certain regions only, i.e. shade band }
		17/10669	{ Luminescent agents }
		17/10678	{ comprising UV absorbers or stabilizers, e.g. antioxidants }
		17/10688	{ Adjustment of the adherence to the glass layers }
		17/10697	{ being cross-linked }

17/10706	. . . . . {being photo-polymerized}	19/041	. . {of metal}
17/10715	. . . . . {containing polyether}	19/042	. . {of wood}
17/10724	. . . . . {containing polyamide}	19/043	. . {of natural rubber or synthetic rubber}
17/10733	. . . . . {containing epoxy}	19/045	. . {of synthetic resin}
17/10743	. . . . . {containing acrylate (co)polymers or salts thereof}	19/046	. . {of paper or cardboard}
17/10752	. . . . . {containing polycarbonate}	19/047	. . {of foam}
17/10761	. . . . . {containing vinyl acetal}	19/048	. . {made of particles}
17/10777	. . . . . {containing polyurethane}	19/06	. next to a fibrous or filamentary layer
17/10779	. . . . . {containing polyester}	19/08	. comprising asbestos
17/10788	. . . . . {containing ethylene vinylacetate}	21/00	Layered products comprising {a layer of} wood, e.g. wood board, veneer, wood particle board
17/10798	. . . . . {containing silicone}	21/02	. {the layer being formed} of fibres, chips, or particles {, e.g. MDF, HDF, OSB, chipboard, particle board, hardboard}
17/10807	. . . . . {Making laminated safety glass or glazing; Apparatus therefor}	21/04	. comprising wood as the main or only constituent of a layer, {which is} next to another layer of {the same or of} a {different material (next to a layer of a particular substance B32B 9/042 ; next to a bituminous or tarry layer B32B 11/042 ; next to a water setting substance layer B32B 13/10 ; next to a metal layer B32B 15/10 ; next to a glass layer B32B 17/062 ; next to a layer formed of natural mineral fibres or particles B32B 19/042 ; next to a cellulosic plastic layer B32B 23/044)}
17/10816	. . . . . {by pressing}	21/042	. . {of wood (B32B 21/13 takes precedence)}
17/10825	. . . . . {Isostatic pressing, i.e. using non rigid pressure-exerting members against rigid parts}	21/045	. . {of natural rubber or synthetic rubber}
17/10834	. . . . . . . {using a fluid}	21/047	. . {of foam}
17/10844	. . . . . . . {using a membrane between the layered product and the fluid}	21/06	. . of paper or cardboard
17/10853	. . . . . . . . {the membrane being bag-shaped}	21/08	. . of synthetic resin
17/10862	. . . . . . . {using pressing-rolls}	21/10	. Next to a fibrous or filamentary layer
17/10871	. . . . . . {in combination with particular heat treatment}	21/12	. next to a particulate layer
17/1088	. . . . . {by superposing a plurality of layered products}	21/13	. all layers being exclusively wood
17/10889	. . . . . {shaping the sheets, e.g. by using a mould (B32B 17/10816 takes precedence)}	21/14	. comprising wood board or veneer
17/10899	. . . . . {by introducing interlayers of synthetic resin}	23/00	Layered products comprising {a layer of} cellulosic plastic substances {, i.e. substances obtained by chemical modification of cellulose, e.g. cellulose ethers, cellulose esters, viscose}
17/10908	. . . . . {in liquid form}	23/02	. in the form of fibres or filaments {(not used)}
17/10917	. . . . . {between two pre-positioned glass layers}	23/04	. comprising such {cellulosic plastic} substance as the main or only constituent of a layer, {which is} next to another layer of {the same or of} a {different material (next to a glass layer B32B 17/08)}
17/10926	. . . . . {by spraying}	23/042	. . {of metal}
17/10935	. . . . . {as a preformed layer, e.g. formed by extrusion}	23/044	. . {of wood}
17/10944	. . . . . {in powder form}	23/046	. . {of natural rubber or synthetic rubber}
17/10954	. . . . . {by using an aligning laminating device}	23/048	. . {of foam}
17/10963	. . . . . {specially adapted for repairing the layered products}	23/06	. . of paper or cardboard
17/10972	. . . . . {Degassing during the lamination (B32B 17/10816 takes precedence)}	23/08	. . of synthetic resin
17/10981	. . . . . {Pre-treatment of the layers}	23/10	. next to a fibrous or filamentary layer
17/1099	. . . . . {After-treatment of the layered product, e.g. cooling}	23/12	. next to a particulate layer
18/00	Layered products essentially comprising ceramics, e.g. refractory products	23/14	. characterised by containing special compounding ingredients
	NOTE	23/16	. . Modifying agents
	{In group B32B 18/00 , features relating to interlayers, additional compositional information or further processing are indexed with symbols chosen from C04B 2237/00 - C04B 2237/88 }	23/18	. . Fillers
19/00	Layered products comprising {a layer of} natural mineral fibres or particles, e.g. asbestos, mica	23/20	. comprising esters
19/02	. {the layer of fibres or particles being impregnated or} embedded in a plastic substance	23/22	. comprising ethers
19/04	. next to another layer of {the same or of} a {different material (next to a glass layer B32B 17/067)}	25/00	Layered products comprising {a layer of} natural or synthetic rubber {(fibrous or filamentary layer made of a natural or synthetic rubber B32B 5/02; particulate layer made of a natural or synthetic rubber B32B 5/16; foamed layer made of a natural or synthetic rubber B32B 5/18)}

- 25/02 . . with fibres or particles {being present as additives in the layer}
- 25/04 . . comprising rubber as the main or only constituent of a layer, {which is} next to another layer of {the same or of} a {different material (next to a layer of a particular substance [B32B 9/043](#); next to a bituminous or tarry layer [B32B 11/044](#); next to a water setting substance layer [B32B 13/042](#); next to a metal layer [B32B 15/06](#); next to a glass layer [B32B 17/063](#); next to a layer formed of natural mineral fibres or particles [B32B 19/043](#); next to a wood layer [B32B 21/045](#); next to a cellulosic plastic layer [B32B 23/046](#))}
- 25/042 . . {of natural rubber or synthetic rubber}
- 25/045 . . {of foam}
- 25/047 . . {of particles}
- 25/06 . . of paper or cardboard
- 25/08 . . of synthetic resin
- 25/10 . . next to a fibrous or filamentary layer
- 25/12 . . comprising natural rubber
- 25/14 . . comprising {synthetic rubber copolymers ([B32B 25/18](#) and [B32B 25/20](#) take precedence)}
- 25/16 . . comprising polydienes {homopolymers} or polyhalodienes {homopolymers ([B32B 25/12](#) takes precedence)}
- 25/18 . . comprising butyl or halobutyl rubber
- 25/20 . . comprising silicone rubber
- 27/00 Layered products comprising {a layer of} synthetic resin** {(fibrous or filamentary layer made of a synthetic resin [B32B 5/02](#); particulate layer made of a synthetic resin [B32B 5/16](#); foamed layer made of a synthetic resin [B32B 5/18](#))}
- NOTE**
- This group covers all synthetic resins except those covered by [B32B 25/00](#) or [B32B 23/00](#)
- 27/02 . . in the form of fibres or filaments {(not used)}
- 27/04 . . as impregnant, bonding, or embedding substance {(not used)}
- 27/06 . . as the main or only constituent of a layer, {which is} next to another layer of {the same or of} a {different material (next to a layer of a particular substance [B32B 9/045](#); next to a bituminous or tarry layer [B32B 11/046](#); next to a water setting substance layer [B32B 13/12](#); next to a metal layer [B32B 15/08](#); next to a glass layer [B32B 17/10](#); next to a layer formed of natural mineral fibres or particles [B32B 19/045](#); next to a wood layer [B32B 21/08](#); next to a cellulosic plastic layer [B32B 23/08](#); next to a natural or synthetic rubber layer [B32B 25/08](#))}
- 27/065 . . {of foam}
- 27/08 . . of synthetic resin
- 27/10 . . of paper or cardboard
- 27/12 . . next to a fibrous or filamentary layer
- 27/14 . . next to a particulate layer
- 27/16 . . specially treated, e.g. irradiated
- 27/18 . . characterised by the use of special additives
- 27/20 . . using fillers, pigments, thixotroping agents
- 27/205 . . . {the fillers creating voids or cavities, e.g. by stretching}
- 27/22 . . using plasticisers
- 27/24 . . using solvents or swelling agents
- 27/26 . . using curing agents
- 27/28 . . comprising synthetic resins not wholly covered by any one of the sub-groups {[B32B 27/30](#) - [B32B 27/42](#)}
- 27/281 . . {comprising polyimides}
- 27/283 . . {comprising polysiloxanes}
- 27/285 . . {comprising polyethers}
- 27/286 . . {comprising polysulphones; polysulfides}
- 27/288 . . {comprising polyketones}
- 27/30 . . comprising vinyl {(co)polymers; comprising acrylic (co)polymers}
- 27/302 . . {comprising aromatic vinyl (co)polymers, e.g. styrenic (co)polymers}
- 27/304 . . {comprising vinyl halide (co)polymers, e.g. PVC, PVDC, PVF, PVDF}
- 27/306 . . {comprising vinyl acetate or vinyl alcohol (co)polymers}
- 27/308 . . {comprising acrylic (co)polymers}
- 27/32 . . comprising polyolefins {(comprising vinyl (co)polymers or acrylic (co)polymers [B32B 27/30](#))}
- 27/322 . . {comprising halogenated polyolefins, e.g. PTFE}
- 27/325 . . {comprising polycycloolefins}
- 27/327 . . {comprising polyolefins obtained by a metallocene or single-site catalyst}
- 27/34 . . comprising polyamides
- 27/36 . . comprising polyesters
- 27/365 . . {comprising polycarbonates}
- 27/38 . . comprising epoxy resins
- 27/40 . . comprising polyurethanes
- 27/42 . . comprising condensation resins of aldehydes, e.g. with phenols, ureas or melamines
- 29/00 Layered products comprising {a layer of} paper or cardboard**
- 29/002 . . {as the main or only constituent of a layer, which is next to another layer of the same or of a different material (next to a layer of a particular substance [B32B 9/06](#); next to a bituminous or tarry layer [B32B 11/06](#); next to a water-setting substance layer [B32B 13/08](#); next to a metal layer [B32B 15/12](#); next to a glass layer [B32B 17/065](#); next to a layer formed of natural mineral fibres or particles [B32B 19/046](#); next to a wood layer [B32B 21/06](#); next to a cellulosic plastic layer [B32B 23/06](#); next to a natural or synthetic rubber layer [B32B 25/06](#); next to a synthetic resin layer [B32B 27/10](#))}
- 29/005 . . {next to another layer of paper or cardboard layer}
- 29/007 . . {next to a foam layer}
- 29/02 . . next to a fibrous or filamentary layer
- 29/04 . . next to a particulate layer
- 29/06 . . specially treated, e.g. surfaced, parchmentised
- 29/08 . . Corrugated paper or cardboard
- 33/00 Layered products characterised by particular properties or particular surface features, e.g. particular surface coatings; Layered products designed for particular purposes not covered by another single class**

Methods or apparatus for making layered products; Treatment of the layers or of the layered products**NOTE**

In groups [B32B 37/00](#){ , [B32B 38/00](#), [B32B 41/00](#)} and [B32B 39/00](#), the following expressions are used with the meaning indicated:

- {"lay-up" is considered to be the action of combining separate layers, one on top of the other, in order to form a half-product for entering the laminating process}
- "laminating" means the action of combining previously unconnected {but possibly laid up} layers to become one product whose layers will remain together;
- "partial laminating" occurs when one layer does not fully cover a surface of another layer, whereby the layer with the greater surface area is laminated on only part of its surface;
- "adhesive" means a layer, or part of a layer, applied in any state or in any manner which is incorporated for the purpose of bonding.

37/00 Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding

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| <p>37/0007 . . {involving treatment or provisions in order to avoid deformation or air inclusion, e.g. to improve surface quality}</p> <p>37/0015 . . {to avoid warp or curl}</p> <p>37/0023 . . {around holes, apertures or channels present in at least one layer}</p> <p>37/003 . . {to avoid air inclusion}</p> <p>37/0038 . . {involving application of liquid to the layers prior to lamination, e.g. wet laminating (B32B 37/12 takes precedence)}</p> <p>37/0046 . . {characterised by constructional aspects of the apparatus}</p> <p>37/0053 . . {Constructional details of laminating machines comprising rollers; Constructional features of the rollers}</p> <p>2037/0061 . . {the apparatus being an office laminator}</p> <p>2037/0069 . . {the apparatus being originally designed for another function, e.g. printer, photocopier}</p> <p>37/0076 . . {characterised in that the layers are not bonded on the totality of their surfaces}</p> <p>37/0084 . . {Point bonding}</p> <p>2037/0092 . . {in which absence of adhesives is explicitly presented as an advantage}</p> <p>37/02 . . characterised by a sequence of laminating steps, e.g. by adding new layers at consecutive laminating stations</p> <p>37/025 . . {Transfer laminating}</p> <p>37/04 . . characterised by the partial melting of at least one layer</p> <p>37/06 . . characterised by the heating method</p> <p>37/065 . . {resulting in the laminate being partially bonded (B32B 37/0076 takes precedence)}</p> <p>37/08 . . characterised by the cooling method</p> <p>37/085 . . {Quenching}</p> <p>37/10 . . characterised by the pressing technique, e.g. using action of vacuum or fluid pressure</p> <p>37/1009 . . {using vacuum and fluid pressure}</p> <p>37/1018 . . {using only vacuum}</p> <p>37/1027 . . {Pressing using at least one press band}</p> <p>37/1036 . . . {Pressing between one press band and a cylinder}</p> | <p>37/1045 . . {Intermittent pressing, e.g. by oscillating or reciprocating motion of the pressing means (B32B 37/0076 takes precedence)}</p> <p>37/1054 . . {Regulating the dimensions of the laminate, e.g. by adjusting the nip or platen gap}</p> <p>2037/1063 . . {using an electrostatic force}</p> <p>2037/1072 . . {using a fluid jet}</p> <p>2037/1081 . . {using a magnetic force}</p> <p>2037/109 . . {using a squeegee}</p> <p>37/12 . . characterised by using adhesives</p> <p>37/1207 . . {Heat-activated adhesive (B32B 37/04 takes precedence)}</p> <p>2037/1215 . . . {Hot-melt adhesive}</p> <p>2037/1223 {film-shaped}</p> <p>2037/123 {net-shaped}</p> <p>2037/1238 . . . {in the form of powder}</p> <p>2037/1253 . . {curable adhesive}</p> <p>2037/1261 . . . {moisture curable}</p> <p>2037/1269 . . {multi-component adhesive}</p> <p>2037/1276 . . {water-based adhesive}</p> <p>37/1284 . . {Application of adhesive}</p> <p>37/1292 . . . {selectively, e.g. in stripes, in patterns (B32B 37/0076 takes precedence)}</p> <p>37/14 . . characterised by the properties of the layers</p> <p>37/142 . . {Laminating of sheets, panels or inserts, e.g. stiffeners, by wrapping in at least one outer layer, or inserting into a preformed pocket}</p> <p>37/144 . . {using layers with different mechanical or chemical conditions or properties, e.g. layers with different thermal shrinkage, layers under tension during bonding (constructional features for tensioning B32B 38/1825)}</p> <p>37/146 . . {whereby one or more of the layers is a honeycomb structure}</p> <p>2037/148 . . {whereby layers material is selected in order to facilitate recycling of the laminate}</p> <p>37/15 . . with at least one layer being manufactured and immediately laminated before reaching its stable state, e.g. in which a layer is extruded and laminated while in semi-molten state</p> <p>37/153 . . . {at least one layer is extruded and immediately laminated while in semi-molten state}</p> <p>37/156 . . . {at least one layer is calendared and immediately laminated}</p> <p>37/16 . . with all layers existing as coherent layers before laminating</p> <p>37/18 . . . involving the assembly of discrete sheets or panels only</p> <p>37/182 {one or more of the layers being plastic}</p> <p>37/185 {Laminating sheets, panels or inserts between two discrete plastic layers}</p> <p>37/187 {the layers being placed in a carrier before going through the lamination process}</p> <p>37/20 . . . involving the assembly of continuous webs only</p> <p>37/203 {One or more of the layers being plastic}</p> <p>37/206 {Laminating a continuous layer between two continuous plastic layers}</p> <p>37/22 . . . involving the assembly of both discrete and continuous layers</p> <p>37/223 {One or more of the layers being plastic}</p> <p>37/226 {Laminating sheets, panels or inserts between two continuous plastic layers}</p> |
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- 37/24 . . with at least one layer not being coherent before laminating, e.g. made up from granular material sprinkled onto a substrate ([B32B 37/15](#) takes precedence)
- 2037/243 . . . {Coating}
- 2037/246 . . . {Vapour deposition}
- 37/26 . . with at least one layer which influences the bonding during the lamination process, e.g. release layers or pressure equalising layers
- 2037/262 . . . {Partition plates or sheets for separating several laminates pressed simultaneously}
- 2037/264 . . . {Pressure equalizing layers}
- 2037/266 . . . {Cushioning layers}
- 2037/268 . . . {Release layers}
- 37/28 . involving assembly of non-flat intermediate products which are flattened at a later step, e.g. tubes
- 37/30 . Partial laminating
- 38/00 Ancillary operations in connection with laminating processes**
- NOTE**
- {In this group, the following expression is used with the meaning indicated:
- "in connection with laminating processes" means ancillary operations are carried out either
 - a. as steps of the lamination processes, or
 - b. in line with the lamination processes, just before or immediately after.}
- 38/0004 . {Cutting, tearing or severing, e.g. bursting; Cutter details ([cutting in general B26D](#); laminating combined with punching or perforating [B32B 38/04](#); removing all or part of the layers [B32B 38/10](#); cutting in combination with laying up and registration [B32B 38/185](#) takes precedence)}
- 38/0008 . {Electrical discharge treatment, e.g. corona, plasma treatment; wave energy or particle radiation ([heat treatment B32B 38/0036](#))}
- 38/0012 . {Mechanical treatment, e.g. roughening, deforming, stretching}
- 2038/0016 . . {Abrading}
- 2038/002 . . {Sandblasting}
- 2038/0024 . . {Crushing}
- 2038/0028 . . {Stretching, elongating}
- 38/0032 . {increasing porosity ([B32B 38/04](#) takes precedence)}
- 38/0036 . {Heat treatment (for heating or cooling of layers during lamination [B32B 37/06](#), [B32B 37/08](#))}
- 38/004 . . {by physically contacting the layers, e.g. by the use of heated platens or rollers}
- 2038/0044 . . {for creating local stresses}
- 2038/0048 . . {Annealing, relaxing}
- 2038/0052 . {Other operations not otherwise provided for}
- 2038/0056 . . {Moistening}
- 2038/006 . . {Relieving internal or residual stresses}
- 2038/0064 . . {Smoothing, polishing, making a glossy surface}
- 2038/0068 . . {Changing crystal orientation}
- 2038/0072 . . {Orienting fibers}
- 2038/0076 . . {Curing, vulcanising, cross-linking}
- 2038/008 . . {Sewing, stitching}
- 2038/0084 . . {Foaming}
- 2038/0088 . . {Expanding, swelling}
- 2038/0092 . . {Metallizing}
- 2038/0096 . . {Riveting}
- 38/04 . Punching, slitting or perforating
- 2038/042 . . {Punching}
- 2038/045 . . {Slitting}
- 2038/047 . . {Perforating}
- 38/06 . Embossing
- 38/08 . Impregnating
- 38/10 . Removing layers, or parts of layers, mechanically or chemically
- 38/105 . . {on edges}
- 38/12 . Deep-drawing
- 38/14 . Printing or colouring
- 38/145 . . {Printing}
- 38/16 . Drying; Softening; Cleaning
- 38/162 . . {Cleaning}
- 38/164 . . {Drying}
- 2038/166 . . . {Removing moisture}
- 2038/168 . . . {Removing solvent}
- 38/18 . Handling of layers or the laminate
- 38/1808 . . {characterised by the laying up of the layers}
- 38/1816 . . . {Cross feeding of one or more of the layers}
- 38/1825 . . {characterised by the control or constructional features of devices for tensioning, stretching or registration}
- 38/1833 . . . {Positioning, e.g. registration or centering}
- 38/1841 {during laying up}
- 38/185 {combined with the cutting of one or more layers}
- 38/1858 . . {using vacuum}
- 38/1866 . . {conforming the layers or laminate to a convex or concave profile}
- 38/1875 . . {Tensioning}
- 38/1883 . . {Detensioning}
- 2038/1891 . . {Using a robot for handling the layers}
- 39/00 Layout of apparatus or plants, e.g. modular laminating systems**
- 41/00 Arrangements for controlling or monitoring lamination processes; Safety arrangements**
- 41/02 . Safety arrangements
- 2041/04 . {Detecting wrong registration, misalignment, deviation, failure}
- 2041/06 . {Starting the lamination machine or method}
- 43/00 Operations specially adapted for layered products and not otherwise provided for, e.g. repairing; Apparatus therefor**
- 43/003 . {Cutting}
- 43/006 . {Delaminating}
- Layer arrangements; Coating, impregnation or embedding of layers; Composition of fibres, particles or foam present on a layer; Resin or rubber layer containing a blend of polymers or recycled material**
- 2250/00 Layers arrangement**
- 2250/02 . 2 layers
- 2250/03 . 3 layers
- 2250/04 . 4 layers
- 2250/05 . 5 or more layers
- 2250/20 . All layers being fibrous or filamentary
- 2250/22 . All layers being foamed
- 2250/24 . All layers being polymeric

- 2250/242 . . All polymers belonging to those covered by group [B32B 27/32](#)
- 2250/244 . . All polymers belonging to those covered by group [B32B 27/36](#)
- 2250/246 . . All polymers belonging to those covered by groups [B32B 27/32](#) and [B32B 27/30](#)
- 2250/248 . . All polymers belonging to those covered by group [B32B 25/00](#)
- 2250/26 . All layers being made of paper or paperboard
- 2250/40 . Symmetrical or sandwich layers, e.g. ABA, ABCBA, ABCCBA
- 2250/42 . Alternating layers, e.g. ABAB(C), AABBAABB(C)
- 2250/44 . Number of layers variable across the laminate
- 2255/00 Coating on the layer surface**
- NOTE**
- This group is for classification of coatings on a layered product. Specific details of coatings or processes thereof can be found in [C08J 7/00](#), [B05D](#), [C09D](#), [C09J](#), [C23C](#) or [D06M](#).
- 2255/02 . on fibrous or filamentary layer
- 2255/04 . on a particulate layer
- 2255/06 . on metal layer
- 2255/062 . . metal layer being a foamed layer
- 2255/08 . on wood layer
- 2255/10 . on synthetic resin layer or on natural or synthetic rubber layer
- 2255/102 . . synthetic resin or rubber layer being a foamed layer
- 2255/12 . on paper layer
- 2255/20 . Inorganic coating
- 2255/205 . . Metallic coating
- 2255/24 . Organic non-macromolecular coating
- 2255/26 . Polymeric coating
- 2255/28 . Multiple coating on one surface
- 2260/00 Layered product comprising an impregnated, embedded, or bonded layer wherein the layer comprises an impregnation, embedding, or binder material**
- 2260/02 . Composition of the impregnated, bonded or embedded layer
- 2260/021 . . Fibrous or filamentary layer
- 2260/023 . . . Two or more layers
- 2260/025 . . Particulate layer
- 2260/026 . . Wood layer
- 2260/028 . . Paper layer
- 2260/04 . Impregnation, embedding, or binder material
- 2260/042 . . Bituminous or tarry substance
- 2260/044 . . Water-setting substance, e.g. concrete, plaster
- 2260/046 . . Synthetic resin
- 2260/048 . . Natural or synthetic rubber
- 2262/00 Composition or structural features of fibres which form a fibrous or filamentary layer or are present as additives**
- 2262/02 . Synthetic macromolecular fibres
- 2262/0207 . . Elastomeric fibres
- 2262/0215 . . . Thermoplastic elastomer fibres
- 2262/0223 . . Vinyl resin fibres
- 2262/023 . . . Aromatic vinyl resin, e.g. styrenic (co)polymers
- 2262/0238 . . . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
- 2262/0246 . . Acrylic resin fibres
- 2262/0253 . . Polyolefin fibres
- 2262/0261 . . Polyamide fibres
- 2262/0269 . . . Aromatic polyamide fibres
- 2262/0276 . . Polyester fibres
- 2262/0284 . . . Polyethylene terephthalate [PET] or polybutylene terephthalate [PBT]
- 2262/0292 . . Polyurethane fibres
- 2262/04 . Cellulosic plastic fibres, e.g. rayon
- 2262/06 . Vegetal fibres
- 2262/062 . . Cellulose fibres, e.g. cotton
- 2262/065 . . . Lignocellulosic fibres, e.g. jute, sisal, hemp, flax, bamboo
- 2262/067 . . . Wood fibres
- 2262/08 . Animal fibres, e.g. hair, wool, silk
- 2262/10 . Inorganic fibres
- 2262/101 . . Glass fibres
- 2262/103 . . Metal fibres
- 2262/105 . . Ceramic fibres
- 2262/106 . . Carbon fibres, e.g. graphite fibres
- 2262/108 . . Rockwool fibres
- 2262/12 . Conjugate fibres, e.g. core/sheath or side-by-side
- 2262/124 . . Non-woven fabric
- 2262/128 . . Woven fabric
- 2262/132 . . Knitted fabric
- 2262/136 . . Net structure
- 2262/14 . Mixture of at least two fibres made of different materials
- 2262/144 . . Non-woven fabric
- 2262/148 . . Woven fabric
- 2262/152 . . Knitted fabric
- 2262/156 . . Net structure
- 2262/16 . Structural features of fibres, filaments or yarns e.g. wrapped, coiled, crimped or covered
- 2264/00 Composition or properties of particles which form a particulate layer or are present as additives**
- 2264/02 . Synthetic macromolecular particles
- 2264/0207 . . Particles made of materials belonging to [B32B 25/00](#)
- 2264/0214 . . Particles made of materials belonging to [B32B 27/00](#)
- 2264/0221 . . . Thermoplastic elastomer particles
- 2264/0228 . . . Vinyl resin particles, e.g. polyvinyl acetate, polyvinyl alcohol polymers or ethylene-vinyl acetate copolymers
- 2264/0235 Aromatic vinyl resin, e.g. styrenic (co)polymers
- 2264/0242 Vinyl halide, e.g. PVC, PVDC, PVF or PVDF (co)polymers
- 2264/025 . . . Acrylic resin particles, e.g. polymethyl methacrylate or ethylene-acrylate copolymers
- 2264/0257 . . . Polyolefin particles, e.g. polyethylene or polypropylene homopolymers or ethylene-propylene copolymers
- 2264/0264 . . . Polyamide particles
- 2264/0271 Aromatic polyamide particles
- 2264/0278 . . . Polyester particles
- 2264/0285 PET or PBT
- 2264/0292 . . . Polyurethane particles
- 2264/04 . Cellulosic particles, e.g. rayon
- 2264/06 . Vegetal particles
- 2264/062 . . Cellulose particles, e.g. cotton

- 2264/065 . . . Lignocellulosic particles, e.g. jute, sisal, hemp, flax, bamboo
- 2264/067 . . . Wood particles
- 2264/08 . . Animal particles, e.g. leather
- 2264/10 . . Inorganic particles
- 2264/101 . . Glass
- 2264/102 . . Oxide or hydroxide
- 2264/1021 . . . Silica
- 2264/1022 . . . Titania
- 2264/1023 . . . Alumina
- 2264/1024 . . . Zirconia
- 2264/1025 . . . Zinc oxide
- 2264/1026 . . . Mica
- 2264/1027 . . . Clay
- 2264/104 . . Oxysalt, e.g. carbonate, sulfate, phosphate or nitrate particles
- 2264/105 . . Metal
- 2264/1051 . . . Silver or gold
- 2264/1052 . . . Aluminum
- 2264/1053 . . . Alkali metal
- 2264/1054 . . . Alkaline earth metal
- 2264/1055 . . . Copper or nickel
- 2264/1056 . . . Iron or steel
- 2264/1057 . . . Chromium
- 2264/1058 . . . Titanium
- 2264/1059 . . . Zinc
- 2264/107 . . Ceramic
- 2264/108 . . . Carbon, e.g. graphite particles
- 2264/12 . . Mixture of at least two particles made of different materials
- 2264/20 . . Particles characterised by shape
- 2264/201 . . Flat or platelet-shaped particles, e.g. flakes
- 2264/202 . . Solid spheres
- 2264/203 . . Expanded, porous or hollow particles
- 2264/2031 . . . Porous particles
- 2264/2032 . . . Hollow spheres
- 2264/204 . . Rod- or needle-shaped particles
- 2264/30 . . Particles characterised by physical dimension
- 2264/301 . . Average diameter smaller than 100 nm
- 2264/302 . . Average diameter in the range from 100 nm to 1000 nm
- 2264/303 . . Average diameter greater than 1µm
- 2264/304 . . Particle length
- 2264/305 . . Particle size distribution, e.g. unimodal size distribution
- 2264/306 . . . Multimodal particle size distribution
- 2264/3065 bimodal size distribution
- 2264/307 . . Surface area of particles
- 2264/308 . . Aspect ratio of particles
- 2264/40 . . Pretreated particles
- 2264/401 . . with inorganic substances
- 2264/402 . . with organic substances
- 2264/4021 . . . with silicon-containing compounds
- 2264/403 . . coated or encapsulated
- 2264/50 . . Particles characterised by their position or distribution in a layer
- 2264/501 . . homogeneously distributed
- 2264/502 . . distributed in a gradient manner
- 2264/503 . . distributed in a predetermined pattern in a thickness direction
- 2264/504 . . distributed in a predetermined pattern in a direction perpendicular to the thickness
- 2266/00 Composition of foam**
- 2266/02 . Organic
- 2266/0207 . . Materials belonging to [B32B 25/00](#)
- 2266/0214 . . Materials belonging to [B32B 27/00](#)
- 2266/0221 . . . Vinyl resin
- 2266/0228 Aromatic vinyl resin, e.g. styrenic (co)polymers
- 2266/0235 Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
- 2266/0242 . . . Acrylic resin
- 2266/025 . . . Polyolefin
- 2266/0257 . . . Polyamide
- 2266/0264 . . . Polyester
- 2266/0271 . . . Epoxy resin
- 2266/0278 . . . Polyurethane
- 2266/0285 . . . Condensation resins of aldehydes, e.g. with phenols, ureas, melamines
- 2266/0292 . . . Thermoplastic elastomer
- 2266/031 . . Bituminous or tarry material
- 2266/04 . Inorganic
- 2266/045 . . Metal
- 2266/049 . . Water-setting material, e.g. concrete, plaster or asbestos cement
- 2266/053 . . Mineral element, e.g. asbestos or mica
- 2266/057 . . Silicon-containing material, e.g. glass
- 2266/06 . Open cell foam
- 2266/08 . Closed cell foam
- 2266/10 . characterised by the foam pores
- 2266/102 . . Nanopores, i.e. with average diameter smaller than 0.1 µm
- 2266/104 . . Micropores, i.e. with average diameter in the range from 0.1 µm to 0.1 mm
- 2266/106 . . Unimodal pore distribution
- 2266/108 . . Bimodal pore distribution
- 2266/12 . Gel
- 2266/122 . . Hydrogel, i.e. a gel containing an aqueous composition
- 2266/124 . . Organogel, i.e. a gel containing an organic composition
- 2266/126 . . Aerogel, i.e. a supercritically dried gel
- 2266/128 . . Xerogel, i.e. an air dried gel
- 2266/14 . Adhesive foam
- 2270/00 Resin or rubber layer containing a blend of at least two different polymers**
- 2272/00 Resin or rubber layer comprising scrap, waste or recycling material**
- 2274/00 Thermoplastic elastomer material**
- Condition, form, state or properties of the layers or laminate**
- 2305/00 Condition, form or state of the layers or laminate**
- 2305/02 . Cellular or porous
- 2305/022 . . Foam
- 2305/024 . . Honeycomb
- 2305/026 . . Porous
- 2305/028 . . Hollow fillers; Syntactic material
- 2305/07 . Parts immersed or impregnated in a matrix
- 2305/073 . . partially
- 2305/076 . . Prepregs
- 2305/08 . Reinforcements

2305/10	. Fibres of continuous length	2307/514	. . Oriented
2305/18	. . Fabrics, textiles	2307/516	. . . mono-axially
2305/182	. . . knitted	2307/518	. . . bi-axially
2305/184	. . . Braided fabrics	2307/52	. . . multi-axially
2305/186	. . . Knitted fabrics	2307/536	. . Hardness
2305/188	. . . Woven fabrics	2307/538	. . Roughness
2305/20	. . in the form of a non-woven mat	2307/54	. . Yield strength; Tensile strength
2305/22	. Fibres of short length	2307/542	. . Shear strength
2305/24	. . Whiskers	2307/544	. . Torsion strength; Torsion stiffness
2305/28	. . in the form of a mat	2307/546	. . Flexural strength; Flexion stiffness
2305/30	. Fillers, e.g. particles, powders, beads, flakes, spheres, chips	2307/548	. . Creep
2305/34	. Inserts	2307/552	. . Fatigue strength
2305/342	. . Chips	2307/554	. . Wear resistance
2305/345	. . Heating elements	2307/558	. . Impact strength, toughness
2305/347	. . Security elements	2307/56	. . Damping, energy absorption
2305/38	. Meshes, lattices or nets	2307/58	. . Cuttability
2305/54	. Filled microcapsules	2307/581	. . . Resistant to cut
2305/55	. Liquid crystals	2307/582	. . Tearability
2305/70	. Scrap or recycled material	2307/5825	. . . Tear resistant
2305/72	. Cured, e.g. vulcanised, cross-linked	2307/584	. . Scratch resistance
2305/74	. Partially cured	2307/70	. Other properties
2305/77	. Uncured, e.g. green	2307/702	. . Amorphous
2305/80	. Sintered	2307/704	. . Crystalline
2307/00	Properties of the layers or laminate	2307/706	. . Anisotropic
2307/10	. having particular acoustical properties	2307/708	. . Isotropic
2307/102	. . Insulating	2307/71	. . Resistive to light or to UV
2307/20	. having particular electrical or magnetic properties, e.g. piezoelectric	2307/712	. . Weather resistant
2307/202	. . Conductive	2307/714	. . Inert, i.e. inert to chemical degradation, corrosion
2307/204	. . Di-electric	2307/7145	. . . Rot proof, resistant to bacteria, mildew, mould, fungi
2307/206	. . Insulating	2307/716	. . Degradable
2307/208	. . Magnetic, paramagnetic	2307/7163	. . . Biodegradable
2307/21	. . Anti-static	2307/7166	. . . Water-soluble, water-dispersible
2307/212	. . Electromagnetic interference shielding	2307/718	. . Weight, e.g. weight per square meter
2307/30	. having particular thermal properties	2307/72	. . Density
2307/302	. . Conductive	2307/722	. . . Non-uniform density
2307/304	. . Insulating	2307/724	. . Permeability to gases, adsorption
2307/306	. . Resistant to heat	2307/7242	. . . Non-permeable
2307/3065	. . . Flame resistant or retardant, fire resistant or retardant	2307/7244	. . . . Oxygen barrier
2307/308	. . Heat stability	2307/7246	. . . . Water vapor barrier
2307/31	. . Heat sealable	2307/7248	. . . . Odour barrier
2307/40	. having particular optical properties	2307/726	. . Permeability to liquids, absorption
2307/402	. . Coloured	2307/7265	. . . Non-permeable
2307/4023	. . . on the layer surface, e.g. ink	2307/728	. . Hydrophilic
2307/4026	. . . within the layer by addition of a colorant, e.g. pigments, dyes	2307/73	. . Hydrophobic
2307/404	. . . Multi-coloured	2307/732	. . Dimensional properties
2307/406	. . Bright, glossy, shiny surface	2307/734	. . . Dimensional stability
2307/408	. . Matt, dull surface	2307/736	. . . . Shrinkable
2307/409	. . Iridescent, pearlescent surface	2307/737	. . . Dimensions, e.g. volume or area
2307/41	. . Opaque	2307/7375	. . . . Linear, e.g. length, distance or width
2307/412	. . Transparent	2307/7376	. . . . Thickness
2307/414	. . Translucent	2307/738	. . Thermoformability
2307/416	. . Reflective	2307/74	. . Oxygen absorber
2307/418	. . Refractive	2307/744	. . Non-slip, anti-slip
2307/42	. . Polarizing, birefringent, filtering	2307/746	. . Slipping, anti-blocking, low friction
2307/422	. . Luminescent, fluorescent, phosphorescent	2307/748	. . Releasability
2307/50	. having particular mechanical properties	2307/75	. . Printability
2307/51	. . Elastic	2307/752	. . Corrosion inhibitor
		2307/754	. . Self-cleaning
		2307/756	. . Refurbishable, i.e. marks or scratches can be removed

- 2307/758 . . Odour absorbent
- 2307/762 . . Self-repairing, self-healing
- 2307/764 . . Insect repellent

Operating procedures; Apparatus details**2309/00 Parameters for the laminating or treatment process; Apparatus details**

- 2309/02 . Temperature
- 2309/022 . . Temperature vs pressure profiles
- 2309/025 . . Temperature vs time profiles
- 2309/027 . . Ambient temperature
- 2309/04 . Time
- 2309/06 . Angles
- 2309/08 . Dimensions, e.g. volume
- 2309/10 . . linear, e.g. length, distance, width
- 2309/105 . . . Thickness
- 2309/12 . Pressure
- 2309/125 . . Pressure vs time profiles
- 2309/14 . Velocity, e.g. feed speeds
- 2309/16 . Tension
- 2309/60 . In a particular environment
- 2309/62 . . Inert
- 2309/64 . . Sterile
- 2309/65 . . Dust free, e.g. clean room
- 2309/66 . . Fluid other than air
- 2309/68 . . Vacuum
- 2309/70 . Automated, e.g. using a computer or microcomputer
- 2309/72 . . For measuring or regulating, e.g. systems with feedback loops

2310/00 Treatment by energy or chemical effects

- 2310/021 . using electrical effects ([B32B 2310/08](#) and [B32B 2310/12](#) take precedence)
- 2310/022 . . Electrical resistance
- 2310/024 . . Peltier effect
- 2310/025 . . Electrostatic charges
- 2310/027 . using friction
- 2310/028 . using vibration, e.g. sonic or ultrasonic
- 2310/04 . using liquids, gas or steam
- 2310/0409 . . using liquids
- 2310/0418 . . . other than water
- 2310/0427 . . . Liquified gases
- 2310/0436 . . . Oil
- 2310/0445 . . using gas or flames ([B32B 2310/0427](#) takes precedence)
- 2310/0454 . . . Hot air
- 2310/0463 . . . other than air
- 2310/0472 inert gas
- 2310/0481 Ozone
- 2310/049 . . using steam or damp
- 2310/08 . by wave energy or particle radiation
- 2310/0806 . . using electromagnetic radiation
- 2310/0812 . . . using induction
- 2310/0818 using eddy currents
- 2310/0825 . . . using IR radiation
- 2310/0831 . . . using UV radiation
- 2310/0837 . . . using actinic light
- 2310/0843 . . . using laser
- 2310/085 . . . using X-ray
- 2310/0856 . . . using gamma-ray
- 2310/0862 . . . using microwave
- 2310/0868 . . . using radio frequency

- 2310/0875 . . using particle radiation
- 2310/0881 . . . using ion-radiation, e.g. alpha-rays
- 2310/0887 . . . using electron radiation, e.g. beta-rays
- 2310/0893 . . . using neutron radiation
- 2310/12 . using dielectric properties
- 2310/14 . Corona, ionisation, electrical discharge, plasma treatment

Inorganic materials used for the layers, laminate or apparatus components**2311/00 Metals, their alloys or their compounds****NOTE**

Alloys and compounds of specific metals are indexed with the same indexing code as the specific metals

- 2311/005 . Shape memory alloys
- 2311/02 . Noble metals
- 2311/04 . . Gold
- 2311/06 . . Platinum
- 2311/08 . . Silver
- 2311/09 . . Palladium
- 2311/10 . Mercury
- 2311/12 . Copper
- 2311/14 . Lead
- 2311/16 . Tin
- 2311/18 . Titanium
- 2311/20 . Zinc
- 2311/22 . Nickel or cobalt
- 2311/24 . Aluminium
- 2311/30 . Iron, e.g. steel

2313/00 Elements other than metals

- 2313/02 . Boron
- 2313/04 . Carbon

2315/00 Other materials containing non-metallic inorganic compounds not provided for in groups [B32B 2311/00](#) - [B32B 2313/04](#)

- 2315/02 . Ceramics
- 2315/06 . Concrete
- 2315/08 . Glass
- 2315/085 . . Glass fiber cloth or fabric
- 2315/10 . Mica
- 2315/12 . Asbestos
- 2315/14 . Mineral wool
- 2315/16 . Clay
- 2315/18 . Plaster

Other natural products or their composites used for the layers, laminate or apparatus components not provided for in groups [B32B 2311/00](#) - [B32B 2315/18](#) and [B32B 2319/00](#) - [B32B 2398/20](#)**2317/00 Animal or vegetable based**

- 2317/02 . Cork
- 2317/04 . Linoleum
- 2317/06 . Bone; Horn; Ivory
- 2317/08 . Natural leather
- 2317/10 . Natural fibres, e.g. wool, cotton
- 2317/12 . Paper, e.g. cardboard
- 2317/122 . . Kraft paper
- 2317/125 . . impregnated with thermosetting resin
- 2317/127 . . Corrugated cardboard

- 2317/16 . Wood, e.g. woodboard, fibreboard, woodchips
- 2317/18 . Cellulose, modified cellulose or cellulose derivatives, e.g. viscose ([B32B 2317/10](#), [B32B 2317/12](#), [B32B 2317/16](#) take precedence)
- 2317/20 . Starch
- 2317/22 . Natural rubber
- 2317/24 . Oil ([B32B 2318/02](#) takes precedence)

2318/00 Mineral based

- 2318/02 . Oil
- 2318/04 . Stone

Organic materials used for the layers, laminate or apparatus components

2319/00 Synthetic rubber

NOTE

In groups [B32B 2319/00](#) - [B32B 2386/00](#), C-Sets are used. Detailed information about C-Sets construction and the associated syntax rules is found in the Definitions.

2323/00 Polyalkenes

- 2323/04 . Polyethylene
- 2323/043 . . HDPE, i.e. high density polyethylene
- 2323/046 . . LDPE, i.e. low density polyethylene
- 2323/10 . Polypropylene
- 2323/16 . EPDM, i.e. ethylene propylene diene monomer

2325/00 Polymers of vinyl-aromatic compounds, e.g. polystyrene

2327/00 Polyvinylhalogenides

- 2327/06 . PVC, i.e. polyvinylchloride
- 2327/12 . containing fluorine
- 2327/18 . . PTFE, i.e. polytetrafluoroethylene

2329/00 Polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals

- 2329/04 . Polyvinylalcohol
- 2329/06 . PVB, i.e. polyvinylbutyral

2331/00 Polyvinylesters

- 2331/04 . Polymers of vinyl acetate, e.g. PVA

2333/00 Polymers of unsaturated acids or derivatives thereof

- 2333/04 . Polymers of esters
- 2333/08 . . Polymers of acrylic acid esters, e.g. PMA, i.e. polymethylacrylate
- 2333/12 . . Polymers of methacrylic acid esters, e.g. PMMA, i.e. polymethylmethacrylate

2355/00 Specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of index codes [B32B 2323/00](#) - [B32B 2333/00](#)

- 2355/02 . ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers

2361/00 Phenoplast, aminoplast

2363/00 Epoxy resins

2367/00 Polyesters, e.g. PET, i.e. polyethylene terephthalate

2369/00 Polycarbonates

2371/00 Polyethers, e.g. PEEK, i.e. polyether-etherketone; PEK, i.e. polyetherketone

2375/00 Polyureas; Polyurethanes

2377/00 Polyamides

2379/00 Other polymers having nitrogen, with or without oxygen or carbon only, in the main chain

- 2379/08 . Polyimides

2383/00 Polysiloxanes

2386/00 Specific polymers obtained by polycondensation or polyaddition not provided for in a single one of index codes [B32B 2363/00](#) - [B32B 2383/00](#)

2391/00 Waxes

2395/00 Bituminous material, e.g. tar, asphalt

2398/00 Unspecified macromolecular compounds

- 2398/10 . Thermosetting resins
- 2398/20 . Thermoplastics

Particular articles

NOTE

Parts of specific articles are indexed with the same indexing codes as the articles

2405/00 Adhesive articles, e.g. adhesive tapes

2410/00 Agriculture-related articles

2413/00 Belts

2419/00 Buildings or parts thereof

- 2419/02 . Bricks
- 2419/04 . Tiles for floors or walls
- 2419/06 . Roofs, roof membranes

2425/00 Cards, e.g. identity cards, credit cards

2429/00 Carriers for sound or information

- 2429/02 . Records or discs

2432/00 Cleaning articles, e.g. mops or wipes

2433/00 Closed loop articles

- 2433/02 . Conveyor belts
- 2433/04 . Driving belts

2435/00 Closures, end caps, stoppers

- 2435/02 . for containers

2437/00 Clothing

- 2437/02 . Gloves, shoes
- 2437/04 . Caps, helmets

2439/00 Containers; Receptacles

- 2439/02 . Open containers
- 2439/06 . . Bags, sacks, sachets
- 2439/40 . Closed containers
- 2439/46 . . Bags
- 2439/60 . . Bottles
- 2439/62 . . Boxes, cartons, cases
- 2439/66 . . Cans, tins
- 2439/70 . Food packaging
- 2439/80 . Medical packaging

- 2451/00** **Decorative or ornamental articles**
- 2457/00** **Electrical equipment**
 - 2457/04 . Insulators
 - 2457/08 . PCBs, i.e. printed circuit boards
 - 2457/10 . Batteries
 - 2457/12 . Photovoltaic modules
 - 2457/14 . Semiconductor wafers
 - 2457/16 . Capacitors
 - 2457/18 . Fuel cells
 - 2457/20 . Displays, e.g. liquid crystal displays, plasma displays
 - 2457/202 . . LCD, i.e. liquid crystal displays
 - 2457/204 . . Plasma displays
 - 2457/206 . . Organic displays, e.g. OLED
 - 2457/208 . . Touch screens
- 2459/00** **Nets, e.g. camouflage nets**
- 2471/00** **Floor coverings ([B32B 2419/04](#) takes precedence)**
 - 2471/02 . Carpets
 - 2471/04 . Mats
- 2475/00** **Frictional elements**
- 2479/00** **Furniture**
- 2509/00** **Household appliances**
 - 2509/10 . Refrigerators or refrigerating equipment
- 2519/00** **Labels, badges**
 - 2519/02 . RFID tags
- 2535/00** **Medical equipment, e.g. bandage, prostheses or catheter**
- 2551/00** **Optical elements**
 - 2551/08 . Mirrors
- 2553/00** **Packaging equipment or accessories not otherwise provided for**
 - 2553/02 . Shock absorbing
 - 2553/023 . . for use in loose form, e.g. dunnage
 - 2553/026 . . Bubble films
- 2554/00** **Paper of special types, e.g. banknotes**
- 2555/00** **Personal care**
 - 2555/02 . Diapers or napkins
- 2556/00** **Patches, e.g. medical patches, repair patches**
- 2559/00** **Photographic equipment or accessories**
- 2571/00** **Protective equipment**
 - 2571/02 . defensive, e.g. armour plates or anti-ballistic clothing
- 2581/00** **Seals; Sealing equipment; Gaskets**
- 2590/00** **Signboards, advertising panels, road signs**
- 2597/00** **Tubular articles, e.g. hoses, pipes**
- 2601/00** **Upholstery**
- 2603/00** **Vanes, blades, propellers, rotors with blades**
- 2605/00** **Vehicles**
 - 2605/003 . Interior finishings
 - 2605/006 . Transparent parts other than made from inorganic glass, e.g. polycarbonate glazings
- 2605/08 . Cars
- 2605/10 . Trains
- 2605/12 . Ships
- 2605/16 . Submarines
- 2605/18 . Aircraft
- 2607/00** **Walls, panels**
 - 2607/02 . Wall papers, wall coverings