

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](#)
[B32B 17/12](#)

covered by
covered by

[B32B 3/266](#)
[B32B 17/067](#)

1/00	Layered products having a general shape other than plane	3/10	• characterised by a discontinuous layer, i.e. formed of separate pieces of material
	NOTE		NOTE
	For classification of a product in this group, surface unevennesses or non-uniformities and the shape of individual layers are ignored.		In this group, a series of spaced separate elements forming in effect a broken surface should {not} be regarded as a layer.
1/02	• Receptacles {, i.e. rigid containers}, e.g. tanks	3/12	• • characterised by a layer of regularly- arranged cells, e.g. a honeycomb structure
1/04	• characterised by feature of form at particular places, e.g. in edge regions {(not used)}	3/14	• • characterised by a face layer formed of separate pieces of material {which are juxtaposed side-by-side (B32B 5/02 takes precedence)}
1/06	• characterised by fillings or added members in hollow portions {(not used)}	3/16	• • • secured to a flexible backing
1/08	• Tubular products	3/18	• • characterised by an internal layer formed of separate pieces of material {which are juxtaposed side-by-side (B32B 5/02 takes precedence)}
3/00	Layered products comprising a layer with external or internal discontinuities or unevennesses, or a layer of non-planar form (fibrous or filamentary layer B32B 5/02; particulate layer B32B 5/16; foamed layer B32B 5/18); Layered products having particular features of form (receptacles or tubular products B32B 1/00)	3/20	• • • of hollow pieces, e.g. tubes; of pieces with channels or cavities
		3/22	• • • of spaced pieces {(not used)}
3/02	• characterised by features of form at particular places, e.g. in edge regions {(non-uniform thickness B32B 3/263)}	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}
3/04	• • 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}	3/263	• • {characterised by a layer having non-uniform thickness}
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}	3/266	• • {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 }
3/08	• • 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)}	3/28	• • 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)
3/085	• • • {spaced apart pieces on the surface of a layer}	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)}

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}	5/073	. . . {characterised by the fibrous or filamentary layer being mechanically connected to another layer by sewing, stitching, hook-and-loop fastening or stitchbonding}
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)}		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.
	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}	5/08	. . the fibres or filaments of a layer being of different substances {, e.g. conjugate fibres, mixture of different fibres}
5/024	. . {Woven fabric}	5/10	. . characterised by a fibrous {or filamentary} layer reinforced with filaments
5/026	. . {Knitted fabric}	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}
5/028	. . {Net structure, e.g. spaced apart filaments bonded at the crossing points}	5/14	. characterised by a layer differing constitutionally or physically in different parts, e.g. denser near its faces
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}	5/142	. . {Variation across the area of the layer}
5/06	. . characterised by a fibrous {or filamentary} layer {mechanically connected, e.g. by needling} to another layer, e.g. of fibres, of paper	5/145	. . {Variation across the thickness of the layer}
	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.	5/147	. . {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)}
5/067	. . . {characterised by the fibrous or filamentary layer being mechanically connected by hydroentangling}	5/18	. characterised by features of a layer {of} foamed material
	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.	5/20	. . foamed <i>in situ</i>
		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 23/042)}
- 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}	17/10238	. . . . . {in the form of particles}
17/061	. . {of metal}	17/10247	. . . . . {Laminated safety glass or glazing containing decorations or patterns for aesthetic reasons (containing metal wires for aesthetic reasons B32B 17/10422)}
17/062	. . {of wood}		
17/063	. . {of rubber}	17/10256	. . . . . {created by printing techniques}
17/065	. . {of paper or cardboard}	17/10266	. . . . . {on glass pane}
17/066	. . {of foam}	17/10275	. . . . . {on interlayer}
17/067	. . {of fibres or filaments}	17/10284	. . . . . {on intermediate layer}
17/068	. . {of particles}	17/10293	. . . . . {Edge features, e.g. inserts or holes}
17/069	. . {of intumescent material (B32B 17/10311 takes precedence)}	17/10302	. . . . . {Edge sealing}
17/08	. . of cellulosic plastic substance {or gelatin}	17/10311	. . . . . {Intumescent layers for fire protection}
17/10	. . of synthetic resin	17/10321	. . . . . {Laminated safety glass or glazing containing liquid layers}
17/10005	. . . {laminated safety glass or glazing}	17/1033	. . . . . {Laminated safety glass or glazing containing temporary protective coatings or layers}
NOTE		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)}
{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.}		17/10348	. . . . . {comprising an obscuration band}
17/10009	. . . . {characterized by the number, the constitution or treatment of glass sheets}	17/10357	. . . . . {comprising a tinted intermediate film}
17/10018	. . . . . {comprising only one glass sheet}	17/10366	. . . . . {Reinforcements of the laminated safety glass or glazing against impact or intrusion (containing metal wires for reinforcement B32B 17/10412)}
17/10027	. . . . . {the glass sheet not being an outer layer}	17/10376	. . . . . {Laminated safety glass or glazing containing metal wires}
17/10036	. . . . . {comprising two outer glass sheets}	17/10385	. . . . . {for ohmic resistance heating}
17/10045	. . . . . {with at least one intermediate layer consisting of a glass sheet}	17/10394	. . . . . {Alarm wires}
17/10055	. . . . . {with at least one intermediate air space}	17/10403	. . . . . {for radiation shielding}
17/10064	. . . . . {comprising at least two glass sheets, only one of which being an outer layer}	17/10412	. . . . . {for reinforcement}
17/10073	. . . . . {comprising at least two glass sheets, neither of which being an outer layer}	17/10422	. . . . . {for aesthetic reasons}
17/10082	. . . . . {Properties of the bulk of a glass sheet}	17/10431	. . . . . {Specific parts for the modulation of light incorporated into the laminated safety glass or glazing}
17/10091	. . . . . {thermally hardened}	17/1044	. . . . . {Invariable transmission}
17/101	. . . . . {having a predetermined coefficient of thermal expansion [CTE]}	17/10449	. . . . . {Wavelength selective transmission}
17/1011	. . . . . {having predetermined tint or excitation purity}	17/10458	. . . . . {Polarization selective transmission}
17/10119	. . . . . {having a composition deviating from the basic composition of soda-lime glass, e.g. borosilicate}	17/10467	. . . . . {Variable transmission}
17/10128	. . . . . {Treatment of at least one glass sheet}	17/10477	. . . . . {thermochromic}
17/10137	. . . . . {Chemical strengthening}	17/10486	. . . . . {photochromic}
17/10146	. . . . . {Face treatment, e.g. etching, grinding or sand blasting}	17/10495	. . . . . {optoelectronic, i.e. optical valve}
17/10155	. . . . . {Edge treatment or chamfering}	17/10504	. . . . . {Liquid crystal layer}
17/10165	. . . . {Functional features of the laminated safety glass or glazing}	17/10513	. . . . . {Electrochromic layer}
17/10174	. . . . . {Coatings of a metallic or dielectric material on a constituent layer of glass or polymer}	17/10522	. . . . . {Electrophoretic layer}
17/10183	. . . . . {being not continuous, e.g. in edge regions}	17/10532	. . . . . {Suspended particle layer}
17/10192	. . . . . {patterned in the form of columns or grids}	17/10541	. . . . . {comprising a light source or a light guide}
17/10201	. . . . . {Dielectric coatings}	17/1055	. . . . {characterized by the resin layer, i.e. interlayer}
17/10211	. . . . . {Doped dielectric layer, electrically conductive, e.g. SnO ₂ :F}	17/10559	. . . . . {Shape of the cross-section}
17/1022	. . . . . {Metallic coatings}	17/10568	. . . . . {varying in thickness}
17/10229	. . . . . {Metallic layers sandwiched by dielectric layers}	17/10577	. . . . . {Surface roughness}
		17/10587	. . . . . {created by embossing}
		17/10596	. . . . . {created by melt fracture}
		17/10605	. . . . . {Type of plasticiser}
		17/10614	. . . . . {comprising particles for purposes other than dyeing}
		17/10623	. . . . . {Whitening agents reflecting visible light}

17/10633	. . . . .	{Infrared radiation absorbing or reflecting agents}
17/10642	. . . . .	{Thermally conductive agents}
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}
17/10715	. . . . .	{containing polyether}
17/10724	. . . . .	{containing polyamide}
17/10733	. . . . .	{containing epoxy}
17/10743	. . . . .	{containing acrylate (co)polymers or salts thereof}
17/10752	. . . . .	{containing polycarbonate}
17/10761	. . . . .	{containing vinyl acetal}
17/1077	. . . . .	{containing polyurethane}
17/10779	. . . . .	{containing polyester}
17/10788	. . . . .	{containing ethylene vinylacetate}
17/10798	. . . . .	{containing silicone}
17/10807	. . . . .	{Making laminated safety glass or glazing; Apparatus therefor}
17/10816	. . . . .	{by pressing}
17/10825	. . . . .	{Isostatic pressing, i.e. using non rigid pressure-exerting members against rigid parts}
17/10834	. . . . .	{using a fluid}
17/10844	. . . . .	{using a membrane between the layered product and the fluid}
17/10853	. . . . .	{the membrane being bag-shaped}
17/10862	. . . . .	{using pressing-rolls}
17/10871	. . . . .	{in combination with particular heat treatment}
17/1088	. . . . .	{by superposing a plurality of layered products}
17/10889	. . . . .	{shaping the sheets, e.g. by using a mould (B32B 17/10816 takes precedence)}
17/10899	. . . . .	{by introducing interlayers of synthetic resin}
17/10908	. . . . .	{in liquid form}
17/10917	. . . . .	{between two pre-positioned glass layers}
17/10926	. . . . .	{by spraying}
17/10935	. . . . .	{as a preformed layer, e.g. formed by extrusion}
17/10944	. . . . .	{in powder form}
17/10954	. . . . .	{by using an aligning laminating device}
17/10963	. . . . .	{specially adapted for repairing the layered products}
17/10972	. . . . .	{Degassing during the lamination (B32B 17/10816 takes precedence)}
17/10981	. . . . .	{Pre-treatment of the layers}
17/1099	. . . . .	{After-treatment of the layered product, e.g. cooling}

18/00	Layered products essentially comprising ceramics, e.g. refractory products
	NOTE
	{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 }
19/00	Layered products comprising {a layer of} natural mineral fibres or particles, e.g. asbestos, mica
19/02	. {the layer of fibres or particles being impregnated or} embedded in a plastic substance
19/04	. next to another layer of {the same or of} a {different material (next to a glass layer B32B 17/067)}
19/041	. . {of metal}
19/042	. . {of wood}
19/043	. . {of natural rubber or synthetic rubber}
19/045	. . {of synthetic resin}
19/046	. . {of paper or cardboard}
19/047	. . {of foam}
19/048	. . {made of particles}
19/06	. next to a fibrous or filamentary layer
19/08	. comprising asbestos
21/00	Layered products comprising {a layer of} wood, e.g. wood board, veneer, wood particle board
21/02	. {the layer being formed} of fibres, chips, or particles {, e.g. MDF, HDF, OSB, chipboard, particle board, hardboard}
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)}
21/042	. . {of wood (B32B 21/13 takes precedence)}
21/045	. . {of natural rubber or synthetic rubber}
21/047	. . {of foam}
21/06	. . of paper or cardboard
21/08	. . of synthetic resin
21/10	. Next to a fibrous or filamentary layer
21/12	. next to a particulate layer
21/13	. all layers being exclusively wood
21/14	. comprising wood board or veneer
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}
23/02	. in the form of fibres or filaments {(not used)}
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)}
23/042	. . {of metal}
23/044	. . {of wood}
23/046	. . {of natural rubber or synthetic rubber}
23/048	. . {of foam}
23/06	. . of paper or cardboard
23/08	. . of synthetic resin

- 23/10 . next to a fibrous or filamentary layer
- 23/12 . next to a particulate layer
- 23/14 . characterised by containing special compounding ingredients
- 23/16 . . Modifying agents
- 23/18 . . Fillers
- 23/20 . comprising esters
- 23/22 . comprising ethers
- 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, parchmented
- 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

- 37/0007 . {involving treatment or provisions in order to avoid deformation or air inclusion, e.g. to improve surface quality}
- 37/0015 . . {to avoid warp or curl}
- 37/0023 . . {around holes, apertures or channels present in at least one layer}
- 37/003 . . {to avoid air inclusion}
- 37/0038 . {involving application of liquid to the layers prior to lamination, e.g. wet laminating ([B32B 37/12](#) takes precedence)}
- 37/0046 . {characterised by constructional aspects of the apparatus}
- 37/0053 . . {Constructional details of laminating machines comprising rollers; Constructional features of the rollers}
- 2037/0061 . . {the apparatus being an office laminator}
- 2037/0069 . . {the apparatus being originally designed for another function, e.g. printer, photocopier}

- 37/0076 . {characterised in that the layers are not bonded on the totality of their surfaces}
- 37/0084 . . {Point bonding}
- 2037/0092 . {in which absence of adhesives is explicitly presented as an advantage}
- 37/02 . characterised by a sequence of laminating steps, e.g. by adding new layers at consecutive laminating stations
- 37/025 . . {Transfer laminating}
- 37/04 . characterised by the partial melting of at least one layer
- 37/06 . characterised by the heating method
- 37/065 . . {resulting in the laminate being partially bonded ([B32B 37/0076](#) takes precedence)}
- 37/08 . characterised by the cooling method
- 37/085 . . {Quenching}
- 37/10 . characterised by the pressing technique, e.g. using action of vacuum or fluid pressure
- 37/1009 . . {using vacuum and fluid pressure}
- 37/1018 . . {using only vacuum}
- 37/1027 . . {Pressing using at least one press band}
- 37/1036 . . . {Pressing between one press band and a cylinder}
- 37/1045 . . {Intermittent pressing, e.g. by oscillating or reciprocating motion of the pressing means ([B32B 37/0076](#) takes precedence)}
- 37/1054 . . {Regulating the dimensions of the laminate, e.g. by adjusting the nip or platen gap}
- 2037/1063 . . {using an electrostatic force}
- 2037/1072 . . {using a fluid jet}
- 2037/1081 . . {using a magnetic force}
- 2037/109 . . {using a squeegee}
- 37/12 . characterised by using adhesives
- 37/1207 . . {Heat-activated adhesive ([B32B 37/04](#) takes precedence)}
- 2037/1215 . . . {Hot-melt adhesive}
- 2037/1223 {film-shaped}
- 2037/123 {net-shaped}
- 2037/1238 . . . {in the form of powder}
- 2037/1253 . . {curable adhesive}
- 2037/1261 . . . {moisture curable}
- 2037/1269 . . {multi-component adhesive}
- 2037/1276 . . {water-based adhesive}
- 37/1284 . . {Application of adhesive}
- 37/1292 . . . {selectively, e.g. in stripes, in patterns ([B32B 37/0076](#) takes precedence)}
- 37/14 . characterised by the properties of the layers
- 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}
- 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](#))}
- 37/146 . . {whereby one or more of the layers is a honeycomb structure}
- 2037/148 . . {whereby layers material is selected in order to facilitate recycling of the laminate}
- 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

37/153	. . . {at least one layer is extruded and immediately laminated while in semi-molten state}	38/0012	. {Mechanical treatment, e.g. roughening, deforming, stretching}
37/156	. . . {at least one layer is calendered and immediately laminated}	2038/0016	. . {Abrading}
37/16	. . with all layers existing as coherent layers before laminating	2038/002	. . {Sandblasting}
37/18	. . . involving the assembly of discrete sheets or panels only	2038/0024	. . {Crushing}
37/182	. . . . {one or more of the layers being plastic}	2038/0028	. . {Stretching, elongating}
37/185	. . . . {Laminating sheets, panels or inserts between two discrete plastic layers}	38/0032	. {increasing porosity (B32B 38/04 takes precedence)}
37/187	. . . . {the layers being placed in a carrier before going through the lamination process}	38/0036	. {Heat treatment (for heating or cooling of layers during lamination B32B 37/06 , B32B 37/08)}
37/20	. . . involving the assembly of continuous webs only	38/004	. . {by physically contacting the layers, e.g. by the use of heated platens or rollers}
37/203	. . . . {One or more of the layers being plastic}	2038/0044	. . {for creating local stresses}
37/206	. . . . {Laminating a continuous layer between two continuous plastic layers}	2038/0048	. . {Annealing, relaxing}
37/22	. . . involving the assembly of both discrete and continuous layers	2038/0052	. {Other operations not otherwise provided for}
37/223	. . . . {One or more of the layers being plastic}	2038/0056	. . {Moistening}
37/226	. . . . {Laminating sheets, panels or inserts between two continuous plastic layers}	2038/006	. . {Relieving internal or residual stresses}
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)	2038/0064	. . {Smoothing, polishing, making a glossy surface}
2037/243	. . . {Coating}	2038/0068	. . {Changing crystal orientation}
2037/246	. . . {Vapour deposition}	2038/0072	. . {Orienting fibers}
37/26	. . with at least one layer which influences the bonding during the lamination process, e.g. release layers or pressure equalising layers	2038/0076	. . {Curing, vulcanising, cross-linking}
2037/262	. . . {Partition plates or sheets for separating several laminates pressed simultaneously}	2038/008	. . {Sewing, stitching}
2037/264	. . . {Pressure equalizing layers}	2038/0084	. . {Foaming}
2037/266	. . . {Cushioning layers}	2038/0088	. . {Expanding, swelling}
2037/268	. . . {Release layers}	2038/0092	. . {Metallizing}
37/28	. involving assembly of non-flat intermediate products which are flattened at a later step, e.g. tubes	2038/0096	. . {Riveting}
37/30	. Partial laminating	38/04	. Punching, slitting or perforating
38/00	Ancillary operations in connection with laminating processes	2038/042	. . {Punching}
	NOTE	2038/045	. . {Slitting}
	{In this group, the following expression is used with the meaning indicated:	2038/047	. . {Perforating}
	• "in connection with laminating processes" means ancillary operations are carried out either	38/06	. Embossing
	a. as steps of the lamination processes, or	38/08	. Impregnating
	b. in line with the lamination processes, just before or immediately after.}	38/10	. Removing layers, or parts of layers, mechanically or chemically
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)}	38/105	. . {on edges}
38/0008	. {Electrical discharge treatment, e.g. corona, plasma treatment; wave energy or particle radiation (heat treatment B32B 38/0036)}	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 (layers of natural mineral fibres or particles being impregnated in a plastic substance B32B 19/02)
2260/023	. . . Two or more layers
2260/025	. . Particulate layer (layers of natural mineral fibres or particles being impregnated in a plastic substance B32B 19/02)
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 fibers
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 (vinyl or acrylic copolymers B32B 2262/0223 or B32B 2262/0246)
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 (layered products comprising a layer of natural mineral fibres B32B 19/00)
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	2264/20	. Particles characterised by shape
2262/156	. . Net structure	2264/201	. . Flat or platelet-shaped particles, e.g. flakes
2262/16	. Structural features of fibres, filaments or yarns e.g. wrapped, coiled, crimped or covered	2264/202	. . Solid spheres
2264/00	Composition or properties of particles which form a particulate layer or are present as additives	2264/203	. . Expanded, porous or hollow particles
2264/02	. Synthetic macromolecular particles	2264/2031	. . . Porous particles
2264/0207	. . Particles made of materials belonging to B32B 25/00	2264/2032	. . . Hollow spheres
2264/0214	. . Particles made of materials belonging to B32B 27/00	2264/204	. . Rod- or needle-shaped particles
2264/0221	. . . Thermoplastic elastomer particles	2264/30	. Particles characterised by physical dimension
2264/0228	. . . Vinyl resin particles, e.g. polyvinyl acetate, polyvinyl alcohol polymers or ethylene-vinyl acetate copolymers	2264/301	. . Average diameter smaller than 100 nm
2264/0235	. . . . Aromatic vinyl resin, e.g. styrenic (co)polymers	2264/302	. . Average diameter in the range from 100 nm to 1000 nm
2264/0242	. . . . Vinyl halide, e.g. PVC, PVDC, PVF or PVDF (co)polymers	2264/303	. . Average diameter greater than 1µm
2264/025	. . . Acrylic resin particles, e.g. polymethyl methacrylate or ethylene-acrylate copolymers	2264/304	. . Particle length
2264/0257	. . . Polyolefin particles, e.g. polyethylene or polypropylene homopolymers or ethylene-propylene copolymers	2264/305	. . Particle size distribution, e.g. unimodal size distribution
2264/0264	. . . Polyamide particles	2264/306	. . . Multimodal particle size distribution
2264/0271	. . . . Aromatic polyamide particles	2264/3065	. . . . bimodal size distribution
2264/0278	. . . Polyester particles	2264/307	. . Surface area of particles
2264/0285	. . . . PET or PBT	2264/308	. . Aspect ratio of particles
2264/0292	. . . Polyurethane particles	2264/40	. Pretreated particles
2264/04	. Cellulosic particles, e.g. rayon	2264/401	. . with inorganic substances
2264/06	. Vegetal particles	2264/402	. . with organic substances
2264/062	. . Cellulose particles, e.g. cotton	2264/4021	. . . with silicon-containing compounds
2264/065	. . . Lignocellulosic particles, e.g. jute, sisal, hemp, flax, bamboo	2264/403	. . coated or encapsulated
2264/067	. . . Wood particles	2264/50	. Particles characterised by their position or distribution in a layer
2264/08	. Animal particles, e.g. leather	2264/501	. . homogeneously distributed
2264/10	. Inorganic particles	2264/502	. . distributed in a gradient manner
2264/101	. . Glass	2264/503	. . distributed in a predetermined pattern in a thickness direction
2264/102	. . Oxide or hydroxide	2264/504	. . distributed in a predetermined pattern in a direction perpendicular to the thickness
2264/1021	. . . Silica	2266/00	Composition of foam
2264/1022	. . . Titania	2266/02	. Organic
2264/1023	. . . Alumina	2266/0207	. . Materials belonging to B32B 25/00
2264/1024	. . . Zirconia	2266/0214	. . Materials belonging to B32B 27/00
2264/1025	. . . Zinc oxide	2266/0221	. . . Vinyl resin
2264/1026	. . . Mica	2266/0228	. . . . Aromatic vinyl resin, e.g. styrenic (co)polymers
2264/1027	. . . Clay	2266/0235	. . . . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
2264/104	. . Oxysalt, e.g. carbonate, sulfate, phosphate or nitrate particles	2266/0242	. . . Acrylic resin
2264/105	. . Metal	2266/025	. . . Polyolefin (vinyl or acrylic copolymers B32B 2266/0221 , B32B 2266/0242)
2264/1051	. . . Silver or gold	2266/0257	. . . Polyamide
2264/1052	. . . Aluminum	2266/0264	. . . Polyester
2264/1053	. . . Alkali metal	2266/0271	. . . Epoxy resin
2264/1054	. . . Alkaline earth metal	2266/0278	. . . Polyurethane
2264/1055	. . . Copper or nickel	2266/0285	. . . Condensation resins of aldehydes, e.g. with phenols, ureas, melamines
2264/1056	. . . Iron or steel	2266/0292	. . . Thermoplastic elastomer
2264/1057	. . . Chromium	2266/031	. . Bituminous or tarry material
2264/1058	. . . Titanium	2266/04	. Inorganic
2264/1059	. . . Zinc	2266/045	. Metal
2264/107	. . Ceramic	2266/049	. . Water-setting material, e.g. concrete, plaster or asbestos cement
2264/108	. . . Carbon, e.g. graphite particles	2266/053	. . Mineral element, e.g. asbestos or mica
2264/12	. Mixture of at least two particles made of different materials	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	2307/20	. having particular electrical or magnetic properties, e.g. piezoelectric
2266/106	. . Unimodal pore distribution	2307/202	. . Conductive
2266/108	. . Bimodal pore distribution	2307/204	. . Di-electric
2266/12	. Gel	2307/206	. . Insulating
2266/122	. . Hydrogel, i.e. a gel containing an aqueous composition	2307/208	. . Magnetic, paramagnetic
2266/124	. . Organogel, i.e. a gel containing an organic composition	2307/21	. . Anti-static
2266/126	. . Aerogel, i.e. a supercritically dried gel	2307/212	. . Electromagnetic interference shielding
2266/128	. . Xerogel, i.e. an air dried gel	2307/30	. having particular thermal properties
2266/14	. Adhesive foam	2307/302	. . Conductive
2270/00	Resin or rubber layer containing a blend of at least two different polymers	2307/304	. . Insulating
2272/00	Resin or rubber layer comprising scrap, waste or recycling material	2307/306	. . Resistant to heat
2274/00	Thermoplastic elastomer material (thermoplastic elastomer fibres B32B 2262/0215 , thermoplastic elastomer particles B32B 2264/0221 , thermoplastic elastomer foam B32B 2266/0292)	2307/3065	. . . Flame resistant or retardant, fire resistant or retardant
Condition, form, state or properties of the layers or laminate		2307/308	. . Heat stability (dimensional stability B32B 2307/734)
2305/00	Condition, form or state of the layers or laminate	2307/31	. . Heat sealable
2305/02	. Cellular or porous	2307/40	. having particular optical properties (light or UV resistant B32B 2307/71)
2305/022	. . Foam	2307/402	. . Coloured
2305/024	. . Honeycomb	2307/4023	. . . on the layer surface, e.g. ink
2305/026	. . Porous	2307/4026	. . . within the layer by addition of a colorant, e.g. pigments, dyes
2305/028	. . Hollow fillers; Syntactic material	2307/404	. . . Multi-coloured
2305/07	. Parts immersed or impregnated in a matrix	2307/406	. . Bright, glossy, shiny surface
2305/073	. . partially	2307/408	. . Matt, dull surface
2305/076	. . Prepregs	2307/409	. . Iridescent, pearlescent surface
2305/08	. Reinforcements	2307/41	. . Opaque
2305/10	. Fibres of continuous length	2307/412	. . Transparent
2305/18	. . Fabrics, textiles	2307/414	. . Translucent
2305/182	. . . knitted	2307/416	. . Reflective
2305/184	. . . Braided fabrics	2307/418	. . Refractive
2305/186	. . . Knitted fabrics	2307/42	. . Polarizing, birefringent, filtering
2305/188	. . . Woven fabrics	2307/422	. . Luminescent, fluorescent, phosphorescent
2305/20	. . in the form of a non-woven mat	2307/50	. having particular mechanical properties
2305/22	. Fibres of short length	2307/51	. . Elastic
2305/24	. . Whiskers	2307/514	. . Oriented
2305/28	. . in the form of a mat	2307/516	. . . mono-axially
2305/30	. Fillers, e.g. particles, powders, beads, flakes, spheres, chips	2307/518	. . . bi-axially
2305/34	. Inserts	2307/52	. . . multi-axially
2305/342	. . Chips	2307/536	. . Hardness
2305/345	. . Heating elements	2307/538	. . Roughness
2305/347	. . Security elements	2307/54	. . Yield strength; Tensile strength
2305/38	. Meshes, lattices or nets	2307/542	. . Shear strength
2305/54	. Filled microcapsules	2307/544	. . Torsion strength; Torsion stiffness
2305/55	. Liquid crystals	2307/546	. . Flexural strength; Flexion stiffness
2305/70	. Scrap or recycled material	2307/548	. . Creep
2305/72	. Cured, e.g. vulcanised, cross-linked	2307/552	. . Fatigue strength
2305/74	. Partially cured	2307/554	. . Wear resistance
2305/77	. Uncured, e.g. green	2307/558	. . Impact strength, toughness
2305/80	. Sintered	2307/56	. . Damping, energy absorption
2307/00	Properties of the layers or laminate	2307/58	. . Cuttability
2307/10	. having particular acoustical properties	2307/581	. . . Resistant to cut
2307/102	. . Insulating	2307/582	. . Tearability
		2307/5825	. . . Tear resistant
		2307/584	. . Scratch resistance
		2307/70	. Other properties
		2307/702	. . Amorphous
		2307/704	. . Crystalline
		2307/706	. . Anisotropic
		2307/708	. . Isotropic
		2307/71	. . Resistive to light or to UV

2307/712	. . Weather resistant
2307/714	. . Inert, i.e. inert to chemical degradation, corrosion
2307/7145	. . . Rot proof, resistant to bacteria, mildew, mould, fungi
2307/716	. . Degradable
2307/7163	. . . Biodegradable
2307/7166	. . . Water-soluble, water-dispersible
2307/718	. . Weight, e.g. weight per square meter
2307/72	. . Density
2307/722	. . . Non-uniform density
2307/724	. . Permeability to gases, adsorption
2307/7242	. . . Non-permeable
2307/7244	. . . . Oxygen barrier
2307/7246	. . . . Water vapor barrier
2307/7248	. . . . Odour barrier
2307/726	. . Permeability to liquids, absorption
2307/7265	. . . Non-permeable
2307/728	. . Hydrophilic
2307/73	. . Hydrophobic
2307/732	. . Dimensional properties
2307/734	. . . Dimensional stability
2307/736	. . . . Shrinkable
2307/737	. . . Dimensions, e.g. volume or area
2307/7375	. . . . Linear, e.g. length, distance or width
2307/7376	. . . . . Thickness
2307/738	. . Thermoformability
2307/74	. . Oxygen absorber
2307/744	. . Non-slip, anti-slip
2307/746	. . Slipping, anti-blocking, low friction
2307/748	. . Releasability
2307/75	. . Printability
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 ([synthetic rubber B32B 2319/00](#))
- 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 ([natural rubber B32B 2317/22](#))****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 (labels B32B 2519/00)	2457/208	. . Touch screens
2410/00	Agriculture-related articles	2459/00	Nets, e.g. camouflage nets
2413/00	Belts (conveyor belts B32B 2433/02 ; drive belts B32B 2433/04)	2471/00	Floor coverings (B32B 2419/04 takes precedence)
2419/00	Buildings or parts thereof (walls, panels B32B 2607/00)	2471/02	. Carpets
2419/02	. Bricks	2471/04	. Mats
2419/04	. Tiles for floors or walls (tiles for roofs B32B 2419/06)	2475/00	Frictional elements
2419/06	. Roofs, roof membranes	2479/00	Furniture (upholstery B32B 2601/00)
2425/00	Cards, e.g. identity cards, credit cards	2509/00	Household appliances
2429/00	Carriers for sound or information	2509/10	. Refrigerators or refrigerating equipment
2429/02	. Records or discs	2519/00	Labels, badges
2432/00	Cleaning articles, e.g. mops, wipes (personal care B32B 2555/00)	2519/02	. RFID tags
2433/00	Closed loop articles	2535/00	Medical equipment, e.g. bandage, prostheses, catheter (medical patches B32B 2556/00)
2433/02	. Conveyor belts	2551/00	Optical elements
2433/04	. Driving belts	2551/08	. Mirrors
2435/00	Closures, end caps, stoppers	2553/00	Packaging equipment or accessories not otherwise provided for
2435/02	. for containers	2553/02	. Shock absorbing
2437/00	Clothing (anti-ballistic clothing B32B 2571/02)	2553/023	. . for use in loose form, e.g. dunnage
2437/02	. Gloves, shoes	2553/026	. . Bubble films
2437/04	. Caps, helmets	2554/00	Paper of special types, e.g. banknotes
2439/00	Containers; Receptacles (closures therefor B32B 2435/00)	2555/00	Personal care
2439/02	. Open containers	2555/02	. Diapers or napkins
2439/06	. . Bags, sacks, sachets	2556/00	Patches, e.g. medical patches, repair patches
2439/40	. Closed containers	2559/00	Photographic equipment or accessories
2439/46	. . Bags	2571/00	Protective equipment
2439/60	. . Bottles	2571/02	. defensive, e.g. armour plates, anti-ballistic clothing (camouflage nets B32B 2459/00)
2439/62	. . Boxes, cartons, cases	2581/00	Seals; Sealing equipment; Gaskets
2439/66	. . Cans, tins	2590/00	Signboards, advertising panels, road signs
2439/70	. Food packaging	2597/00	Tubular articles, e.g. hoses, pipes
2439/80	. Medical packaging	2601/00	Upholstery
2451/00	Decorative or ornamental articles (wall paper B32B 2607/02)	2603/00	Vanes, blades, propellers, rotors with blades
2457/00	Electrical equipment	2605/00	Vehicles
2457/04	. Insulators	2605/003	. Interior finishings
2457/08	. PCBs, i.e. printed circuit boards	2605/006	. Transparent parts other than made from inorganic glass, e.g. polycarbonate glazings
2457/10	. Batteries	2605/08	. Cars
2457/12	. Photovoltaic modules	2605/10	. Trains
2457/14	. Semiconductor wafers	2605/12	. Ships
2457/16	. Capacitors	2605/16	. Submarines
2457/18	. Fuel cells	2605/18	. Aircraft (blades, propellers B32B 2603/00)
2457/20	. Displays, e.g. liquid crystal displays, plasma displays	2607/00	Walls, panels
2457/202	. . LCD, i.e. liquid crystal displays	2607/02	. Wall papers, wall coverings
2457/204	. . Plasma displays		
2457/206	. . Organic displays, e.g. OLED		