

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 23/042](#))}
- 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}
- 17/061 . . {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}
17/1077	. . . . . {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	
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}	
37/156	• . . . {at least one layer is calendared and immediately laminated}	
37/16	• . . with all layers existing as coherent layers before laminating	
37/18	• . . . involving the assembly of discrete sheets or panels only	
37/182	• {one or more of the layers being plastic}	
37/185	• {Laminating sheets, panels or inserts between two discrete plastic layers}	
37/187	• {the layers being placed in a carrier before going through the lamination process}	
37/20	• . . . involving the assembly of continuous webs only	
37/203	• {One or more of the layers being plastic}	
37/206	• {Laminating a continuous layer between two continuous plastic layers}	
37/22	• . . . involving the assembly of both discrete and continuous layers	
37/223	• {One or more of the layers being plastic}	
37/226	• {Laminating sheets, panels or inserts between two continuous plastic layers}	

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)	2038/0092	. . {Metallizing}
2037/243	. . . {Coating}	2038/0096	. . {Riveting}
2037/246	. . . {Vapour deposition}	38/04	. Punching, slitting or perforating
37/26	. . with at least one layer which influences the bonding during the lamination process, e.g. release layers or pressure equalising layers	2038/042	. . {Punching}
2037/262	. . . {Partition plates or sheets for separating several laminates pressed simultaneously}	2038/045	. . {Slitting}
2037/264	. . . {Pressure equalizing layers}	2038/047	. . {Perforating}
2037/266	. . . {Cushioning layers}	38/06	. Embossing
2037/268	. . . {Release layers}	38/08	. Impregnating
37/28	. involving assembly of non-flat intermediate products which are flattened at a later step, e.g. tubes	38/10	. Removing layers, or parts of layers, mechanically or chemically
37/30	. Partial laminating	38/105	. . {on edges}
38/00	Ancillary operations in connection with laminating processes	38/12	. Deep-drawing
	NOTE	38/14	. Printing or colouring
	{In this group, the following expression is used with the meaning indicated:	38/145	. . {Printing}
	• "in connection with laminating processes" means ancillary operations are carried out either	38/16	. Drying; Softening; Cleaning
	a. as steps of the lamination processes, or	38/162	. . {Cleaning}
	b. in line with the lamination processes, just before or immediately after.}	38/164	. . {Drying}
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)}	2038/166	. . . {Removing moisture}
38/0008	. {Electrical discharge treatment, e.g. corona, plasma treatment; wave energy or particle radiation (heat treatment B32B 38/0036)}	2038/168	. . . {Removing solvent}
38/0012	. {Mechanical treatment, e.g. roughening, deforming, stretching}	38/18	. Handling of layers or the laminate
2038/0016	. . {Abrading}	38/1808	. . {characterised by the laying up of the layers}
2038/002	. . {Sandblasting}	38/1816	. . . {Cross feeding of one or more of the layers}
2038/0024	. . {Crushing}	38/1825	. . {characterised by the control or constructional features of devices for tensioning, stretching or registration}
2038/0028	. . {Stretching, elongating}	38/1833	. . . {Positioning, e.g. registration or centering}
38/0032	. {increasing porosity (B32B 38/04 takes precedence)}	38/1841	. . . . {during laying up}
38/0036	. {Heat treatment (for heating or cooling of layers during lamination B32B 37/06 , B32B 37/08)}	38/185	. . . . . {combined with the cutting of one or more layers}
38/004	. . {by physically contacting the layers, e.g. by the use of heated platens or rollers}	38/1858	. . {using vacuum}
2038/0044	. . {for creating local stresses}	38/1866	. . {conforming the layers or laminate to a convex or concave profile}
2038/0048	. . {Annealing, relaxing}	38/1875	. . {Tensioning}
2038/0052	. {Other operations not otherwise provided for}	38/1883	. . {Detensioning}
2038/0056	. . {Moistening}	2038/1891	. . {Using a robot for handling the layers}
2038/006	. . {Relieving internal or residual stresses}	39/00	Layout of apparatus or plants, e.g. modular laminating systems
2038/0064	. . {Smoothing, polishing, making a glossy surface}	41/00	Arrangements for controlling or monitoring lamination processes; Safety arrangements
2038/0068	. . {Changing crystal orientation}	41/02	. Safety arrangements
2038/0072	. . {Orienting fibers}	2041/04	. {Detecting wrong registration, misalignment, deviation, failure}
2038/0076	. . {Curing, vulcanising, cross-linking}	2041/06	. {Starting the lamination machine or method}
2038/008	. . {Sewing, stitching}	43/00	Operations specially adapted for layered products and not otherwise provided for, e.g. repairing; Apparatus therefor
2038/0084	. . {Foaming}	43/003	. {Cutting}
2038/0088	. . {Expanding, swelling}	43/006	. {Delaminating}
		<u>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</u>	
		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	2262/0246	. . Acrylic resin fibres
2250/244	. . All polymers belonging to those covered by group B32B 27/36	2262/0253	. . Polyolefin fibres
2250/246	. . All polymers belonging to those covered by groups B32B 27/32 and B32B 27/30	2262/0261	. . Polyamide fibres
2250/248	. . All polymers belonging to those covered by group B32B 25/00	2262/0269	. . . Aromatic polyamide fibres
2250/26	. All layers being made of paper or paperboard	2262/0276	. . Polyester fibres
2250/40	. Symmetrical or sandwich layers, e.g. ABA, ABCBA, ABCCBA	2262/0284	. . . Polyethylene terephthalate [PET] or polybutylene terephthalate [PBT]
2250/42	. Alternating layers, e.g. ABAB(C), AABBAABB(C)	2262/0292	. . Polyurethane fibres
2250/44	. Number of layers variable across the laminate	2262/04	. Cellulosic plastic fibres, e.g. rayon
2255/00	Coating on the layer surface	2262/06	. Vegetal fibres
	NOTE	2262/062	. . Cellulose fibres, e.g. cotton
	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 .	2262/065	. . . Lignocellulosic fibres, e.g. jute, sisal, hemp, flax, bamboo
2255/02	. on fibrous or filamentary layer	2262/067	. . . Wood fibres
2255/04	. on a particulate layer	2262/08	. Animal fibres, e.g. hair, wool, silk
2255/06	. on metal layer	2262/10	. Inorganic fibres
2255/062	. . metal layer being a foamed layer	2262/101	. . Glass fibres
2255/08	. on wood layer	2262/103	. . Metal fibres
2255/10	. on synthetic resin layer or on natural or synthetic rubber layer	2262/105	. . Ceramic fibres
2255/102	. . synthetic resin or rubber layer being a foamed layer	2262/106	. . Carbon fibres, e.g. graphite fibres
2255/12	. on paper layer	2262/108	. . Rockwool fibres
2255/20	. Inorganic coating	2262/12	. Conjugate fibres, e.g. core/sheath or side-by-side
2255/205	. . Metallic coating	2262/124	. . Non-woven fabric
2255/24	. Organic non-macromolecular coating	2262/128	. . Woven fabric
2255/26	. Polymeric coating	2262/132	. . Knitted fabric
2255/28	. Multiple coating on one surface	2262/136	. . Net structure
2260/00	Layered product comprising an impregnated, embedded, or bonded layer wherein the layer comprises an impregnation, embedding, or binder material	2262/14	. Mixture of at least two fibres made of different materials
2260/02	. Composition of the impregnated, bonded or embedded layer	2262/144	. . Non-woven fabric
2260/021	. . Fibrous or filamentary layer	2262/148	. . Woven fabric
2260/023	. . . Two or more layers	2262/152	. . Knitted fabric
2260/025	. . Particulate layer	2262/156	. . Net structure
2260/026	. . Wood layer	2262/16	. Structural features of fibres, filaments or yarns e.g. wrapped, coiled, crimped or covered
2260/028	. . Paper layer	2264/00	Composition or properties of particles which form a particulate layer or are present as additives
2260/04	. Impregnation, embedding, or binder material	2264/02	. Synthetic macromolecular particles
2260/042	. . Bituminous or tarry substance	2264/0207	. . Particles made of materials belonging to B32B 25/00
2260/044	. . Water-setting substance, e.g. concrete, plaster	2264/0214	. . Particles made of materials belonging to B32B 27/00
2260/046	. . Synthetic resin	2264/0221	. . . Thermoplastic elastomer particles
2260/048	. . Natural or synthetic rubber	2264/0228	. . . Vinyl resin particles, e.g. polyvinyl acetate, polyvinyl alcohol polymers or ethylene-vinyl acetate copolymers
2262/00	Composition or structural features of fibres which form a fibrous or filamentary layer or are present as additives	2264/0235	. . . . Aromatic vinyl resin, e.g. styrenic (co)polymers
2262/02	. Synthetic macromolecular fibres	2264/0242	. . . . Vinyl halide, e.g. PVC, PVDC, PVF or PVDF (co)polymers
2262/0207	. . Elastomeric fibres	2264/025	. . . . Acrylic resin particles, e.g. polymethyl methacrylate or ethylene-acrylate copolymers
2262/0215	. . . Thermoplastic elastomer fibers	2264/0257	. . . . Polyolefin particles, e.g. polyethylene or polypropylene homopolymers or ethylene-propylene copolymers
2262/0223	. . Vinyl resin fibres	2264/0264	. . . . Polyamide particles
2262/023	. . . Aromatic vinyl resin, e.g. styrenic (co)polymers	2264/0271	. . . . Aromatic polyamide particles
2262/0238	. . . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF	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	2264/504	. . distributed in a predetermined pattern in a direction perpendicular to the thickness
2264/067	. . . Wood particles	2266/00	Composition of foam
2264/08	. Animal particles, e.g. leather	2266/02	. Organic
2264/10	. Inorganic particles	2266/0207	. . Materials belonging to B32B 25/00
2264/101	. . Glass	2266/0214	. . Materials belonging to B32B 27/00
2264/102	. . Oxide or hydroxide	2266/0221	. . . Vinyl resin
2264/1021	. . . Silica	2266/0228	. . . . Aromatic vinyl resin, e.g. styrenic (co)polymers
2264/1022	. . . Titania	2266/0235	. . . . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
2264/1023	. . . Alumina	2266/0242	. . . Acrylic resin
2264/1024	. . . Zirconia	2266/025	. . . Polyolefin
2264/1025	. . . Zinc oxide	2266/0257	. . . Polyamide
2264/1026	. . . Mica	2266/0264	. . . Polyester
2264/1027	. . . Clay	2266/0271	. . . Epoxy resin
2264/104	. . Oxysalt, e.g. carbonate, sulfate, phosphate or nitrate particles	2266/0278	. . . Polyurethane
2264/105	. . Metal	2266/0285	. . . Condensation resins of aldehydes, e.g. with phenols, ureas, melamines
2264/1051	. . . Silver or gold	2266/0292	. . . Thermoplastic elastomer
2264/1052	. . . Aluminum	2266/031	. . Bituminous or tarry material
2264/1053	. . . Alkali metal	2266/04	. Inorganic
2264/1054	. . . Alkaline earth metal	2266/045	. . Metal
2264/1055	. . . Copper or nickel	2266/049	. . Water-setting material, e.g. concrete, plaster or asbestos cement
2264/1056	. . . Iron or steel	2266/053	. . Mineral element, e.g. asbestos or mica
2264/1057	. . . Chromium	2266/057	. . Silicon-containing material, e.g. glass
2264/1058	. . . Titanium	2266/06	. Open cell foam
2264/1059	. . . Zinc	2266/08	. Closed cell foam
2264/107	. . Ceramic	2266/10	. characterised by the foam pores
2264/108	. . . Carbon, e.g. graphite particles	2266/102	. . Nanopores, i.e. with average diameter smaller than 0.1 µm
2264/12	. Mixture of at least two particles made of different materials	2266/104	. . Micropores, i.e. with average diameter in the range from 0.1 µm to 0.1 mm
2264/20	. Particles characterised by shape	2266/106	. . Unimodal pore distribution
2264/201	. . Flat or platelet-shaped particles, e.g. flakes	2266/108	. . Bimodal pore distribution
2264/202	. . Solid spheres	2266/12	. Gel
2264/203	. . Expanded, porous or hollow particles	2266/122	. . Hydrogel, i.e. a gel containing an aqueous composition
2264/2031	. . . Porous particles	2266/124	. . Organogel, i.e. a gel containing an organic composition
2264/2032	. . . Hollow spheres	2266/126	. . Aerogel, i.e. a supercritically dried gel
2264/204	. . Rod- or needle-shaped particles	2266/128	. . Xerogel, i.e. an air dried gel
2264/30	. Particles characterised by physical dimension	2266/14	. Adhesive foam
2264/301	. . Average diameter smaller than 100 nm	2270/00	Resin or rubber layer containing a blend of at least two different polymers
2264/302	. . Average diameter in the range from 100 nm to 1000 nm	2272/00	Resin or rubber layer comprising scrap, waste or recycling material
2264/303	. . Average diameter greater than 1µm	2274/00	Thermoplastic elastomer material
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		
		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	2605/08	• Cars
2457/00	Electrical equipment	2605/10	• Trains
2457/04	• Insulators	2605/12	• Ships
2457/08	• PCBs, i.e. printed circuit boards	2605/16	• Submarines
2457/10	• Batteries	2605/18	• Aircraft
2457/12	• Photovoltaic modules	2607/00	Walls, panels
2457/14	• Semiconductor wafers	2607/02	• Wall papers, wall coverings
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		