

# 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](#)

<b>1/00</b>	<b>Layered products having a general shape other than plane</b>	3/10	• characterised by a discontinuous layer, i.e. formed of separate pieces of material
	<b>NOTE</b>		<b>NOTE</b>
	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 ( <a href="#">B32B 5/02</a> 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 ( <a href="#">B32B 5/02</a> takes precedence)}
<b>3/00</b>	<b>Layered products comprising a layer with external or internal discontinuities or unevennesses, or a layer of non-planar form (fibrous or filamentary layer <a href="#">B32B 5/02</a>; particulate layer <a href="#">B32B 5/16</a>; foamed layer <a href="#">B32B 5/18</a>); Layered products having particular features of form (receptacles or tubular products <a href="#">B32B 1/00</a>)</b>	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 <a href="#">B32B 3/263</a> )}	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 <a href="#">B32B 5/18</a> ; layer of synthetic resin characterised by fillers that create voids or cavities <a href="#">B32B 27/205</a> ); 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 <a href="#">B32B 3/12</a> }
3/08	• • characterised by added members at particular parts {(layer formed of separate pieces of material which are juxtaposed side-by-side <a href="#">B32B 3/14</a> , <a href="#">B32B 3/18</a> )}	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 ( <a href="#">B32B 29/08</a> 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 <a href="#">B32B 3/266</a> ; layer with cavities or internal voids <a href="#">B32B 3/26</a> )}

5/00	<b>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}</b>	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 <a href="#">B32B 15/02</a> ; layer formed of natural mineral fibres <a href="#">B32B 19/02</a> ; layer formed of wood fibres <a href="#">B32B 21/02</a> )}		<b>WARNING</b>  Group <a href="#">B32B 5/073</a> is incomplete pending reclassification of documents from group <a href="#">B32B 5/06</a> .  All groups listed in this Warning should be considered in order to perform a complete search.
	<b>NOTES</b>  1. This group <u>covers</u> , 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 <a href="#">B32B 5/02</a> , the chemical composition of the fibres is further classified by using the Indexing symbols <a href="#">B32B 2262/00</a> - <a href="#">B32B 2262/16</a> .}		
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}
	<b>WARNING</b>  Group <a href="#">B32B 5/06</a> is impacted by reclassification into groups <a href="#">B32B 5/067</a> and <a href="#">B32B 5/073</a> .  All groups listed in this Warning should be considered in order to perform a complete search.	5/147	. . {by treatment of the layer}
5/067	. . . {characterised by the fibrous or filamentary layer being mechanically connected by hydroentangling}	5/16	. characterised by features of a layer formed of particles, e.g. chips, powder {or granules (layer formed of natural mineral particles <a href="#">B32B 19/00</a> ; layer being formed of wood fibres, chips or particles <a href="#">B32B 21/02</a> )}
	<b>WARNING</b>  Group <a href="#">B32B 5/067</a> is incomplete pending reclassification of documents from group <a href="#">B32B 5/06</a> .  All groups listed in this Warning should be considered in order to perform a complete search.	5/18	. characterised by features of a layer {of} foamed material
		5/20	. . foamed <u>in situ</u>
		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 <a href="#">B32B 19/047</a> , next to a layer made of particles <a href="#">B32B 19/048</a> , or next to a fibrous or filamentary layer <a href="#">B32B 19/06</a> ; paper layer or cardboard layer next to a paper layer or cardboard layer <a href="#">B32B 29/005</a> , next to a foam layer <a href="#">B32B 29/007</a> , next to a fibrous or filamentary layer <a href="#">B32B 29/02</a> , or next to a particulate layer <a href="#">B32B 29/04</a> )}
		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 <a href="#">B32B 5/12</a> )}
			<b>WARNING</b>  Group <a href="#">B32B 5/26</a> is impacted by reclassification into groups <a href="#">B32B 5/262</a> , <a href="#">B32B 5/263</a> , <a href="#">B32B 5/265</a> , <a href="#">B32B 5/266</a> , <a href="#">B32B 5/267</a> , <a href="#">B32B 5/268</a> , <a href="#">B32B 5/269</a> , <a href="#">B32B 5/271</a> , <a href="#">B32B 5/273</a> , <a href="#">B32B 5/275</a> , <a href="#">B32B 5/277</a> , <a href="#">B32B 5/279</a> and <a href="#">B32B 5/2795</a> .  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

**WARNING**

Group [B32B 7/02](#) is impacted by reclassification into groups [B32B 7/022](#), [B32B 7/023](#), [B32B 7/025](#), [B32B 7/027](#), and [B32B 7/028](#).

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

- 7/022 . . . . . Mechanical properties

**WARNING**

Groups [B32B 7/022](#), [B32B 7/023](#), [B32B 7/025](#), [B32B 7/027](#), and [B32B 7/028](#) are incomplete pending reclassification of documents from group [B32B 7/02](#).

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

- 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](#))

**WARNING**

Group [B32B 7/03](#) is impacted by reclassification into group [B32B 7/035](#).

Groups [B32B 7/03](#) and [B32B 7/035](#) should be considered in order to perform a complete search.

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

**WARNING**

Group [B32B 7/035](#) is incomplete pending reclassification of documents from group [B32B 7/03](#).

Groups [B32B 7/03](#) and [B32B 7/035](#) should be considered in order to perform a complete search.

- 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

**WARNING**

Group [B32B 7/08](#) is impacted by reclassification into group [B32B 7/09](#).

Groups [B32B 7/08](#) and [B32B 7/09](#) should be considered in order to perform a complete search.

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

**WARNING**

Group [B32B 7/09](#) is incomplete pending reclassification of documents from group [B32B 7/08](#).

Groups [B32B 7/08](#) and [B32B 7/09](#) should be considered in order to perform a complete search.

- 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}	17/08	. . of cellulosic plastic substance {or gelatin}
15/015	. . . {the said other metal being copper or nickel or an alloy thereof}	17/10	. . of synthetic resin
15/016	. . {all layers being formed of aluminium or aluminium alloys}	17/10005	. . . {laminated safety glass or glazing}
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}	<b>NOTE</b>	
15/018	. . {one layer being formed of a noble metal or a noble metal alloy}	{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 <a href="#">B32B</a> .}	
15/02	. {Layer formed of wires, e.g. mesh}	17/10009	. . . . {characterized by the number, the constitution or treatment of glass sheets}
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 <a href="#">B32B 11/08</a> ; next to a water-setting substance layer <a href="#">B32B 13/06</a> ; next to a glass layer <a href="#">B32B 17/061</a> ; next to a cellulosic plastic layer <a href="#">B32B 23/042</a> )}	17/10018	. . . . . {comprising only one glass sheet}
15/043	. . {of metal ( <a href="#">B32B 15/01</a> takes precedence)}	17/10027	. . . . . {the glass sheet not being an outer layer}
15/046	. . {of foam}	17/10036	. . . . . {comprising two outer glass sheets}
15/06	. . of {natural rubber or synthetic} rubber	17/10045	. . . . . {with at least one intermediate layer consisting of a glass sheet}
15/08	. . of synthetic resin	17/10055	. . . . . {with at least one intermediate air space}
15/082	. . . comprising vinyl resins; comprising acrylic resins	17/10064	. . . . . {comprising at least two glass sheets, only one of which being an outer layer}
15/085	. . . comprising polyolefins	17/10073	. . . . . {comprising at least two glass sheets, neither of which being an outer layer}
15/088	. . . comprising polyamides	17/10082	. . . . . {Properties of the bulk of a glass sheet}
15/09	. . . comprising polyesters	17/10091	. . . . . {thermally hardened}
15/092	. . . comprising epoxy resins	17/101	. . . . . {having a predetermined coefficient of thermal expansion [CTE]}
15/095	. . . comprising polyurethanes	17/1011	. . . . . {having predetermined tint or excitation purity}
15/098	. . . comprising condensation resins of aldehydes, e.g. with phenols, ureas or melamines	17/10119	. . . . . {having a composition deviating from the basic composition of soda-lime glass, e.g. borosilicate}
15/10	. . of wood	17/10128	. . . . . {Treatment of at least one glass sheet}
15/12	. . of paper or cardboard	17/10137	. . . . . {Chemical strengthening}
15/14	. next to a fibrous or filamentary layer	17/10146	. . . . . {Face treatment, e.g. etching, grinding or sand blasting}
15/16	. next to a particulate layer	17/10155	. . . . . {Edge treatment or chamfering}
15/18	. comprising iron or steel {( <a href="#">B32B 15/011</a> , <a href="#">B32B 15/012</a> and <a href="#">B32B 15/013</a> take precedence)}	17/10165	. . . . . {Functional features of the laminated safety glass or glazing}
15/20	. comprising aluminium or copper {( <a href="#">B32B 15/016</a> and <a href="#">B32B 15/017</a> take precedence)}	17/10174	. . . . . {Coatings of a metallic or dielectric material on a constituent layer of glass or polymer}
<b>17/00</b>	<b>Layered products essentially comprising sheet glass, or glass, slag, or like fibres</b>	17/10183	. . . . . {being not continuous, e.g. in edge regions}
	<b>NOTE</b>	17/10192	. . . . . {patterned in the form of columns or grids}
	{In this group, a layer of organic glass is not considered as a glass layer but as a synthetic resin layer.}	17/10201	. . . . . {Dielectric coatings}
17/02	. in the form of fibres or filaments	17/10211	. . . . . {Doped dielectric layer, electrically conductive, e.g. SnO <sub>2</sub> :F}
17/04	. . bonded with or embedded in a plastic substance	17/1022	. . . . . {Metallic coatings}
17/06	. comprising glass as the main or only constituent of a layer, next to another layer of a specific {material}	17/10229	. . . . . {Metallic layers sandwiched by dielectric layers}
17/061	. . {of metal}	17/10238	. . . . . {in the form of particles}
17/062	. . {of wood}	17/10247	. . . . . {Laminated safety glass or glazing containing decorations or patterns for aesthetic reasons (containing metal wires for aesthetic reasons <a href="#">B32B 17/10422</a> )}
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 ( <a href="#">B32B 17/10311</a> takes precedence)}	17/10302	. . . . . {Edge sealing}

17/10311	. . . . .	{Intumescent layers for fire protection}	17/10697	. . . . .	{being cross-linked}
17/10321	. . . . .	{Laminated safety glass or glazing containing liquid layers}	17/10706	. . . . .	{being photo-polymerized}
17/1033	. . . . .	{Laminated safety glass or glazing containing temporary protective coatings or layers}	17/10715	. . . . .	{containing polyether}
17/10339	. . . . .	{Specific parts of the laminated safety glass or glazing being colored or tinted ( <a href="#">tinted glass sheet B32B 17/1011</a> ; <a href="#">tinted interlayer B32B 17/10651</a> )}	17/10724	. . . . .	{containing polyamide}
17/10348	. . . . .	{comprising an obscuration band}	17/10733	. . . . .	{containing epoxy}
17/10357	. . . . .	{comprising a tinted intermediate film}	17/10743	. . . . .	{containing acrylate (co)polymers or salts thereof}
17/10366	. . . . .	{Reinforcements of the laminated safety glass or glazing against impact or intrusion ( <a href="#">containing metal wires for reinforcement B32B 17/10412</a> )}	17/10752	. . . . .	{containing polycarbonate}
17/10376	. . . . .	{Laminated safety glass or glazing containing metal wires}	17/10761	. . . . .	{containing vinyl acetal}
17/10385	. . . . .	{for ohmic resistance heating}	17/1077	. . . . .	{containing polyurethane}
17/10394	. . . . .	{Alarm wires}	17/10779	. . . . .	{containing polyester}
17/10403	. . . . .	{for radiation shielding}	17/10788	. . . . .	{containing ethylene vinylacetate}
17/10412	. . . . .	{for reinforcement}	17/10798	. . . . .	{containing silicone}
17/10422	. . . . .	{for aesthetic reasons}	17/10807	. . . . .	{Making laminated safety glass or glazing; Apparatus therefor}
17/10431	. . . . .	{Specific parts for the modulation of light incorporated into the laminated safety glass or glazing}	17/10816	. . . . .	{by pressing}
17/1044	. . . . .	{Invariable transmission}	17/10825	. . . . .	{Isostatic pressing, i.e. using non rigid pressure-exerting members against rigid parts}
17/10449	. . . . .	{Wavelength selective transmission}	17/10834	. . . . .	{using a fluid}
17/10458	. . . . .	{Polarization selective transmission}	17/10844	. . . . .	{using a membrane between the layered product and the fluid}
17/10467	. . . . .	{Variable transmission}	17/10853	. . . . .	{the membrane being bag-shaped}
17/10477	. . . . .	{thermochromic}	17/10862	. . . . .	{using pressing-rolls}
17/10486	. . . . .	{photochromic}	17/10871	. . . . .	{in combination with particular heat treatment}
17/10495	. . . . .	{optoelectronic, i.e. optical valve}	17/1088	. . . . .	{by superposing a plurality of layered products}
17/10504	. . . . .	{Liquid crystal layer}	17/10889	. . . . .	{shaping the sheets, e.g. by using a mould ( <a href="#">B32B 17/10816 takes precedence</a> )}
17/10513	. . . . .	{Electrochromic layer}	17/10899	. . . . .	{by introducing interlayers of synthetic resin}
17/10522	. . . . .	{Electrophoretic layer}	17/10908	. . . . .	{in liquid form}
17/10532	. . . . .	{Suspended particle layer}	17/10917	. . . . .	{between two pre-positioned glass layers}
17/10541	. . . . .	{comprising a light source or a light guide}	17/10926	. . . . .	{by spraying}
17/1055	. . . . .	{characterized by the resin layer, i.e. interlayer}	17/10935	. . . . .	{as a preformed layer, e.g. formed by extrusion}
17/10559	. . . . .	{Shape of the cross-section}	17/10944	. . . . .	{in powder form}
17/10568	. . . . .	{varying in thickness}	17/10954	. . . . .	{by using an aligning laminating device}
17/10577	. . . . .	{Surface roughness}	17/10963	. . . . .	{specially adapted for repairing the layered products}
17/10587	. . . . .	{created by embossing}	17/10972	. . . . .	{Degassing during the lamination ( <a href="#">B32B 17/10816 takes precedence</a> )}
17/10596	. . . . .	{created by melt fracture}	17/10981	. . . . .	{Pre-treatment of the layers}
17/10605	. . . . .	{Type of plasticiser}	17/1099	. . . . .	{After-treatment of the layered product, e.g. cooling}
17/10614	. . . . .	{comprising particles for purposes other than dyeing}			
17/10623	. . . . .	{Whitening agents reflecting visible light}	18/00	<b>Layered products essentially comprising ceramics, e.g. refractory products</b>	
17/10633	. . . . .	{Infrared radiation absorbing or reflecting agents}		<b>NOTE</b>	
17/10642	. . . . .	{Thermally conductive agents}		{In group <a href="#">B32B 18/00</a> , features relating to interlayers, additional compositional information or further processing are indexed with symbols chosen from <a href="#">C04B 2237/00</a> - <a href="#">C04B 2237/88</a> }	
17/10651	. . . . .	{comprising colorants, e.g. dyes or pigments}			
17/1066	. . . . .	{imparting a tint in certain regions only, i.e. shade band}	19/00	<b>Layered products comprising {a layer of} natural mineral fibres or particles, e.g. asbestos, mica</b>	
17/10669	. . . . .	{Luminescent agents}	19/02	{the layer of fibres or particles being impregnated or} embedded in a plastic substance	
17/10678	. . . . .	{comprising UV absorbers or stabilizers, e.g. antioxidants}			
17/10688	. . . . .	{Adjustment of the adherence to the glass layers}			

19/04	<ul style="list-style-type: none"> <li>next to another layer of {the same or of} a {different material (next to a glass layer <a href="#">B32B 17/067</a>)}</li> </ul>	25/00	<b>Layered products comprising {a layer of} natural or synthetic rubber</b> {(fibrous or filamentary layer made of a natural or synthetic rubber <a href="#">B32B 5/02</a> ; particulate layer made of a natural or synthetic rubber <a href="#">B32B 5/16</a> ; foamed layer made of a natural or synthetic rubber <a href="#">B32B 5/18</a> )}
19/041	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of metal}</li> </ul> </li> </ul>	25/02	<ul style="list-style-type: none"> <li>with fibres or particles {being present as additives in the layer}</li> </ul>
19/042	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of wood}</li> </ul> </li> </ul>	25/04	<ul style="list-style-type: none"> <li>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 <a href="#">B32B 9/043</a>; next to a bituminous or tarry layer <a href="#">B32B 11/044</a>; next to a water setting substance layer <a href="#">B32B 13/042</a>; next to a metal layer <a href="#">B32B 15/06</a>; next to a glass layer <a href="#">B32B 17/063</a>; next to a layer formed of natural mineral fibres or particles <a href="#">B32B 19/043</a>; next to a wood layer <a href="#">B32B 21/045</a>; next to a cellulosic plastic layer <a href="#">B32B 23/046</a>)}</li> </ul>
19/043	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of natural rubber or synthetic rubber}</li> </ul> </li> </ul>	25/042	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of natural rubber or synthetic rubber}</li> </ul> </li> </ul>
19/045	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of synthetic resin}</li> </ul> </li> </ul>	25/045	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of foam}</li> </ul> </li> </ul>
19/046	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of paper or cardboard}</li> </ul> </li> </ul>	25/047	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of particles}</li> </ul> </li> </ul>
19/047	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of foam}</li> </ul> </li> </ul>	25/06	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of paper or cardboard</li> </ul> </li> </ul>
19/048	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{made of particles}</li> </ul> </li> </ul>	25/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of synthetic resin</li> </ul> </li> </ul>
19/06	<ul style="list-style-type: none"> <li>next to a fibrous or filamentary layer</li> </ul>	25/10	<ul style="list-style-type: none"> <li>next to a fibrous or filamentary layer</li> </ul>
19/08	<ul style="list-style-type: none"> <li>comprising asbestos</li> </ul>	25/12	<ul style="list-style-type: none"> <li>comprising natural rubber</li> </ul>
21/00	<b>Layered products comprising {a layer of} wood, e.g. wood board, veneer, wood particle board</b>	25/14	<ul style="list-style-type: none"> <li>comprising {synthetic rubber copolymers (<a href="#">B32B 25/18</a> and <a href="#">B32B 25/20</a> take precedence)}</li> </ul>
21/02	<ul style="list-style-type: none"> <li>{the layer being formed} of fibres, chips, or particles {, e.g. MDF, HDF, OSB, chipboard, particle board, hardboard}</li> </ul>	25/16	<ul style="list-style-type: none"> <li>comprising polydienes {homopolymers} or polyhalodienes {homopolymers (<a href="#">B32B 25/12</a> takes precedence)}</li> </ul>
21/04	<ul style="list-style-type: none"> <li>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 <a href="#">B32B 9/042</a>; next to a bituminous or tarry layer <a href="#">B32B 11/042</a>; next to a water setting substance layer <a href="#">B32B 13/10</a>; next to a metal layer <a href="#">B32B 15/10</a>; next to a glass layer <a href="#">B32B 17/062</a>; next to a layer formed of natural mineral fibres or particles <a href="#">B32B 19/042</a>; next to a cellulosic plastic layer <a href="#">B32B 23/044</a>)}</li> </ul>	25/18	<ul style="list-style-type: none"> <li>comprising butyl or halobutyl rubber</li> </ul>
21/042	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of wood (<a href="#">B32B 21/13</a> takes precedence)}</li> </ul> </li> </ul>	25/20	<ul style="list-style-type: none"> <li>comprising silicone rubber</li> </ul>
21/045	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of natural rubber or synthetic rubber}</li> </ul> </li> </ul>	27/00	<b>Layered products comprising {a layer of} synthetic resin</b> {(fibrous or filamentary layer made of a synthetic resin <a href="#">B32B 5/02</a> ; particulate layer made of a synthetic resin <a href="#">B32B 5/16</a> ; foamed layer made of a synthetic resin <a href="#">B32B 5/18</a> )}
21/047	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of foam}</li> </ul> </li> </ul>		<b>NOTE</b>
21/06	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of paper or cardboard</li> </ul> </li> </ul>		This group covers all synthetic resins except those covered by <a href="#">B32B 25/00</a> or <a href="#">B32B 23/00</a>
21/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of synthetic resin</li> </ul> </li> </ul>	27/02	<ul style="list-style-type: none"> <li>in the form of fibres or filaments {(not used)}</li> </ul>
21/10	<ul style="list-style-type: none"> <li>Next to a fibrous or filamentary layer</li> </ul>	27/04	<ul style="list-style-type: none"> <li>as impregnant, bonding, or embedding substance {(not used)}</li> </ul>
21/12	<ul style="list-style-type: none"> <li>next to a particulate layer</li> </ul>	27/06	<ul style="list-style-type: none"> <li>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 <a href="#">B32B 9/045</a>; next to a bituminous or tarry layer <a href="#">B32B 11/046</a>; next to a water setting substance layer <a href="#">B32B 13/12</a>; next to a metal layer <a href="#">B32B 15/08</a>; next to a glass layer <a href="#">B32B 17/10</a>; next to a layer formed of natural mineral fibres or particles <a href="#">B32B 19/045</a>; next to a wood layer <a href="#">B32B 21/08</a>; next to a cellulosic plastic layer <a href="#">B32B 23/08</a>; next to a natural or synthetic rubber layer <a href="#">B32B 25/08</a>)}</li> </ul>
21/13	<ul style="list-style-type: none"> <li>all layers being exclusively wood</li> </ul>	27/065	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of foam}</li> </ul> </li> </ul>
21/14	<ul style="list-style-type: none"> <li>comprising wood board or veneer</li> </ul>	27/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of synthetic resin</li> </ul> </li> </ul>
23/00	<b>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}</b>	27/10	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of paper or cardboard</li> </ul> </li> </ul>
23/02	<ul style="list-style-type: none"> <li>in the form of fibres or filaments {(not used)}</li> </ul>	27/12	<ul style="list-style-type: none"> <li>next to a fibrous or filamentary layer</li> </ul>
23/04	<ul style="list-style-type: none"> <li>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 <a href="#">B32B 17/08</a>)}</li> </ul>	27/14	<ul style="list-style-type: none"> <li>next to a particulate layer</li> </ul>
23/042	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of metal}</li> </ul> </li> </ul>	27/16	<ul style="list-style-type: none"> <li>specially treated, e.g. irradiated</li> </ul>
23/044	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of wood}</li> </ul> </li> </ul>		
23/046	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of natural rubber or synthetic rubber}</li> </ul> </li> </ul>		
23/048	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{of foam}</li> </ul> </li> </ul>		
23/06	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of paper or cardboard</li> </ul> </li> </ul>		
23/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of synthetic resin</li> </ul> </li> </ul>		
23/10	<ul style="list-style-type: none"> <li>next to a fibrous or filamentary layer</li> </ul>		
23/12	<ul style="list-style-type: none"> <li>next to a particulate layer</li> </ul>		
23/14	<ul style="list-style-type: none"> <li>characterised by containing special compounding ingredients</li> </ul>		
23/16	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Modifying agents</li> </ul> </li> </ul>		
23/18	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Fillers</li> </ul> </li> </ul>		
23/20	<ul style="list-style-type: none"> <li>comprising esters</li> </ul>		
23/22	<ul style="list-style-type: none"> <li>comprising ethers</li> </ul>		



- 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}
- 37/156 . . . {at least one layer is calendered 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 [\(B32B 37/15 takes precedence\)](#)
- 2037/243 . . . {Coating}
- 2037/246 . . . {Vapour deposition}
- 37/26 . . with at least one layer which influences the bonding during the lamination process, e.g. release layers or pressure equalising layers
- 2037/262 . . . {Partition plates or sheets for separating several laminates pressed simultaneously}
- 2037/264 . . . {Pressure equalizing layers}
- 2037/266 . . . {Cushioning layers}
- 2037/268 . . . {Release layers}
- 37/28 . involving assembly of non-flat intermediate products which are flattened at a later step, e.g. tubes
- 37/30 . Partial laminating
- 38/00 Ancillary operations in connection with laminating processes**
- NOTE**
- {In this group, the following expression is used with the meaning indicated:
  - "in connection with laminating processes" means ancillary operations are carried out either
    - a. as steps of the lamination processes, or
    - b. in line with the lamination processes, just before or immediately after.}
- 38/0004 . {Cutting, tearing or severing, e.g. bursting; Cutter details [\(cutting in general B26D; laminating combined with punching or perforating B32B 38/04; removing all or part of the layers B32B 38/10; cutting in combination with laying up and registration B32B 38/185 takes precedence\)](#)}
- 38/0008 . {Electrical discharge treatment, e.g. corona, plasma treatment; wave energy or particle radiation [\(heat treatment B32B 38/0036\)](#)}
- 38/0012 . {Mechanical treatment, e.g. roughening, deforming, stretching}
- 2038/0016 . . {Abrading}
- 2038/002 . . {Sandblasting}
- 2038/0024 . . {Crushing}
- 2038/0028 . . {Stretching, elongating}
- 38/0032 . {increasing porosity [\(B32B 38/04 takes precedence\)](#)}
- 38/0036 . {Heat treatment [\(for heating or cooling of layers during lamination B32B 37/06, B32B 37/08\)](#)}
- 38/004 . . {by physically contacting the layers, e.g. by the use of heated platens or rollers}
- 2038/0044 . . {for creating local stresses}
- 2038/0048 . . {Annealing, relaxing}
- 2038/0052 . {Other operations not otherwise provided for}
- 2038/0056 . . {Moistening}
- 2038/006 . . {Relieving internal or residual stresses}
- 2038/0064 . . {Smoothing, polishing, making a glossy surface}
- 2038/0068 . . {Changing crystal orientation}

2038/0072	. . {Orienting fibers}	2250/04	. 4 layers
2038/0076	. . {Curing, vulcanising, cross-linking}	2250/05	. 5 or more layers
2038/008	. . {Sewing, stitching}	2250/20	. All layers being fibrous or filamentary
2038/0084	. . {Foaming}	2250/22	. All layers being foamed
2038/0088	. . {Expanding, swelling}	2250/24	. All layers being polymeric
2038/0092	. . {Metallizing}	2250/242	. . All polymers belonging to those covered by group <a href="#">B32B 27/32</a>
2038/0096	. . {Riveting}	2250/244	. . All polymers belonging to those covered by group <a href="#">B32B 27/36</a>
38/04	. Punching, slitting or perforating	2250/246	. . All polymers belonging to those covered by groups <a href="#">B32B 27/32</a> and <a href="#">B32B 27/30</a>
2038/042	. . {Punching}	2250/248	. . All polymers belonging to those covered by group <a href="#">B32B 25/00</a>
2038/045	. . {Slitting}	2250/26	. All layers being made of paper or paperboard
2038/047	. . {Perforating}	2250/40	. Symmetrical or sandwich layers, e.g. ABA, ABCBA, ABCCBA
38/06	. Embossing	2250/42	. Alternating layers, e.g. ABAB(C), AABBAABB(C)
38/08	. Impregnating	2250/44	. Number of layers variable across the laminate
38/10	. Removing layers, or parts of layers, mechanically or chemically	<b>2255/00</b>	<b>Coating on the layer surface</b>
38/105	. . {on edges}		<b>NOTE</b>
38/12	. Deep-drawing		This group is for classification of coatings on a layered product. Specific details of coatings or processes thereof can be found in <a href="#">C08J 7/00</a> , <a href="#">B05D</a> , <a href="#">C09D</a> , <a href="#">C09J</a> , <a href="#">C23C</a> or <a href="#">D06M</a> .
38/14	. Printing or colouring	2255/02	. on fibrous or filamentary layer
38/145	. . {Printing}	2255/04	. on a particulate layer
38/16	. Drying; Softening; Cleaning	2255/06	. on metal layer
38/162	. . {Cleaning}	2255/062	. . metal layer being a foamed layer
38/164	. . {Drying}	2255/08	. on wood layer
2038/166	. . . {Removing moisture}	2255/10	. on synthetic resin layer or on natural or synthetic rubber layer
2038/168	. . . {Removing solvent}	2255/102	. . synthetic resin or rubber layer being a foamed layer
38/18	. Handling of layers or the laminate	2255/12	. on paper layer
38/1808	. . {characterised by the laying up of the layers}	2255/20	. Inorganic coating
38/1816	. . . {Cross feeding of one or more of the layers}	2255/205	. . Metallic coating
38/1825	. . {characterised by the control or constructional features of devices for tensioning, stretching or registration}	2255/24	. Organic non-macromolecular coating
38/1833	. . . {Positioning, e.g. registration or centering}	2255/26	. Polymeric coating
38/1841	. . . . {during laying up}	2255/28	. Multiple coating on one surface
38/185	. . . . {combined with the cutting of one or more layers}	<b>2260/00</b>	<b>Layered product comprising an impregnated, embedded, or bonded layer wherein the layer comprises an impregnation, embedding, or binder material</b>
38/1858	. . {using vacuum}	2260/02	. Composition of the impregnated, bonded or embedded layer
38/1866	. . {conforming the layers or laminate to a convex or concave profile}	2260/021	. . Fibrous or filamentary layer (layers of natural mineral fibres or particles being impregnated in a plastic substance <a href="#">B32B 19/02</a> )
38/1875	. . {Tensioning}	2260/023	. . . Two or more layers
38/1883	. . {Detensioning}	2260/025	. . Particulate layer (layers of natural mineral fibres or particles being impregnated in a plastic substance <a href="#">B32B 19/02</a> )
2038/1891	. . {Using a robot for handling the layers}	2260/026	. . Wood layer
<b>39/00</b>	<b>Layout of apparatus or plants, e.g. modular laminating systems</b>	2260/028	. . Paper layer
<b>41/00</b>	<b>Arrangements for controlling or monitoring lamination processes; Safety arrangements</b>	2260/04	. Impregnation, embedding, or binder material
41/02	. Safety arrangements	2260/042	. . Bituminous or tarry substance
2041/04	. {Detecting wrong registration, misalignment, deviation, failure}	2260/044	. . Water-setting substance, e.g. concrete, plaster
2041/06	. {Starting the lamination machine or method}	2260/046	. . Synthetic resin
<b>43/00</b>	<b>Operations specially adapted for layered products and not otherwise provided for, e.g. repairing; Apparatus therefor</b>	2260/048	. . Natural or synthetic rubber
43/003	. {Cutting}		
43/006	. {Delaminating}		
<b>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</b>			
<b>2250/00</b>	<b>Layers arrangement</b>		
2250/02	. 2 layers		
2250/03	. 3 layers		

<b>2262/00</b>	<b>Composition or structural features of fibres which form a fibrous or filamentary layer or are present as additives</b>	<b>2264/025</b>	. . . Acrylic resin particles, e.g. polymethyl methacrylate or ethylene-acrylate copolymers
2262/02	. Synthetic macromolecular fibres	<b>2264/0257</b>	. . . Polyolefin particles, e.g. polyethylene or polypropylene homopolymers or ethylene-propylene copolymers
2262/0207	. . Elastomeric fibres	<b>2264/0264</b>	. . . Polyamide particles
2262/0215	. . . Thermoplastic elastomer fibers	<b>2264/0271</b>	. . . . Aromatic polyamide particles
2262/0223	. . Vinyl resin fibres	<b>2264/0278</b>	. . . Polyester particles
2262/023	. . . Aromatic vinyl resin, e.g. styrenic (co)polymers	<b>2264/0285</b>	. . . . PET or PBT
2262/0238	. . . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF	<b>2264/0292</b>	. . . Polyurethane particles
2262/0246	. . Acrylic resin fibres	<b>2264/04</b>	. Cellulosic particles, e.g. rayon
2262/0253	. . Polyolefin fibres ( <a href="#">vinyl or acrylic copolymers B32B 2262/0223</a> or <a href="#">B32B 2262/0246</a> )	<b>2264/06</b>	. Vegetal particles
2262/0261	. . Polyamide fibres	<b>2264/062</b>	. . Cellulose particles, e.g. cotton
2262/0269	. . . Aromatic polyamide fibres	<b>2264/065</b>	. . . Lignocellulosic particles, e.g. jute, sisal, hemp, flax, bamboo
2262/0276	. . Polyester fibres	<b>2264/067</b>	. . . Wood particles
2262/0284	. . . Polyethylene terephthalate [PET] or polybutylene terephthalate [PBT]	<b>2264/08</b>	. Animal particles, e.g. leather
2262/0292	. . Polyurethane fibres	<b>2264/10</b>	. Inorganic particles
2262/04	. Cellulosic plastic fibres, e.g. rayon	<b>2264/101</b>	. . Glass
2262/06	. Vegetal fibres	<b>2264/102</b>	. . Oxide or hydroxide
2262/062	. . Cellulose fibres, e.g. cotton	<b>2264/1021</b>	. . . Silica
2262/065	. . . Lignocellulosic fibres, e.g. jute, sisal, hemp, flax, bamboo	<b>2264/1022</b>	. . . Titania
2262/067	. . . Wood fibres	<b>2264/1023</b>	. . . Alumina
2262/08	. Animal fibres, e.g. hair, wool, silk	<b>2264/1024</b>	. . . Zirconia
2262/10	. Inorganic fibres ( <a href="#">layered products comprising a layer of natural mineral fibres B32B 19/00</a> )	<b>2264/1025</b>	. . . Zinc oxide
2262/101	. . Glass fibres	<b>2264/1026</b>	. . . Mica
2262/103	. . Metal fibres	<b>2264/1027</b>	. . . Clay
2262/105	. . Ceramic fibres	<b>2264/104</b>	. . Oxsalt, e.g. carbonate, sulfate, phosphate or nitrate particles
2262/106	. . Carbon fibres, e.g. graphite fibres	<b>2264/105</b>	. . Metal
2262/108	. . Rockwool fibres	<b>2264/1051</b>	. . . Silver or gold
2262/12	. Conjugate fibres, e.g. core/sheath or side-by-side	<b>2264/1052</b>	. . . Aluminum
2262/124	. . Non-woven fabric	<b>2264/1053</b>	. . . Alkali metal
2262/128	. . Woven fabric	<b>2264/1054</b>	. . . Alkaline earth metal
2262/132	. . Knitted fabric	<b>2264/1055</b>	. . . Copper or nickel
2262/136	. . Net structure	<b>2264/1056</b>	. . . Iron or steel
2262/14	. Mixture of at least two fibres made of different materials	<b>2264/1057</b>	. . . Chromium
2262/144	. . Non-woven fabric	<b>2264/1058</b>	. . . Titanium
2262/148	. . Woven fabric	<b>2264/1059</b>	. . . Zinc
2262/152	. . Knitted fabric	<b>2264/107</b>	. . Ceramic
2262/156	. . Net structure	<b>2264/108</b>	. . . Carbon, e.g. graphite particles
2262/16	. Structural features of fibres, filaments or yarns e.g. wrapped, coiled, crimped or covered	<b>2264/12</b>	. Mixture of at least two particles made of different materials
<b>2264/00</b>	<b>Composition or properties of particles which form a particulate layer or are present as additives</b>	<b>2264/20</b>	. Particles characterised by shape
2264/02	. Synthetic macromolecular particles	<b>2264/201</b>	. . Flat or platelet-shaped particles, e.g. flakes
2264/0207	. . Particles made of materials belonging to <a href="#">B32B 25/00</a>	<b>2264/202</b>	. . Solid spheres
2264/0214	. . Particles made of materials belonging to <a href="#">B32B 27/00</a>	<b>2264/203</b>	. . Expanded, porous or hollow particles
2264/0221	. . . Thermoplastic elastomer particles	<b>2264/2031</b>	. . . Porous particles
2264/0228	. . . Vinyl resin particles, e.g. polyvinyl acetate, polyvinyl alcohol polymers or ethylene-vinyl acetate copolymers	<b>2264/2032</b>	. . . Hollow spheres
2264/0235	. . . . Aromatic vinyl resin, e.g. styrenic (co)polymers	<b>2264/204</b>	. . Rod- or needle-shaped particles
2264/0242	. . . . Vinyl halide, e.g. PVC, PVDC, PVF or PVDF (co)polymers	<b>2264/30</b>	. Particles characterised by physical dimension
		<b>2264/301</b>	. . Average diameter smaller than 100 nm
		<b>2264/302</b>	. . Average diameter in the range from 100 nm to 1000 nm
		<b>2264/303</b>	. . Average diameter greater than 1µm
		<b>2264/304</b>	. . Particle length
		<b>2264/305</b>	. . Particle size distribution, e.g. unimodal size distribution
		<b>2264/306</b>	. . . Multimodal particle size distribution
		<b>2264/3065</b>	. . . . bimodal size distribution
		<b>2264/307</b>	. . Surface area of particles
		<b>2264/308</b>	. . Aspect ratio of particles



2264/40	. Pretreated particles
2264/401	. . with inorganic substances
2264/402	. . with organic substances
2264/4021	. . . with silicon-containing compounds
2264/403	. . coated or encapsulated
2264/50	. Particles characterised by their position or distribution in a layer
2264/501	. . homogeneously distributed
2264/502	. . distributed in a gradient manner
2264/503	. . distributed in a predetermined pattern in a thickness direction
2264/504	. . distributed in a predetermined pattern in a direction perpendicular to the thickness
<b>2266/00</b>	<b>Composition of foam</b>
2266/02	. Organic
2266/0207	. . Materials belonging to <a href="#">B32B 25/00</a>
2266/0214	. . Materials belonging to <a href="#">B32B 27/00</a>
2266/0221	. . . Vinyl resin
2266/0228	. . . . Aromatic vinyl resin, e.g. styrenic (co)polymers
2266/0235	. . . . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
2266/0242	. . . Acrylic resin
2266/025	. . . Polyolefin ( <a href="#">vinyl or acrylic copolymers B32B 2266/0221, B32B 2266/0242</a> )
2266/0257	. . . Polyamide
2266/0264	. . . Polyester
2266/0271	. . . Epoxy resin
2266/0278	. . . Polyurethane
2266/0285	. . . Condensation resins of aldehydes, e.g. with phenols, ureas, melamines
2266/0292	. . . Thermoplastic elastomer
2266/031	. . Bituminous or tarry material
2266/04	. Inorganic
2266/045	. . Metal
2266/049	. . Water-setting material, e.g. concrete, plaster or asbestos cement
2266/053	. . Mineral element, e.g. asbestos or mica
2266/057	. . Silicon-containing material, e.g. glass
2266/06	. Open cell foam
2266/08	. Closed cell foam
2266/10	. characterised by the foam pores
2266/102	. . Nanopores, i.e. with average diameter smaller than 0.1 µm
2266/104	. . Micropores, i.e. with average diameter in the range from 0.1 µm to 0.1 mm
2266/106	. . Unimodal pore distribution
2266/108	. . Bimodal pore distribution
2266/12	. Gel
2266/122	. . Hydrogel, i.e. a gel containing an aqueous composition
2266/124	. . Organogel, i.e. a gel containing an organic composition
2266/126	. . Aerogel, i.e. a supercritically dried gel
2266/128	. . Xerogel, i.e. an air dried gel
2266/14	. Adhesive foam
<b>2270/00</b>	<b>Resin or rubber layer containing a blend of at least two different polymers</b>
<b>2272/00</b>	<b>Resin or rubber layer comprising scrap, waste or recycling material</b>

<b>2274/00</b>	<b>Thermoplastic elastomer material</b> ( <a href="#">thermoplastic elastomer fibres B32B 2262/0215</a> , <a href="#">thermoplastic elastomer particles B32B 2264/0221</a> , <a href="#">thermoplastic elastomer foam B32B 2266/0292</a> )
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#### **Condition, form, state or properties of the layers or laminate**

<b>2305/00</b>	<b>Condition, form or state of the layers or laminate</b>
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
2305/18	. . Fabrics, textiles
2305/182	. . . knitted
2305/184	. . . Braided fabrics
2305/186	. . . Knitted fabrics
2305/188	. . . Woven fabrics
2305/20	. . in the form of a non-woven mat
2305/22	. Fibres of short length
2305/24	. . Whiskers
2305/28	. . in the form of a mat
2305/30	. Fillers, e.g. particles, powders, beads, flakes, spheres, chips
2305/34	. Inserts
2305/342	. . Chips
2305/345	. . Heating elements
2305/347	. . Security elements
2305/38	. Meshes, lattices or nets
2305/54	. Filled microcapsules
2305/55	. Liquid crystals
2305/70	. Scrap or recycled material
2305/72	. Cured, e.g. vulcanised, cross-linked
2305/74	. Partially cured
2305/77	. Uncured, e.g. green
2305/80	. Sintered
<b>2307/00</b>	<b>Properties of the layers or laminate</b>
2307/10	. having particular acoustical properties
2307/102	. . Insulating
2307/20	. having particular electrical or magnetic properties, e.g. piezoelectric
2307/202	. . Conductive
2307/204	. . Di-electric
2307/206	. . Insulating
2307/208	. . Magnetic, paramagnetic
2307/21	. . Anti-static
2307/212	. . Electromagnetic interference shielding
2307/30	. having particular thermal properties
2307/302	. . Conductive
2307/304	. . Insulating
2307/306	. . Resistant to heat
2307/3065	. . . Flame resistant or retardant, fire resistant or retardant
2307/308	. . Heat stability ( <a href="#">dimensional stability B32B 2307/734</a> )
2307/31	. . Heat sealable



2307/40	. having particular optical properties ( <a href="#">light or UV resistant B32B 2307/71</a> )	2307/7265	. . . Non-permeable
2307/402	. . Coloured	2307/728	. . Hydrophilic
2307/4023	. . . on the layer surface, e.g. ink	2307/73	. . Hydrophobic
2307/4026	. . . within the layer by addition of a colorant, e.g. pigments, dyes	2307/732	. . Dimensional properties
2307/404	. . . Multi-coloured	2307/734	. . . Dimensional stability
2307/406	. . Bright, glossy, shiny surface	2307/736	. . . . Shrinkable
2307/408	. . Matt, dull surface	2307/738	. . Thermoformability
2307/409	. . Iridescent, pearlescent surface	2307/74	. . Oxygen absorber
2307/41	. . Opaque	2307/744	. . Non-slip, anti-slip
2307/412	. . Transparent	2307/746	. . Slipping, anti-blocking, low friction
2307/414	. . Translucent	2307/748	. . Releasability
2307/416	. . Reflective	2307/75	. . Printability
2307/418	. . Refractive	2307/752	. . Corrosion inhibitor
2307/42	. . Polarizing, birefringent, filtering	2307/754	. . Self-cleaning
2307/422	. . Luminescent, fluorescent, phosphorescent	2307/756	. . Refurbishable, i.e. marks or scratches can be removed
2307/50	. having particular mechanical properties	2307/758	. . Odour absorbent
2307/51	. . Elastic	2307/762	. . Self-repairing, self-healing
2307/514	. . Oriented	2307/764	. . Insect repellent
2307/516	. . . mono-axially	<b>Operating procedures; Apparatus details</b>	
2307/518	. . . bi-axially	<b>2309/00</b>	<b>Parameters for the laminating or treatment process; Apparatus details</b>
2307/52	. . . multi-axially	2309/02	. Temperature
2307/536	. . Hardness	2309/022	. . Temperature vs pressure profiles
2307/538	. . Roughness	2309/025	. . Temperature vs time profiles
2307/54	. . Yield strength; Tensile strength	2309/027	. . Ambient temperature
2307/542	. . Shear strength	2309/04	. Time
2307/544	. . Torsion strength; Torsion stiffness	2309/06	. Angles
2307/546	. . Flexural strength; Flexion stiffness	2309/08	. Dimensions, e.g. volume
2307/548	. . Creep	2309/10	. . linear, e.g. length, distance, width
2307/552	. . Fatigue strength	2309/105	. . . Thickness
2307/554	. . Wear resistance	2309/12	. Pressure
2307/558	. . Impact strength, toughness	2309/125	. . Pressure vs time profiles
2307/56	. . Damping, energy absorption	2309/14	. Velocity, e.g. feed speeds
2307/58	. . Cuttability	2309/16	. Tension
2307/581	. . . Resistant to cut	2309/60	. In a particular environment
2307/582	. . Tearability	2309/62	. . Inert
2307/5825	. . . Tear resistant	2309/64	. . Sterile
2307/584	. . Scratch resistance	2309/65	. . Dust free, e.g. clean room
2307/70	. Other properties	2309/66	. . Fluid other than air
2307/702	. . Amorphous	2309/68	. . Vacuum
2307/704	. . Crystalline	2309/70	. Automated, e.g. using a computer or microcomputer
2307/706	. . Anisotropic	2309/72	. . For measuring or regulating, e.g. systems with feedback loops
2307/708	. . Isotropic	<b>2310/00</b>	<b>Treatment by energy or chemical effects</b>
2307/71	. . Resistive to light or to UV	2310/021	. using electrical effects ( <a href="#">B32B 2310/08</a> and <a href="#">B32B 2310/12</a> take precedence)
2307/712	. . Weather resistant	2310/022	. . Electrical resistance
2307/714	. . Inert, i.e. inert to chemical degradation, corrosion	2310/024	. . Peltier effect
2307/7145	. . . Rot proof, resistant to bacteria, mildew, mould, fungi	2310/025	. . Electrostatic charges
2307/716	. . Degradable	2310/027	. using friction
2307/7163	. . . Biodegradable	2310/028	. using vibration, e.g. sonic or ultrasonic
2307/7166	. . . Water-soluble, water-dispersible	2310/04	. using liquids, gas or steam
2307/718	. . Weight, e.g. weight per square meter	2310/0409	. . using liquids
2307/72	. . Density	2310/0418	. . . other than water
2307/722	. . . Non-uniform density	2310/0427	. . . Liquified gases
2307/724	. . Permeability to gases, adsorption	2310/0436	. . . Oil
2307/7242	. . . Non-permeable	2310/0445	. . using gas or flames ( <a href="#">B32B 2310/0427</a> takes precedence)
2307/7244	. . . . Oxygen barrier	2310/0454	. . . Hot air
2307/7246	. . . . Water vapor barrier		
2307/7248	. . . . Odour barrier		
2307/726	. . Permeability to liquids, absorption		

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 ( <a href="#">B32B 2317/10</a> , <a href="#">B32B 2317/12</a> , <a href="#">B32B 2317/16</a> take precedence)
2317/20	. Starch
2317/22	. Natural rubber ( <a href="#">synthetic rubber B32B 2319/00</a> )
2317/24	. Oil ( <a href="#">B32B 2318/02</a> 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
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##### **2333/00 Polymers of unsaturated acids or derivatives thereof**

2333/04	. Polymers of esters
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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
<b>2355/00</b>	<b>Specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of index codes <a href="#">B32B 2323/00</a> - <a href="#">B32B 2333/00</a></b>
2355/02	. ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers
<b>2361/00</b>	<b>Phenoplast, aminoplast</b>
<b>2363/00</b>	<b>Epoxy resins</b>
<b>2367/00</b>	<b>Polyesters, e.g. PET, i.e. polyethylene terephthalate</b>
<b>2369/00</b>	<b>Polycarbonates</b>
<b>2371/00</b>	<b>Polyethers, e.g. PEEK, i.e. polyether-etherketone; PEK, i.e. polyetherketone</b>
<b>2375/00</b>	<b>Polyureas; Polyurethanes</b>
<b>2377/00</b>	<b>Polyamides</b>
<b>2379/00</b>	<b>Other polymers having nitrogen, with or without oxygen or carbon only, in the main chain</b>
2379/08	. Polyimides
<b>2383/00</b>	<b>Polysiloxanes</b>
<b>2386/00</b>	<b>Specific polymers obtained by polycondensation or polyaddition not provided for in a single one of index codes <a href="#">B32B 2363/00</a> - <a href="#">B32B 2383/00</a></b>
<b>2391/00</b>	<b>Waxes</b>
<b>2395/00</b>	<b>Bituminous material, e.g. tar, asphalt</b>
<b>2398/00</b>	<b>Unspecified macromolecular compounds</b>
2398/10	. Thermosetting resins
2398/20	. Thermoplastics

**Particular articles****NOTE**

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

<b>2405/00</b>	<b>Adhesive articles, e.g. adhesive tapes (<a href="#">labels <a href="#">B32B 2519/00</a></a>)</b>
<b>2410/00</b>	<b>Agriculture-related articles</b>
<b>2413/00</b>	<b>Belts (<a href="#">conveyor belts <a href="#">B32B 2433/02</a></a>; <a href="#">drive belts <a href="#">B32B 2433/04</a></a>)</b>
<b>2419/00</b>	<b>Buildings or parts thereof (<a href="#">walls, panels <a href="#">B32B 2607/00</a></a>)</b>
2419/02	. Bricks
2419/04	. Tiles for floors or walls ( <a href="#">tiles for roofs <a href="#">B32B 2419/06</a></a> )
2419/06	. Roofs, roof membranes
<b>2425/00</b>	<b>Cards, e.g. identity cards, credit cards</b>
<b>2429/00</b>	<b>Carriers for sound or information</b>
2429/02	. Records or discs
<b>2432/00</b>	<b>Cleaning articles, e.g. mops, wipes (<a href="#">personal care <a href="#">B32B 2555/00</a></a>)</b>

<b>2433/00</b>	<b>Closed loop articles</b>
2433/02	. Conveyor belts
2433/04	. Driving belts
<b>2435/00</b>	<b>Closures, end caps, stoppers</b>
2435/02	. for containers
<b>2437/00</b>	<b>Clothing (<a href="#">anti-ballistic clothing <a href="#">B32B 2571/02</a></a>)</b>
2437/02	. Gloves, shoes
2437/04	. Caps, helmets
<b>2439/00</b>	<b>Containers; Receptacles (<a href="#">closures therefor <a href="#">B32B 2435/00</a></a>)</b>
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
<b>2451/00</b>	<b>Decorative or ornamental articles (<a href="#">wall paper <a href="#">B32B 2607/02</a></a>)</b>
<b>2457/00</b>	<b>Electrical equipment</b>
2457/04	. Insulators
2457/08	. PCBs, i.e. printed circuit boards
2457/10	. Batteries
2457/12	. Photovoltaic modules
2457/14	. Semiconductor wafers
2457/16	. Capacitors
2457/18	. Fuel cells
2457/20	. Displays, e.g. liquid crystal displays, plasma displays
2457/202	. . LCD, i.e. liquid crystal displays
2457/204	. . Plasma displays
2457/206	. . Organic displays, e.g. OLED
2457/208	. . Touch screens
<b>2459/00</b>	<b>Nets, e.g. camouflage nets</b>
<b>2471/00</b>	<b>Floor coverings (<a href="#">B32B 2419/04</a> takes precedence)</b>
2471/02	. Carpets
2471/04	. Mats
<b>2475/00</b>	<b>Frictional elements</b>
<b>2479/00</b>	<b>Furniture (<a href="#">upholstery <a href="#">B32B 2601/00</a></a>)</b>
<b>2509/00</b>	<b>Household appliances</b>
2509/10	. Refrigerators or refrigerating equipment
<b>2519/00</b>	<b>Labels, badges</b>
2519/02	. RFID tags
<b>2535/00</b>	<b>Medical equipment, e.g. bandage, prostheses, catheter (<a href="#">medical patches <a href="#">B32B 2556/00</a></a>)</b>
<b>2551/00</b>	<b>Optical elements</b>
2551/08	. Mirrors
<b>2553/00</b>	<b>Packaging equipment or accessories not otherwise provided for</b>
2553/02	. Shock absorbing
2553/023	. . for use in loose form, e.g. dunnage
2553/026	. . Bubble films

<b>2554/00</b>	<b>Paper of special types, e.g. banknotes</b>
<b>2555/00</b>	<b>Personal care</b>
2555/02	. Diapers or napkins
<b>2556/00</b>	<b>Patches, e.g. medical patches, repair patches</b>
<b>2559/00</b>	<b>Photographic equipment or accessories</b>
<b>2571/00</b>	<b>Protective equipment</b>
2571/02	. defensive, e.g. armour plates, anti-ballistic clothing (camouflage nets <a href="#">B32B 2459/00</a> )
<b>2581/00</b>	<b>Seals; Sealing equipment; Gaskets</b>
<b>2590/00</b>	<b>Signboards, advertising panels, road signs</b>
<b>2597/00</b>	<b>Tubular articles, e.g. hoses, pipes</b>
<b>2601/00</b>	<b>Upholstery</b>
<b>2603/00</b>	<b>Vanes, blades, propellers, rotors with blades</b>
<b>2605/00</b>	<b>Vehicles</b>
2605/003	. Interior finishings
2605/006	. Transparent parts made from plastic material, e.g. windows
2605/08	. Cars
2605/10	. Trains
2605/12	. Ships
2605/16	. Submarines
2605/18	. Aircraft ( <a href="#">blades, propellers B32B 2603/00</a> )
<b>2607/00</b>	<b>Walls, panels</b>
2607/02	. Wall papers, wall coverings