

**CPC****COOPERATIVE PATENT CLASSIFICATION****B32B****LAYERED PRODUCTS, i.e. PRODUCTS BUILT-UP OF STRATA OF FLAT OR NON-FLAT, e.g. CELLULAR OR HONEYCOMB, FORM****NOTE**

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.

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.

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;
  - groups designating products cover also methods or apparatus specially adapted for producing such products.
- 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. 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 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 which 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 of limited length, e.g. felt, fleece;

the fibres {being } interengaged or connected, e.g. by adhesive.

In this subclass, - "First place rule" is used in the following groups [B32B 9/04](#) , [B32B 11/04](#) , [B32B 13/04](#) , [B32B 15/04](#) , [B32B 19/04](#) , [B32B 21/04](#) , [B32B 23/04](#) C- [B32B 23/12](#) , [B32B 25/04](#) , [B32B 27/06](#) , [B32B 29/002](#) . However, when these groups are not characterised by the specific material adjacency to be classified, then, multiple classification is given, e.g. a layered product having a stone layer next to a bituminous layer would be classified in [B32B 9/04](#) and in [B32B 11/04](#) . For a cellulosic plastic layer next to a metal layer or to a wood layer [B32B 23/042](#) or [B32B 23/044](#) , respectively, take precedence (i.e. first rule does not apply). For layered products comprising at least two ceramic layers , products comprising only ceramic layers are classified in group [B32B 18/00](#) and products comprising two ceramics layers and at least one layer of another material are classified in [B32B 18/00](#) and [B32B 9/04](#) .

### **WARNING**

The following IPC are not used in the CPC scheme Subject matter covered by theses groups is classified in the following CPC groups - [B32B 1/04](#) covered by [B32B 3/02](#) - [B32B 3/08](#) - [B32B 1/06](#) covered by [B32B 13/02](#) - [B32B 3/08](#) - [B32B 3/22](#) covered by [B32B 3/08](#) - [B32B 3/24](#) covered by [B32B 3/266](#) - [B32B 5/28](#) covered by [B32B 2260/021](#) - [B32B 2260/023](#) - [B32B 17/02](#) covered by [B32B 2262/101](#) - [B32B 17/04](#) covered by [B32B 2262/101](#) and [B32B 2260/04](#) - [B32B 17/12](#) covered by [B32B 17/067](#) - [B32B 23/02](#) covered by [B32B 2262/04](#) and [B32B 5/02](#) - [B32B 5/12](#) - [B32B 27/02](#) covered by [B32B 2262/02](#) - [B32B 2262/0292](#) and [B32B 5/02](#) - [B32B 5/12](#) - [B32B 27/04](#) covered by [B32B 2260/048](#)

### **Guidance heading:**

#### **B32B 1/00**

#### **Layered products having a general shape other than plane**

### **NOTE**

For classification of a product in this group, surface unevennesses or non-uniformities and the shape of individual layers are ignored.

- B32B 1/02 . Receptacles, { i.e. rigid containers }, e.g. tanks
- B32B 1/04 . characterised by feature of form at particular places, e.g. in edge regions { ( not used ) }
- B32B 1/06 . characterised by fillings or added members in hollow portions { ( not used ) }
- B32B 1/08 . Tubular products

**B32B 3/00** **Layered products comprising a layer with external or internal discontinuities or unevennesses, or a layer of non-planar form { ( fibrous or filamentary layers [B32B 5/02](#) ; particulate layers [B32B 5/16](#) ; foamed layers [B32B 5/18](#) ) ; Layered products having particular features of form ( receptacles or tubular products [B32B 1/00](#) ) }**

- B32B 3/02 . characterised by features of form at particular places, e.g. in edge regions { ( non-uniform thickness [B32B 3/263](#) ) }
- B32B 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 }
- B32B 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 }
- B32B 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](#) ) }
- B32B 3/085 . . . { spaced apart pieces on the surface of a layer }
- B32B 3/10 . characterised by a discontinuous layer, i.e. formed of separate pieces of material

#### **NOTE**

In this group, a series of spaced separate elements forming in effect a broken surface should be regarded as a layer.

- B32B 3/12 . . characterised by a layer of regularly- arranged cells, e.g. a honeycomb structure
- B32B 3/14 . . characterised by a face layer formed of separate pieces of material { which are juxtaposed side-by-side ( [B32B 5/02](#) takes precedence ) }
- B32B 3/16 . . . secured to a flexible backing
- B32B 3/18 . . characterised by an internal layer formed of separate pieces of material { which are juxtaposed side-by-side ( [B32B 5/02](#) takes precedence ) }
- B32B 3/20 . . . of hollow pieces, e.g. tubes ; of pieces with channels or cavities
- B32B 3/22 . . . of spaced pieces { ( not used ) }
- B32B 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 { ( [B32B 27/205](#) takes precedence; foam layer [B32B 15/08](#) ) } ; { characterised by an apertured layer }
- B32B 3/263 . . { characterised by a layer having non-uniform thickness }
- B32B 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](#) }
- B32B 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 ) ]

- B32B 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](#) ) }
- B32B 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, fibres, filaments, granules, or powder forming or included in a layer may be impregnated, bonded together, or embedded in a substance such as synthetic resin. If the substance of the fibres, or the like, or the impregnating, bonding, or embedding substance, is important it is classified in the relevant group for the substance.
- B32B 5/02 . characterised by structural features of a { [fibrous or filamentary layer \( B32B 15/02 , B32B 21/02 take precedence](#); [layer formed of particles B32B 5/16](#) ; [layers formed of natural mineral fibres B32B 19/00](#) ; [coated or impregnated fibrous or filamentary layers B32B 2255/02 or B32B 2260/021](#) ) }
- B32B 5/022 . . { [Non-woven fabric](#) }
- B32B 5/024 . . { [Woven fabric](#) }
- B32B 5/026 . . { [Knitted fabric](#) }
- B32B 5/028 . . { [Net structure, e.g. spaced apart filaments bonded at the crossing points](#) }
- B32B 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](#) }
- B32B 5/06 . . characterised by a fibrous { or filamentary } layer { [mechanically connected, e.g. by needling, sewing, stitching, hydroentangling, hook and loop-type fasteners](#) } to another layer, e.g. of fibres, of paper
- B32B 5/08 . . the fibres or filaments of a layer being of different substances { , e.g. [conjugate fibres, mixture of different fibres](#) }
- B32B 5/10 . . characterised by a fibrous { or filamentary } layer reinforced with filaments
- B32B 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](#) }
- B32B 5/14 . characterised by a layer differing constitutionally or physically in different parts, e.g. denser near its faces
- B32B 5/142 . . { [Variation across the area of the layer](#) }
- B32B 5/145 . . { [Variation across the thickness of the layer](#) }
- B32B 5/147 . . { [by treatment of the layer](#) }
- B32B 5/16 . characterised by features of a layer formed of particles, e.g. chips, powder { , [granules \( B32B 21/02 takes precedence](#); [layers formed of natural mineral particles B32B 19/00](#) ; [coated or impregnated particulate layers B32B 2255/04 or B32B 2260/025](#) ) }
- B32B 5/18 . characterised by features of a layer { of } foamed material
- B32B 5/20 . . foamed in situ
- B32B 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 \( B32B 19/06 , B32B 19/048 B32B 19/047 , B32B 29/005 to B32B 29/04 take precedence](#) ) }

- B32B 5/24 . . . one layer being a fibrous or filamentary layer
- B32B 5/245 . . . { another layer next to it being a foam layer }
- B32B 5/26 . . . another layer { next to it also being fibrous or filamentary ( relative arrangement of fibres or filaments of different layers [B32B 5/12](#) ; all layers being fibrous or filamentary [B32B 2250/20](#) ; two or more impregnated fibrous or filamentary layers [B32B 2260/023](#) ) }
- B32B 5/28 . . . impregnated with or embedded in a plastic substance { ( not used ) }
- B32B 5/30 . . . one layer { being formed of particles, e.g. chips, } granules, powder
- B32B 5/32 . . . N: at least two layers being foamed and next to each other ( all layers being foamed [B32B 2250/22](#) ) ]

**B32B 7/00**      **Layered products characterised by the relation between layers, i.e. products comprising layers having different physical properties and products characterised by the interconnection of layers**

- B32B 7/005 . { in respect of orientation of features ( [B32B 5/12](#) takes precedence ) }
- B32B 7/02 . in respect of physical properties, e.g. hardness
- B32B 7/04 . characterised by the connection of layers
- B32B 7/045 . . { the layers being not connected over the whole surface, e.g. discontinuous connection, patterned connection ( [B32B 7/14](#) takes precedence ) }
- B32B 7/06 . . permitting easy separation { , e.g. releasable layer }
- B32B 7/08 . . by mechanical connection, e.g. stitching { ( [B32B 5/06](#) takes precedence ) }
- B32B 7/10 . . one or both of the layers having inter-reactive properties
- B32B 7/12 . . using an adhesive { , i.e. any interposed material having adhesive or bonding properties }
- B32B 7/14 . . . applied in strips or other spaced arrangement

**Guidance heading:** Layered products characterised by particular substances used

**NOTE**

In groups [B32B 9/00](#) to [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 }

**B32B 9/00**      **Layered products comprising a particular substance not covered by groups [B32B 11/00](#) to [B32B 29/00](#)**

- B32B 9/002 . { comprising natural stone or artificial stone }
- B32B 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](#) ) }

- B32B 9/007 .. { comprising carbon, e.g. graphite, composite carbon }
- B32B 9/02 . comprising animal or vegetable substances { , e.g. cork, bamboo, starch }
- B32B 9/025 .. { comprising leather }
- B32B 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 ( [B32B 17/06](#) takes precedence; layered products with at least two ceramic layers composed mainly of ceramic [B32B 18/00](#) ) }
- B32B 9/041 .. { of metal }
- B32B 9/042 .. { of wood }
- B32B 9/043 .. { of natural rubber or synthetic rubber }
- B32B 9/045 .. { of synthetic resin }
- B32B 9/046 .. { of foam }
- B32B 9/047 .. { made of fibres or filaments }
- B32B 9/048 .. { made of particles }
- B32B 9/06 .. of paper or cardboard
  
- B32B 11/00 Layered products comprising { a layer of } bituminous or tarry substances**
- B32B 11/02 . with fibres or particles { being present as additives in the layer }
- B32B 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 ( [B32B 17/06](#) takes precedence ) }
- B32B 11/042 .. { of wood }
- B32B 11/044 .. { of natural rubber or synthetic rubber }
- B32B 11/046 .. { of synthetic resin }
- B32B 11/048 .. { of foam }
- B32B 11/06 .. of paper or cardboard
- B32B 11/08 .. of metal
- B32B 11/10 . next to a fibrous or filamentary layer
- B32B 11/12 . next to a particulate layer
  
- B32B 13/00 Layered products comprising a { a layer of } water-setting substance, e.g. concrete, plaster, asbestos cement, or like builders` material**
- B32B 13/02 . with fibres or particles { being present as additives in the layer }
- B32B 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 ( [B32B 17/06](#) takes precedence ) }
- B32B 13/042 .. { of natural rubber or synthetic rubber }
- B32B 13/045 .. { of foam }
- B32B 13/047 .. { made of particles }

- B32B 13/06 . . of metal
- B32B 13/08 . . of paper or cardboard
- B32B 13/10 . . of wood ; of wood particle board
- B32B 13/12 . . of synthetic resin
- B32B 13/14 . next to a fibrous or filamentary layer

#### **B32B 15/00 Layered products comprising { a layer of } metal**

- B32B 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](#) }
- B32B 15/011 . . { all layers being formed of iron alloys or steels }
- B32B 15/012 . . { one layer being formed of an iron alloy or steel, another layer being formed of aluminium or an aluminium alloy }
- B32B 15/013 . . { one layer being formed of an iron alloy or steel, another layer being formed of a metal other than iron or aluminium }
- B32B 15/015 . . . { the said other metal being copper or nickel or an alloy thereof }
- B32B 15/016 . . { all layers being formed of aluminium or aluminium alloys }
- B32B 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 }
- B32B 15/018 . . { one layer being formed of a noble metal or a noble metal alloy }
- B32B 15/02 . { Layer formed of wires, e.g. mesh }
- B32B 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 ( [B32B 17/061](#) and [B32B 23/042](#) take precedence; next to a bituminous or tarry layer [B32B 11/08](#) ; next to a water-setting substance layer [B32B 13/06](#) ) }
- B32B 15/043 . . { of metal ( [B32B 15/01](#) takes precedence ) }
- B32B 15/046 . . { of foam }
- B32B 15/06 . . of { natural rubber or synthetic } rubber
- B32B 15/08 . . of synthetic resin
- B32B 15/082 . . . comprising vinyl resins ; comprising acrylic resins
- B32B 15/085 . . . comprising polyolefins
- B32B 15/088 . . . comprising polyamides
- B32B 15/09 . . . comprising polyesters
- B32B 15/092 . . . comprising epoxy resins
- B32B 15/095 . . . comprising polyurethanes
- B32B 15/098 . . . comprising condensation resins of aldehydes, e.g. with phenols, ureas or melamines
- B32B 15/10 . . of wood
- B32B 15/12 . . of paper or cardboard
- B32B 15/14 . next to a fibrous or filamentary layer
- B32B 15/16 . next to a particulate layer



- B32B 15/18 . comprising iron or steel { ( [B32B 15/011](#) , [B32B 15/012](#) and [B32B 15/013](#) take precedence ) }
- B32B 15/20 . comprising aluminium or copper { ( [B32B 15/016](#) and [B32B 15/017](#) take precedence ) }

## **B32B 17/00 Layered products essentially comprising sheet glass, or glass, slag, or like fibres**

- B32B 17/02 . in the form of fibres or filaments
- B32B 17/04 . . bonded with or embedded in a plastic substance
- B32B 17/06 . comprising glass as the main or only constituent of a layer, next to another layer of a specific { material ( coating on glass [C03C 17/00](#) ; safety glazings [B32B 17/08](#) or [B32B 17/10](#) ; fire protective glazing with intumescent layers [B32B 17/069](#) ) }
- B32B 17/061 . . { metal }
- B32B 17/062 . . { wood }
- B32B 17/063 . . { rubber }
- B32B 17/064 . . { synthetic resin ( [B32B 17/10](#) takes precedence ) }
- B32B 17/065 . . { paper or cardboard }
- B32B 17/066 . . { foam }
- B32B 17/067 . . { fibres or filaments }
- B32B 17/068 . . { particulate matter }
- B32B 17/069 . . { intumescent layers ( [B32B 17/10311](#) takes precedence ) }
- B32B 17/08 . . of cellulosic plastic substance { or gelatin }
- B32B 17/10 . . of synthetic resin { ( producing optical elements from plastics [B29D 11/00](#) ; constructional form of optical elements [G02B](#) ) }

### **NOTE**

1. In this group a layer of organic glass is not considered as a glass layer but as a synthetic resin layer;
2. [N: Inventions related to safety glazings (laminated glazings) are classified in all appropriate subgroups [B32B 17/10009](#) to [B32B 17/10](#) L, whereby transparent polymeric layers other than the interlayer ( [B32B 17/10](#) G) are classified using indexing codes

- B32B 17/10009 . . . { characterized by the number, the constitution or treatment of glass sheets }
- B32B 17/10018 . . . . { comprising only one glass sheet }
- B32B 17/10027 . . . . . { the glass sheet not being an outer layer }
- B32B 17/10036 . . . . { comprising two outer glass sheet }
- B32B 17/10045 . . . . . { at least one intermediate layer consisting of a glass sheet }
- B32B 17/10055 . . . . . { at least one intermediate air space ( IG window units comprising two or more parallel glass panes [E06B 3/66](#) ) }
- B32B 17/10064 . . . . { comprising at least two glass sheets, only one of which being an outer layer }
- B32B 17/10073 . . . . { comprising at least two glass sheets, neither of which being an outer layer }
- B32B 17/10082 . . . . { Properties of the bulk of a glass sheet }



B32B 17/10091	....	{ thermally hardened ( <a href="#">chemical strengthening B32B 17/10137</a> ) }
B32B 17/101	....	{ having a predetermined coefficient of thermal expansion [CTE] }
B32B 17/1011	....	{ having predetermined tint or excitation purity }
B32B 17/10119	....	{ having a composition deviating from the basic composition of soda-lime glass, e.g. borosilicate }
B32B 17/10128	....	{ Treatment of at least one glass sheet ( <a href="#">cutting of laminated glass C03B 33/076</a> ) }
B32B 17/10137	.....	{ Chemical strengthening }
B32B 17/10146	.....	{ Face treatment, e.g. etching, grinding or sand blasting }
B32B 17/10155	.....	{ Edge treatment, chamfering }
B32B 17/10165	...	{ particular functional features of the laminated glazing }
B32B 17/10174	....	{ Coatings of a metallic or dielectric material on a constituent layer of glass or polymer }
B32B 17/10183	.....	{ being not continuous, e.g. in edge regions }
B32B 17/10192	.....	{ patterned in the form of columns or grids }
B32B 17/10201	.....	{ Dielectric coatings }
B32B 17/10211	.....	{ Doped dielectric layer, electrically conductive, e.g. SnO <sub>2</sub> :F }
B32B 17/1022	.....	{ Metallic coatings }
B32B 17/10229	.....	{ Metallic layers sandwiched by dielectric layers }
B32B 17/10238	.....	{ in the form of particles }
B32B 17/10247	....	{ containing decorations or patterns for aesthetic reasons; metal wires for this purpose <a href="#">B32B 17/10422</a> }
B32B 17/10256	.....	{ created by printing techniques }
B32B 17/10266	.....	{ on glass pane }
B32B 17/10275	.....	{ on interlayer }
B32B 17/10284	.....	{ on intermediate layer }
B32B 17/10293	....	{ Edge features, e.g. inserts or holes }
B32B 17/10302	.....	{ Edge sealing }
B32B 17/10311	....	{ Intumescent layers for fire protection }
B32B 17/10321	....	{ containing liquid layers }
B32B 17/1033	....	{ containing temporary protective coatings or layers }
B32B 17/10339	....	{ Specific parts of the laminated glazing being colored or tinted ( <a href="#">tinted glass B32B 17/1011</a> ; <a href="#">tinted interlayer B32B 17/10G08</a> ) }
B32B 17/10348	.....	{ comprising an obscuration band }
B32B 17/10357	.....	{ comprising a tinted intermediate film }
B32B 17/10366	....	{ Reinforcements of the laminated glazing against impact or intrusion; metal wires for this purpose <a href="#">B32B 17/10412</a> }
B32B 17/10376	....	{ containing metal wires }
B32B 17/10385	.....	{ for Ohmic resistance heating ( <a href="#">Ohmic resistance heating in general H05B 3/84</a> ) }
B32B 17/10394	.....	{ Alarm wires ( <a href="#">burglar alarms by breaking glass G08B 13/04</a> ) }
B32B 17/10403	.....	{ for radiation shielding ( <a href="#">radiation shielding in general H05K 9/00</a> ) }
B32B 17/10412	.....	{ for reinforcement }
B32B 17/10422	.....	{ for aesthetic reasons }

B32B 17/10431	....	{ Devices for the modulation of light incorporated into the laminated glazing ( metallic or dielectric coatings <a href="#">B32B 17/10174</a> ; coating on glass in general <a href="#">C03C 17/00</a> ) }
B32B 17/1044	.....	{ Invariable transmission }
B32B 17/10449	.....	{ Wavelength selective transmission ( filters per se <a href="#">G02B 5/20</a> ) }
B32B 17/10458	.....	{ Polarization selective transmission ( polarizing elements per se <a href="#">G02B 5/30</a> ) }
B32B 17/10467	.....	{ Variable transmission }
B32B 17/10477	.....	{ thermochromic }
B32B 17/10486	.....	{ photochromic }
B32B 17/10495	.....	{ optoelectronic , i.e. optical valve }
B32B 17/10504	.....	{ liquid crystal layer ( devices for the control of the intensity of the light based on liquid crystals <a href="#">G02F 1/13</a> ) }
B32B 17/10513	.....	{ electrochromic layer ( devices for the control of the intensity of the light based on electrochromic elements <a href="#">G02F 1/15</a> ) }
B32B 17/10522	.....	{ electrophoretic layer ( devices for the control of the intensity of the light based on electrophoresis <a href="#">G02F 1/167</a> ) }
B32B 17/10532	.....	{ suspended particle layer ( devices for the control of the intensity of the light based on suspension of oriented dipolar particles <a href="#">G02F 1/172</a> ) }
B32B 17/10541	....	{ The laminated glazing acting as an illumination device , i.e. comprising a light source or a light guide ( light guides in general <a href="#">G02B 6/00</a> ; structural combinations of lighting devices with other articles <a href="#">F21V 33/00</a> ; lighting devices for vehicle interior <a href="#">B60Q 3/02</a> ) }
B32B 17/1055	...	{ characterized by the resin layer , i.e. interlayer }
B32B 17/10559	....	{ Shape of the cross-section }
B32B 17/10568	.....	{ varying in thickness }
B32B 17/10577	.....	{ Surface roughness }
B32B 17/10587	.....	{ created by embossing }
B32B 17/10596	.....	{ created by melt fracture }
B32B 17/10605	....	{ Type of plasticizer }
B32B 17/10614	....	{ comprising particulate matter for purposes other than dyeing }
B32B 17/10623	.....	{ Whitening agents reflecting visible light }
B32B 17/10633	.....	{ Infrared radiation absorbing or reflecting agents }
B32B 17/10642	.....	{ Thermally conductive agents }
B32B 17/10651	....	{ comprising colorants, e.g. dyes or pigments }
B32B 17/1066	.....	{ imparting a tint in certain regions only , i.e. shade band }
B32B 17/10669	.....	{ Luminescent agents ( luminescent materials <a href="#">C09K 11/00</a> , optical brightening agents <a href="#">C08K 5/0041</a> ) }
B32B 17/10678	....	{ comprising UV absorbers or stabilizers , e.g. antioxidants }
B32B 17/10688	....	{ Adjustment of the adherence to the glass layers }
B32B 17/10697	....	{ being cross-linked }
B32B 17/10706	....	{ being photo-polymerized }
B32B 17/10715	....	{ containing polyether }
B32B 17/10724	....	{ containing polyamide }
B32B 17/10733	....	{ containing epoxy }

B32B 17/10743	....	{ containing acrylate (co)polymers or salts thereof }
B32B 17/10752	....	{ containing polycarbonate }
B32B 17/10761	....	{ containing vinyl acetal }
B32B 17/1077	....	{ containing polyurethane }
B32B 17/10779	....	{ containing polyester }
B32B 17/10788	....	{ containing ethylene vinylacetate }
B32B 17/10798	....	{ containing silicone }
B32B 17/10807	...	{ Making layered products containing glass and synthetic resin layers; apparatus therefor }
B32B 17/10816	....	{ by pressing }
B32B 17/10825	.....	{ isostatic pressing, i.e. using non rigid pressure-exerting members against rigid parts ( <a href="#">isostatic presses in general B30B 11/001</a> ) }
B32B 17/10834	.....	{ using a fluid }
B32B 17/10844	.....	{ using a membrane between the layered product and the fluid }
B32B 17/10853	.....	{ the membrane being bag-shaped }
B32B 17/10862	.....	{ using pressing-rolls }
B32B 17/10871	.....	{ in combination with particular heat treatment }
B32B 17/1088	....	{ by superposing a plurality of layered products }
B32B 17/10889	....	{ shaping the sheets, e.g. by using a mould ( <a href="#">B32B 17/10816</a> takes precedence ) }
B32B 17/10899	....	{ by introducing interlayers of synthetic resin }
B32B 17/10908	.....	{ in liquid form }
B32B 17/10917	.....	{ between two pre-positioned glass layers ( <a href="#">between preformed layers in general B29C 39/126</a> ; spacing elements for window units comprising two or more parallel panes <a href="#">E06B 3/663</a> ) }
B32B 17/10926	.....	{ by spraying ( <a href="#">spraying in general B05</a> ) }
B32B 17/10935	.....	{ as a preformed layer, e.g. formed by extrusion }
B32B 17/10944	.....	{ in powder form }
B32B 17/10954	.....	{ by using an aligning laminating device }
B32B 17/10963	....	{ specially adapted for repairing the layered products }
B32B 17/10972	....	{ Degassing during the lamination ( <a href="#">B32B 17/10816</a> takes precedence; during molding <a href="#">B29C 37/006</a> ) }
B32B 17/10981	....	{ Pre-treatment of the layers }
B32B 17/1099	....	{ After-treatment of the layered product, e.g. cooling }

**B32B 18/00**

**Laminated products composed mainly of ceramics, e.g. refractory materials** ( { semi-permeable membranes made of inorganic material [B01D 71/02](#) ; ceramic coatings on glass [C03C 17/00](#) ; joining of ceramic layers [C04B 37/00](#) ; coating of ceramics [C04B 41/45](#) ; applying ceramic coatings on metallic materials [C23](#) ; applying ceramic coatings on silicon for semi-conductor purposes [H01L](#) } )

**NOTE**

In group [B32B 18/00](#) , from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further processing are indexed with codes chosen from [C04B 2237/00](#) to [C04B 2237/70](#) R

<b>B32B 19/00</b>	<b>Layered products comprising { a layer of } natural mineral fibres or particles, e.g. asbestos, mica</b>
B32B 19/02	. { the layer of fibres or particles being impregnated or } embedded in a plastic substance
B32B 19/04	. next to another layer { of the same or of a different material ( <a href="#">B32B 17/067</a> takes precedence ) }
B32B 19/041	.. { of metal }
B32B 19/042	.. { of wood }
B32B 19/043	.. { of natural rubber or synthetic rubber }
B32B 19/045	.. { of synthetic resin }
B32B 19/046	.. { of paper or cardboard }
B32B 19/047	.. { of foam }
B32B 19/048	.. { made of particles }
B32B 19/06	. next to a fibrous or filamentary layer
B32B 19/08	. comprising asbestos
<b>B32B 21/00</b>	<b>Layered products comprising { a layer of } wood, e.g. wood board, veneer, wood particle board</b>
B32B 21/02	. { the layer being formed of fibres, chips, or particles, e.g. MDF, HDF, OSB, chipboard, particle board, hardboard }
B32B 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 } ( <a href="#">B32B 17/062</a> and <a href="#">B32B 23/044</a> take precedence; 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 layer formed of natural mineral fibres or particles <a href="#">B32B 19/042</a> )
B32B 21/042	.. { of wood ( <a href="#">B32B 21/13</a> takes precedence ) }
B32B 21/045	.. { of natural rubber or synthetic rubber }
B32B 21/047	.. { of foam }
B32B 21/06	.. of paper or cardboard
B32B 21/08	.. of synthetic resin
B32B 21/10	. Next to a fibrous or filamentary layer
B32B 21/12	. next to a particulate layer
B32B 21/13	. all layers being exclusively wood
B32B 21/14	. comprising wood board or veneer
<b>B32B 23/00</b>	<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>

- B32B 23/02 . in the form of fibres or filaments { ( not used ) }
- B32B 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 ( [B32B 17/08](#) takes precedence ) }
- B32B 23/042 .. { of metal }
- B32B 23/044 .. { of wood }
- B32B 23/046 .. { of natural rubber or synthetic rubber ( all layers being polymeric [B32B 2250/24](#) ) }
- B32B 23/048 .. { of foam }
- B32B 23/06 .. of paper or cardboard
- B32B 23/08 .. of synthetic resin { ( all layers being polymeric [B32B 2250/24](#) ) }
- B32B 23/10 . next to a fibrous or filamentary layer
- B32B 23/12 . next to a particulate layer
- B32B 23/14 . characterised by containing special compounding ingredients
- B32B 23/16 .. Modifying agents
- B32B 23/18 .. Fillers
- B32B 23/20 . comprising esters
- B32B 23/22 . comprising ethers
- B32B 25/00** **Layered products comprising { a layer of } natural or synthetic rubber { ( [B32B 5/02](#) , [B32B 5/16](#) , [B32B 5/18](#) take precedence; thermoplastic elastomer [B32B 2274/00](#) ) }**
- B32B 25/02 . with fibres or particles { being present as additives in the layer }
- B32B 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 ( [B32B 17/063](#) takes precedence; 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 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](#) ) }
- B32B 25/042 .. { of natural rubber or synthetic rubber ( all layers being made of natural or synthetic rubber [B32B 2250/248](#) ) }
- B32B 25/045 .. { of foam }
- B32B 25/047 .. { of particles }
- B32B 25/06 .. of paper or cardboard
- B32B 25/08 .. of synthetic resin { ( all layers being polymeric [B32B 2250/24](#) ) }
- B32B 25/10 . next to a fibrous or filamentary layer
- B32B 25/12 . comprising natural rubber
- B32B 25/14 . comprising { synthetic rubber copolymers ( [B32B 25/18](#) and [B32B 25/20](#) take precedence ) }

- B32B 25/16 . comprising polydienes { [homopolymers](#) } or poly-halodienes { [homopolymers](#) ( [B32B 25/12](#) takes precedence ) }
- B32B 25/18 . comprising butyl or halobutyl rubber
- B32B 25/20 . comprising silicone rubber
- B32B 27/00** **Layered products comprising { a layer of } synthetic resin { ( [B32B 5/02](#) , [B32B 5/16](#) , [B32B 5/18](#) take precedence; thermoplastic elastomer [B32B 2274/00](#) ) }**
- NOTE**
- This group covers all synthetic resins except those covered by [B32B 25/00](#) or [B32B 23/00](#)
- B32B 27/02 . in the form of fibres or filaments { ( not used ) }
- B32B 27/04 . as impregnant, bonding, or embedding substance { ( not used ) }
- B32B 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 ( [B32B 17/064](#) takes precedence; 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 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](#) ) }
- B32B 27/065 . . { of foam }
- B32B 27/08 . . of synthetic resin { ( all layers being polymeric, made of polymers belonging to those covered by [B32B 27/32](#) , by [B32B 27/36](#) , or by [B32B 27/30](#) and [B32B 27/32](#) , [B32B 2250/24](#) to [B32B 2250/246](#) ) }
- B32B 27/10 . . of paper or cardboard
- B32B 27/12 . next to a fibrous or filamentary layer
- B32B 27/14 . next to a particulate layer
- B32B 27/16 . specially treated, e.g. irradiated { ( [B32B 2255/10](#) takes precedence ) }
- B32B 27/18 . characterised by the use of special additives
- B32B 27/20 . . using fillers, pigments, thixotroping agents
- B32B 27/205 . . . { the fillers creating voids or cavities, e.g. by stretching }
- B32B 27/22 . . using plasticisers
- B32B 27/24 . . using solvents or swelling agents
- B32B 27/26 . . using curing agents
- B32B 27/28 . comprising synthetic resins not wholly covered by any one of the sub-groups { [B32B 27/30](#) to [B32B 27/42](#) }
- B32B 27/281 . . { comprising polyimides }
- B32B 27/283 . . { comprising polysiloxanes }

- B32B 27/285 . . { comprising polyethers }
- B32B 27/286 . . { comprising polysulphones; polysulfides }
- B32B 27/288 . . { comprising polyketones }
  
- B32B 27/30 . comprising vinyl { (co)polymers; comprising acrylic (co)polymers }
- B32B 27/302 . . { comprising aromatic vinyl (co)polymers, e.g. styrenic (co)polymers }
- B32B 27/304 . . { comprising vinyl halide (co)polymers, e.g. PVC, PVDC, PVF, PVDF }
- B32B 27/306 . . { comprising vinyl acetate or vinyl alcohol (co)polymers }
- B32B 27/308 . . { comprising acrylic (co)polymers }
  
- B32B 27/32 . comprising polyolefins { ( [B32B 27/30](#) takes precedence ) }
- B32B 27/322 . . { comprising halogenated polyolefins, e.g. PTFE }
- B32B 27/325 . . { comprising polycycloolefins }
- B32B 27/327 . . { comprising polyolefins obtained by a metallocene or single-site catalyst }
  
- B32B 27/34 . comprising polyamides
  
- B32B 27/36 . comprising polyesters
- B32B 27/365 . . { comprising polycarbonates }
  
- B32B 27/38 . comprising epoxy resins
  
- B32B 27/40 . comprising polyurethanes
  
- B32B 27/42 . comprising condensation resins of aldehydes, e.g. with phenols, ureas or melamines
  
- B32B 29/00 Layered products comprising { a layer of } paper or cardboard**
  
- B32B 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 ( [B32B 17/065](#) takes precedence; 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 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](#) ) }
- B32B 29/005 . . { next to another layer of paper or cardboard layer ( all layers being made of paper or paperboard [B32B 2250/26](#) ) }
- B32B 29/007 . . { next to a foam layer }
  
- B32B 29/02 . next to a fibrous or filamentary layer
  
- B32B 29/04 . next to a particulate layer
  
- B32B 29/06 . specially treated, e.g. surfaced, parchmentised { ( [B32B 2255/12](#) , [B32B 2260/028](#) take precedence ) }
  
- B32B 29/08 . Corrugated paper, corrugated cardboard
  
- B32B 33/00 Layered products characterised by particular properties or particular surface**



features, e.g. particular surface coatings ( [surface unevennesses](#) or [non-uniformities B32B 3/00](#) ) ; Layered products designed for particular purposes not covered by another single class

**Guidance heading:** 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.

- |                              |  |
|------------------------------|--|
| <b>B32B 37/00</b>            | <b>Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding { ( making non-planar products <a href="#">B32B 1/00</a> ; making products characterised by particular features of structure or of composition, see the relevant groups for such products, e.g. making layered products containing glass and synthetic resin layers <a href="#">B32B 17/10807</a> ; coating of single webs or the like <a href="#">B05</a> ) }</b> |
| <a href="#">B32B 37/0007</a> | . { involving treatment or provisions in order to avoid deformation or air inclusion, e.g. to improve surface quality }  |
| <a href="#">B32B 37/0015</a> | .. { to avoid warp or curl }   |
| <a href="#">B32B 37/0023</a> | .. { around holes, apertures or channels present in at least one layer }   |
| <a href="#">B32B 37/003</a>  | .. { to avoid air inclusion }  |
| <a href="#">B32B 37/0038</a> | . { involving application of liquid to the layers prior to lamination, e.g. wet laminating ( <a href="#">B32B 37/12</a> takes precedence ) ( applying liquids in general <a href="#">B05</a> ) }   |
| <a href="#">B32B 37/0046</a> | . { characterised by constructional aspects of the apparatus }   |
| <a href="#">B32B 37/0053</a> | .. { Constructional details of laminating machines comprising rollers; Constructional features of the rollers }  |
| <a href="#">B32B 37/0076</a> | . { characterised in that the layers are not bonded on the totality of their surfaces }  |
| <a href="#">B32B 37/0084</a> | .. { Point bonding }   |
| <a href="#">B32B 37/02</a>   | . characterised by a sequence of laminating steps, e.g. by adding new layers at consecutive laminating stations  |
| <a href="#">B32B 37/025</a>  | .. { Transfer laminating }   |
| <a href="#">B32B 37/04</a>   | . characterised by the partial melting of at least one layer   |

- B32B 37/06 . characterised by the heating method
- B32B 37/065 .. { resulting in the laminate being partially bonded [B32B 37/0076](#) takes precedence }
- B32B 37/08 . characterised by the cooling method
- B32B 37/085 .. { Quenching }
- B32B 37/10 . characterised by the pressing technique, e.g. using action of vacuum or fluid pressure
- B32B 37/1009 .. using vacuum and fluid pressure
- B32B 37/1018 .. { using only vacuum }
- B32B 37/1027 .. { Pressing using at least one press band ( pressing means with cooperating endless bands in general [B30B 5/06](#) ) }
- B32B 37/1036 ... { Pressing between one press band and a cylinder }
- B32B 37/1045 .. { Intermittent pressing, e.g. by oscillating or reciprocating motion of the pressing means ( [B32B 37/0076](#) takes precedence ) }
- B32B 37/1054 .. { Regulating the dimensions of the laminate, e.g. by adjusting the nip or platen gap }
- B32B 37/12 . characterised by using adhesive
- B32B 37/1207 .. { Heat-activated adhesive ( laminating by the partial melting of layers to form the bond [B32B 37/04](#) takes precedence ) }
- B32B 37/1284 .. { Application of adhesive }
- B32B 37/1292 ... { selectively, e.g. in stripes, in patterns ( [B32B 37/0076](#) takes precedence ) }
- B32B 37/14 . characterised by the properties of the layers
- B32B 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 }
- B32B 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](#) takes precedence ) }
- B32B 37/146 .. { whereby one or more of the layers is a honeycomb structure }
- B32B 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
- B32B 37/153 ... { at least one layer is extruded and immediately laminated while in semi-molten state }
- B32B 37/156 ... { at least one layer is calendered and immediately laminated }
- B32B 37/16 .. with all layers existing as coherent layers before laminating
- B32B 37/18 ... involving the assembly of discrete sheets or panels only
- B32B 37/182 .... { one or more of the layers being plastic }
- B32B 37/185 ..... { Laminating sheets, panels or inserts between two discrete plastic layers }
- B32B 37/187 .... { the layers being placed in a carrier before going through the lamination process }
- B32B 37/20 ... involving the assembly of continuous webs only
- B32B 37/203 .... { One or more of the layers being plastic }
- B32B 37/206 ..... { Laminating a continuous layer between two continuous plastic layers }
- B32B 37/22 ... involving the assembly of both discrete and continuous layers

- B32B 37/223 . . . . { One or more of the layers being plastic }
- B32B 37/226 . . . . { Laminating sheets, panels or inserts between two continuous plastic layers }
- B32B 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 )

**NOTE**

When classifying in group [B32B 37/24](#) , the technique can be further indexed by using the indexing codes chosen from [B32B 37/24](#) and subgroups

- B32B 37/26 . . with at least one layer which influences the bonding during the lamination process, e.g. release layers or pressure equalising layers

**NOTE**

When classifying in group [B32B 37/26](#) , said at least one layer can be further indexed by using the indexing codes chosen from [B32B 37/26](#) and subgroups

- B32B 37/28 . involving assembly of non-flat intermediate products which are flattened at a later step, e.g. tubes

- B32B 37/30 . Partial laminating

## **B32B 38/00 Ancillary operations in connection with laminating processes**

- B32B 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 ) }

- B32B 38/0008 . { Electrical discharge treatment, e.g. corona, plasma treatment; wave energy or particle radiation ( [B32B 38/0036](#) and [B29C 59/00](#) take precedence ) }

**NOTE**

Laminate treatment is further indexed in group [B32B 2310/00](#)

- B32B 38/0012 . { Mechanical treatment, e.g. roughing, deforming, stretching }

**NOTE**

When classifying in group [B32B 38/0012](#) , the treatment can be further indexed by using the indexing codes chosen from [B32B 38/0012](#) and subgroups

- B32B 38/0032 . { increasing porosity ( [B32B 38/04](#) takes precedence ) }

- B32B 38/0036 . { Heat treatment ( for heating or cooling of layers during lamination [B32B 37/06](#) , [B32B 37/08](#) ) }

**NOTE**

When classifying in group [B32B 38/0036](#) , the heat treatment can be further indexed by using the indexing codes chosen from [B32B 38/0036](#) and subgroups

[B32B 38/004](#) . . { by physically contacting the layers, e.g. by the use of heated platens or rollers }

[B32B 38/04](#) . Punching, slitting or perforating

#### **NOTE**

When classifying in group [B32B 38/04](#) , the operation can be further indexed by using the indexing codes chosen from [B32B 38/04](#) and subgroups

[B32B 38/06](#) . Embossing

[B32B 38/08](#) . Impregnating

[B32B 38/10](#) . Removing layers, or parts of layers, mechanically or chemically ( [punching, slitting or perforating B32B 38/04](#) )

[B32B 38/105](#) . . { on edges }

[B32B 38/12](#) . Deep-drawing

[B32B 38/14](#) . Printing or colouring

[B32B 38/145](#) . . { Printing }

[B32B 38/16](#) . Drying ; Softening ; Cleaning

[B32B 38/162](#) . . { Cleaning }

[B32B 38/164](#) . . { Drying }

#### **NOTE**

When classifying in group [B32B 38/164](#) , the drying operation can be further indexed by using the indexing codes chosen from [B32B 38/164](#) and subgroups

[B32B 38/18](#) . Handling of layers or the laminate

[B32B 38/1808](#) . . { characterised by the laying up of the layers }

[B32B 38/1816](#) . . . { Cross feeding of one or more of the layers }

[B32B 38/1825](#) . . { characterised by the control or constructional features of devices for tensioning, stretching or registration }

[B32B 38/1833](#) . . . { Positioning, e.g. registration or centering }

[B32B 38/1841](#) . . . . { during laying up }

[B32B 38/185](#) . . . . . { combined with the cutting of one or more layers }

[B32B 38/1858](#) . . { using vacuum }

[B32B 38/1866](#) . . { conforming the layers or laminate to a convex or concave profile }

[B32B 38/1875](#) . . { Tensioning }

[B32B 38/1883](#) . . { Detensioning }

- B32B 39/00**      **Layout of apparatus or plants, e.g. modular laminating systems**
- B32B 41/00**      **Arrangements for controlling or monitoring lamination processes ; Safety arrangements**
- B32B 41/02      .    Safety arrangements
- B32B 43/00**      **Operations specially adapted for layered products and not otherwise provided for, e.g. repairing ; Apparatus therefor**
- B32B 43/003      .    { Cutting }
- B32B 43/006      .    { Delaminating }

**Guidance heading:**

- B32B 2037/00**      **Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding { ( making non-planar products [B32B 1/00](#) ; making products characterised by particular features of structure or of composition, see the relevant groups for such products, e.g. making layered products containing glass and synthetic resin layers [B32B 17/10807](#) ; coating of single webs or the like [B05](#) ) }**
- B32B 2037/0046      .    { characterised by constructional aspects of the apparatus }
- B32B 2037/0061      . .    the apparatus being an office laminator
- B32B 2037/0069      . .    the apparatus being originally designed for another function, e.g printer, photocopier
- B32B 2037/0092      .    in which absence of adhesives is explicitly presented as an advantage
- B32B 2037/10      .    characterised by the pressing technique, e.g. using action of vacuum or fluid pressure
- B32B 2037/1063      . .    using an electrostatic force
- B32B 2037/1072      . .    using a fluid jet
- B32B 2037/1081      . .    using a magnetic force
- B32B 2037/109      . .    using a squeegee
- B32B 2037/12      .    characterised by using adhesive
- B32B 2037/1207      . .    { Heat-activated adhesive ( laminating by the partial melting of layers to form the bond [B32B 37/04](#) takes precedence ) }
- B32B 2037/1215      . . .    Hot-melt adhesive
- B32B 2037/1223      . . . .    film-shaped
- B32B 2037/123      . . . .    net-shaped
- B32B 2037/1238      . . .    in the form of powder
- B32B 2037/1246      . .    Other adhesives ( not used )
- B32B 2037/1253      . . .    curable
- B32B 2037/1261      . . . .    moisture curable

- B32B 2037/1269 . . . multi-component adhesive
- B32B 2037/1276 . . . water-based adhesive
- B32B 2037/14 . . characterised by the properties of the layers
- B32B 2037/148 . . whereby layers material is selected in order to facilitate recycling of the laminate
- B32B 2037/24 . . 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 )

**NOTE**

When classifying in group [B32B 37/24](#) , the technique can be further indexed by using the indexing codes chosen from [B32B 37/24](#) and subgroups

- B32B 2037/243 . . . Coating
- B32B 2037/246 . . . Vapour deposition
- B32B 2037/26 . . with at least one layer which influences the bonding during the lamination process, e.g. release layers or pressure equalising layers

**NOTE**

When classifying in group [B32B 37/26](#) , said at least one layer can be further indexed by using the indexing codes chosen from [B32B 37/26](#) and subgroups

- B32B 2037/262 . . . Partition plates or sheets for separating several laminates pressed simultaneously
- B32B 2037/264 . . . Pressure equalizing layers
- B32B 2037/266 . . . Cushioning layers
- B32B 2037/268 . . . Release layers

**B32B 2038/00 Ancillary operations in connection with laminating processes**

- B32B 2038/0012 . { Mechanical treatment, e.g. roughing, deforming, stretching }

**NOTE**

When classifying in group [B32B 38/0012](#) , the treatment can be further indexed by using the indexing codes chosen from [B32B 38/0012](#) and subgroups

- B32B 2038/0016 . . Abrading
- B32B 2038/002 . . Sandblasting
- B32B 2038/0024 . . Crushing
- B32B 2038/0028 . . Stretching, elongating
- B32B 2038/0036 . { Heat treatment ( for heating or cooling of layers during lamination [B32B 37/06](#) , [B32B 37/08](#) ) }

**NOTE**

When classifying in group [B32B 38/0036](#) , the heat treatment can be further indexed by using the indexing codes chosen from [B32B 38/0036](#) and subgroups

- B32B 2038/0044 . . for creating local stresses
- B32B 2038/0048 . . Annealing, relaxing
- B32B 2038/0052 . Other operations not otherwise provided for
- B32B 2038/0056 . . Moistening
- B32B 2038/006 . . Relieving internal or residual stresses
- B32B 2038/0064 . . Smoothing, polishing, making a glossy surface
- B32B 2038/0068 . . Changing crystal orientation
- B32B 2038/0072 . . Orienting fibers
- B32B 2038/0076 . . Curing, vulcanising, cross-linking
- B32B 2038/008 . . Sewing, stitching
- B32B 2038/0084 . . Foaming
- B32B 2038/0088 . . Expanding, swelling
- B32B 2038/0092 . . Metallizing
- B32B 2038/0096 . . Riveting
- B32B 2038/04 . . Punching, slitting or perforating

**NOTE**

When classifying in group [B32B 38/04](#) , the operation can be further indexed by using the indexing codes chosen from [B32B 38/04](#) and subgroups

- B32B 2038/042 . . Punching
- B32B 2038/045 . . Slitting
- B32B 2038/047 . . Perforating

- B32B 2038/16 . Drying ; Softening ; Cleaning
- B32B 2038/164 . . { Drying }

**NOTE**

When classifying in group [B32B 38/164](#) , the drying operation can be further indexed by using the indexing codes chosen from [B32B 38/164](#) and subgroups

- B32B 2038/166 . . . Removing moisture
- B32B 2038/168 . . . Removing solvent

- B32B 2038/18 . Handling of layers or the laminate
- B32B 2038/1891 . . Using a robot for handling the layers

### **B32B 2041/00 Arrangements for controlling or monitoring lamination processes ; Safety arrangements**

- B32B 2041/04 . Detecting wrong registration, misalignment, deviation, failure
- B32B 2041/06 . Starting the lamination machine or method



**Guidance heading:****B32B 2250/00      Layers arrangement**

- B32B 2250/02 . 2 layers
- B32B 2250/03 . 3 layers
- B32B 2250/04 . 4 layers
- B32B 2250/05 . 5 or more layers
- B32B 2250/20 . All layers being fibrous or filamentary
- B32B 2250/22 . All layers being foamed
- B32B 2250/24 . All layers being polymeric
- B32B 2250/242 . . All polymers belonging to those covered by group [B32B 27/32](#)
- B32B 2250/244 . . All polymers belonging to those covered by group [B32B 27/36](#)
- B32B 2250/246 . . All polymers belonging to those covered by groups [B32B 27/32](#) and [B32B 27/30](#)
- B32B 2250/248 . . All polymers belonging to those covered by group [B32B 25/00](#)
- B32B 2250/26 . All layers being made of paper or paperboard
- B32B 2250/40 . Symmetrical or sandwich layers, e.g. ABA, ABCBA, ABCCBA
- B32B 2250/42 . Alternating layers, e.g. ABAB(C), AABBAABB(C)
- B32B 2250/44 . Number of layers variable across the laminate

**Guidance heading: 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****B32B 2255/00      Coating on the layer surface**

- B32B 2255/02 . on fibrous or filamentary layer
- B32B 2255/04 . on a particulate layer
- B32B 2255/06 . on metal layer
- B32B 2255/062 . . metal layer being a foamed layer
- B32B 2255/08 . on wood layer
- B32B 2255/10 . on synthetic resin layer or on natural or synthetic rubber layer
- B32B 2255/102 . . synthetic resin or rubber layer being a foamed layer

- B32B 2255/12 . on paper layer
- B32B 2255/20 . Inorganic coating
- B32B 2255/205 . . . Metallic coating
- B32B 2255/24 . Organic non-macromolecular coating
- B32B 2255/26 . Polymeric coating
- B32B 2255/28 . Multiple coating on one surface
- B32B 2260/00 Impregnation or embedding of a layer ; Bonding a fibrous, filamentary or particulate layer by using a binder**
- B32B 2260/02 . Composition of the impregnated, bonded or embedded layer
- B32B 2260/021 . . . Fibrous or filamentary layer ( [layers of natural mineral fibres or particles being impregnated in a plastic substance B32B 19/02](#) )
- B32B 2260/023 . . . . Two or more layers
- B32B 2260/025 . . . Particulate layer ( [layers of natural mineral fibres or particles being impregnated in a plastic substance B32B 19/02](#) )
- B32B 2260/026 . . . Wood layer
- B32B 2260/028 . . . Paper layer
- B32B 2260/04 . Impregnation material
- B32B 2260/042 . . . Bituminous or tarry substance
- B32B 2260/044 . . . Water-setting substance, e.g. concrete, plaster
- B32B 2260/046 . . . Synthetic resin
- B32B 2260/048 . . . Natural or synthetic rubber
- B32B 2262/00 Composition of fibres which form a fibrous or filamentary layer or are present as additives**
- B32B 2262/02 . Synthetic macromolecular fibres
- B32B 2262/0207 . . . Elastomeric fibres
- B32B 2262/0215 . . . . Thermoplastic elastomer fibers
- B32B 2262/0223 . . . Vinyl resin fibres
- B32B 2262/023 . . . . Aromatic vinyl resin, e.g. styrenic (co)polymers
- B32B 2262/0238 . . . . Vinyl halide, e.g. PVC,PVDC,PVF,PVDF
- B32B 2262/0246 . . . Acrylic resin fibres
- B32B 2262/0253 . . . Polyolefin fibres ( [vinyl or acrylic copolymers B32B 2262/0223 or B32B 2262/0246](#) )
- B32B 2262/0261 . . . Polyamide fibres
- B32B 2262/0269 . . . . Aromatic polyamide fibres
- B32B 2262/0276 . . . Polyester fibres
- B32B 2262/0284 . . . . Polyethylene terephthalate [PET] or polybutylene terephthalate [PBT]
- B32B 2262/0292 . . . Polyurethane fibres

<a href="#">B32B 2262/04</a>	. Cellulosic plastic fibres, e.g. rayon
<a href="#">B32B 2262/06</a>	. Vegetal fibres
<a href="#">B32B 2262/062</a>	.. Cellulose fibres, e.g. cotton
<a href="#">B32B 2262/065</a>	... Lignocellulosic fibres, e.g. jute, sisal, hemp, flax, bamboo
<a href="#">B32B 2262/067</a>	... Wood fibres
<a href="#">B32B 2262/08</a>	. Animal fibres , e.g. hair, wool, silk
<a href="#">B32B 2262/10</a>	. Inorganic fibres ( <a href="#">layered products comprising a layer of natural mineral fibres B32B 19/00</a> )
<a href="#">B32B 2262/101</a>	.. Glass fibres
<a href="#">B32B 2262/103</a>	.. Metal fibres
<a href="#">B32B 2262/105</a>	.. Ceramic fibres
<a href="#">B32B 2262/106</a>	... Carbon fibres, e.g. graphite fibres
<a href="#">B32B 2262/108</a>	.. Rockwool fibres
<a href="#">B32B 2262/12</a>	. Conjugate fibres, e.g. core/sheath, side-by-side
<a href="#">B32B 2262/14</a>	. Mixture of at least two fibres made of different materials
<b><a href="#">B32B 2264/00</a></b>	<b>Composition of particles which form a particulate layer or are present as additives</b>
<a href="#">B32B 2264/02</a>	. Synthetic macromolecular particles
<a href="#">B32B 2264/0207</a>	.. Particles made of materials belonging to <a href="#">B32B 25/00</a>
<a href="#">B32B 2264/0214</a>	.. Particles made of materials belonging to <a href="#">B32B 27/00</a>
<a href="#">B32B 2264/0221</a>	... Thermoplastic elastomer particles
<a href="#">B32B 2264/0228</a>	... Vinyl resin particles
<a href="#">B32B 2264/0235</a>	.... Aromatic vinyl resin, e.g. styrenic (co)polymers
<a href="#">B32B 2264/0242</a>	.... Vinyl halide, e.g. PVC,PVDC,PVF,PVDF
<a href="#">B32B 2264/025</a>	... Acrylic resin particles
<a href="#">B32B 2264/0257</a>	... Polyolefin particles ( <a href="#">vinyl or acrylic copolymers B32B 2264/0228</a> , <a href="#">B32B 2264/025</a> )
<a href="#">B32B 2264/0264</a>	... Polyamide particles
<a href="#">B32B 2264/0271</a>	.... Aromatic polyamide particles
<a href="#">B32B 2264/0278</a>	... Polyester particles
<a href="#">B32B 2264/0285</a>	.... PET or PBT
<a href="#">B32B 2264/0292</a>	... Polyurethane particles
<a href="#">B32B 2264/04</a>	. Cellulosic particles, e.g. rayon
<a href="#">B32B 2264/06</a>	. Vegetal particles
<a href="#">B32B 2264/062</a>	.. Cellulose particles, e.g. cotton
<a href="#">B32B 2264/065</a>	... Lignocellulosic particles , e.g. jute, sisal, hemp, flax, bamboo
<a href="#">B32B 2264/067</a>	... Wood particles

B32B 2264/08	. Animal particles , e.g. leather
B32B 2264/10	. Inorganic particles ( <a href="#">layered products comprising a layer of natural mineral particles B32B 19/00</a> )
B32B 2264/101	.. Glass particles
B32B 2264/102	.. Oxide or hydroxide particles, e.g. silica particles, TiO <sub>2</sub> particles
B32B 2264/104	.. Oxysalt particles, e.g. carbonate, sulfate, phosphate or nitrate particles
B32B 2264/105	.. Metal particles
B32B 2264/107	.. Ceramic particles
B32B 2264/108	... Carbon particles, e.g. graphite particles
B32B 2264/12	. Mixture of at least two particles made of different materials
<b>B32B 2266/00</b>	<b>Composition of foam</b>
B32B 2266/02	. Organic
B32B 2266/0207	.. Materials belonging to <a href="#">B32B 25/00</a>
B32B 2266/0214	.. Materials belonging to <a href="#">B32B 27/00</a>
B32B 2266/0221	... Vinyl resin
B32B 2266/0228	.... Aromatic vinyl resin, e.g. styrenic (co)polymers
B32B 2266/0235	.... Vinyl halide, e.g. PVC,PVDC,PVF,PVDF
B32B 2266/0242	... Acrylic resin
B32B 2266/025	... Polyolefin ( <a href="#">vinyl or acrylic copolymers B32B 2266/0221</a> , <a href="#">B32B 2266/0242</a> )
B32B 2266/0257	... Polyamide
B32B 2266/0264	... Polyester
B32B 2266/0271	... Epoxy resin
B32B 2266/0278	... Polyurethane
B32B 2266/0285	... Condensation resins of aldehydes, e.g. with phenols, ureas, melamines
B32B 2266/0292	... Thermoplastic elastomer
B32B 2266/04	. Inorganic
B32B 2266/045	.. Metal
B32B 2266/06	. Open cell foam
B32B 2266/08	. Closed cell foam
<b>B32B 2270/00</b>	<b>Resin or rubber layer containing a blend of at least two different polymers</b>
<b>B32B 2272/00</b>	<b>Resin or rubber layer comprising scrap, waste or recycling material</b>
<b>B32B 2274/00</b>	<b>Thermoplastic elastomer material ( <a href="#">thermoplastic elastomer fibres L32B 260/02B2</a> , <a href="#">thermoplastic elastomer particles B32B 2264/0221</a> , <a href="#">thermoplastic elastomer foam B32B 2266/0292</a> )</b>

**Guidance heading:**

<b>B32B 2305/00</b>	<b>Condition, form or state of the layers or laminate</b>
B32B 2305/02	. Cellular or porous
B32B 2305/022	.. Foam
B32B 2305/024	.. Honeycomb
B32B 2305/026	.. Porous
B32B 2305/028	.. Hollow fillers ; Syntactic material
B32B 2305/07	. Parts immersed or impregnated in a matrix
B32B 2305/073	.. partially
B32B 2305/076	.. Prepregs
B32B 2305/08	. Reinforcements
B32B 2305/10	. Fibres of continuous length
B32B 2305/18	.. Fabrics, textiles
B32B 2305/182	... knitted
B32B 2305/184	... Braided fabrics
B32B 2305/186	... Knitted fabrics
B32B 2305/188	... Woven fabrics
B32B 2305/20	.. in the form of a non-woven mat
B32B 2305/22	. Fibres of short length
B32B 2305/24	.. Whiskers
B32B 2305/28	.. in the form of a mat
B32B 2305/30	. Fillers, e.g. particles, powders, beads, flakes, spheres, chips
B32B 2305/34	. Inserts
B32B 2305/342	.. Chips
B32B 2305/345	.. Heating elements
B32B 2305/347	.. Security elements
B32B 2305/38	. Meshes, lattices or nets
B32B 2305/54	. Filled microcapsules
B32B 2305/55	. Liquid crystals
B32B 2305/70	. Scrap or recycled material
B32B 2305/72	. Cured, e.g. vulcanised, cross-linked
B32B 2305/74	. Partially cured

B32B 2305/77 . Uncured, e.g. green

B32B 2305/80 . Sintered

**Guidance heading: Condition, form, state or properties of the layers or laminate**

**B32B 2307/00 Properties of the layers or laminate**

B32B 2307/10 . having particular acoustical properties

B32B 2307/102 . . Insulating

B32B 2307/20 . having particular electrical or magnetic properties, e.g. piezoelectric

B32B 2307/202 . . Conductive

B32B 2307/204 . . Di-electric

B32B 2307/206 . . Insulating

B32B 2307/208 . . Magnetic, paramagnetic

B32B 2307/21 . . Anti-static

B32B 2307/212 . . Electromagnetic interference shielding

B32B 2307/30 . having particular thermal properties

B32B 2307/302 . . Conductive

B32B 2307/304 . . Insulating

B32B 2307/306 . . Resistant to heat

B32B 2307/3065 . . . Flame resistant or retardant, fire resistant or retardant

B32B 2307/308 . . Heat stability ( [dimensional stability B32B 2307/734](#) )

B32B 2307/31 . . Heat sealable

B32B 2307/40 . having particular optical properties ( [light or UV resistant B32B 2307/71](#) )

B32B 2307/402 . . Coloured

B32B 2307/4023 . . . on the layer surface, e.g. ink

B32B 2307/4026 . . . within the layer by addition of a colorant, e.g. pigments, dyes

B32B 2307/404 . . . Multi-coloured

B32B 2307/406 . . Bright, glossy, shiny surface

B32B 2307/408 . . Matt, dull surface

B32B 2307/409 . . Iridescent, pearlescent surface

B32B 2307/41 . . Opaque

B32B 2307/412 . . Transparent

B32B 2307/414 . . Translucent

B32B 2307/416 . . Reflective

B32B 2307/418 . . Refractive

B32B 2307/42 . . Polarizing, birefringent, filtering

B32B 2307/422 . . Luminescent, fluorescent, phosphorescent

B32B 2307/50 . having particular mechanical properties

B32B 2307/51	..	Elastic
B32B 2307/514	..	Oriented
B32B 2307/516	...	mono-axially
B32B 2307/518	...	bi-axially
B32B 2307/52	...	multi-axially
B32B 2307/536	..	Hardness
B32B 2307/538	..	Roughness
B32B 2307/54	..	Yield strength ; Tensile strength
B32B 2307/542	..	Shear strength
B32B 2307/544	..	Torsion strength ; Torsion stiffness
B32B 2307/546	..	Flexural strength ; Flexion stiffness
B32B 2307/548	..	Creep
B32B 2307/552	..	Fatigue strength
B32B 2307/554	..	Wear resistance
B32B 2307/558	..	Impact strength, toughness
B32B 2307/56	..	Damping, energy absorption
B32B 2307/58	..	Cuttability
B32B 2307/581	...	Resistant to cut
B32B 2307/582	..	Tearability
B32B 2307/5825	...	Tear resistant
B32B 2307/584	..	Scratch resistance
B32B 2307/70	.	Other properties
B32B 2307/702	..	Amorphous
B32B 2307/704	..	Crystalline
B32B 2307/706	..	Anisotropic
B32B 2307/708	..	Isotropic
B32B 2307/71	..	Resistive to light or to UV
B32B 2307/712	..	Weather resistant
B32B 2307/714	..	Inert, i.e. inert to chemical degradation, corrosion
B32B 2307/7145	...	Rot proof, resistant to bacteria, mildew, mould, fungi
B32B 2307/716	..	Degradable
B32B 2307/7163	...	Biodegradable
B32B 2307/7166	...	Water-soluble, water-dispersible
B32B 2307/718	..	Weight, e.g. weight per square meter
B32B 2307/72	..	Density
B32B 2307/722	...	Non-uniform density
B32B 2307/724	..	Permeability to gases, adsorption
B32B 2307/7242	...	Non-permeable
B32B 2307/7244	....	Oxygen barrier
B32B 2307/7246	....	Water vapor barrier
B32B 2307/7248	....	Odour barrier



B32B 2307/726	..	Permeability to liquids, absorption
B32B 2307/7265	...	Non-permeable
B32B 2307/728	..	Hydrophilic
B32B 2307/73	..	Hydrophobic
B32B 2307/732	..	Dimensional properties
B32B 2307/734	...	Dimensional stability
B32B 2307/736	....	Shrinkable
B32B 2307/738	..	Thermoformability
B32B 2307/74	..	Oxygen absorber
B32B 2307/744	..	Non-slip, anti-slip
B32B 2307/746	..	Slipping, anti-blocking, low friction
B32B 2307/748	..	Releasability
B32B 2307/75	..	Printability
B32B 2307/752	..	Corrosion inhibitor
B32B 2307/754	..	Self-cleaning
B32B 2307/756	..	Refurbishable, i.e. marks or scratches can be removed
B32B 2307/758	..	Odour absorbent
B32B 2307/762	..	Self-repairing, self-healing
B32B 2307/764	..	Insect repellent

#### Guidance heading:

#### **B32B 2309/00 Parameters for the laminating or treatment process ; Apparatus details**

B32B 2309/02	.	Temperature
B32B 2309/022	..	Temperature vs pressure profiles
B32B 2309/025	..	Temperature vs time profiles
B32B 2309/027	..	Ambient temperature
B32B 2309/04	.	Time
B32B 2309/06	.	Angles
B32B 2309/08	.	Dimensions, e.g. volume
B32B 2309/10	..	linear, e.g. length, distance, width
B32B 2309/105	...	Thickness
B32B 2309/12	.	Pressure
B32B 2309/125	..	Pressure vs time profiles
B32B 2309/14	.	Velocity, e.g. feed speeds
B32B 2309/16	.	Tension
B32B 2309/60	.	In a particular environment

B32B 2309/62	..	Inert
B32B 2309/64	..	Sterile
B32B 2309/65	..	Dust free, e.g. clean room
B32B 2309/66	..	Fluid other than air
B32B 2309/68	..	Vacuum
B32B 2309/70	.	Automated, e.g. using a computer or microcomputer
B32B 2309/72	..	For measuring or regulating, e.g. systems with feedback loops

**Guidance heading: Operating procedures ; Apparatus details**

**B32B 2310/00 Treatment by energy or chemical effects**

B32B 2310/02	.	Not used
B32B 2310/021	..	using electrical effects ( <a href="#">L32B 310:08</a> and <a href="#">B32B 2310/12</a> take precedence )
B32B 2310/022	...	Electrical resistance
B32B 2310/024	...	Peltier effect
B32B 2310/025	...	Electrostatic charges
B32B 2310/027	..	using friction
B32B 2310/028	..	using vibration, e.g. sonic or ultrasonic
B32B 2310/04	..	using liquids, gas or steam
B32B 2310/0409	...	using liquids
B32B 2310/0418	....	other than water
B32B 2310/0427	....	Liquified gases
B32B 2310/0436	....	Oil
B32B 2310/0445	...	using gas or flames ( <a href="#">B32B 2310/0427</a> takes precedence )
B32B 2310/0454	....	Hot air
B32B 2310/0463	....	other than air
B32B 2310/0472	.....	inert gas
B32B 2310/0481	.....	Ozone
B32B 2310/049	...	using steam or damp
B32B 2310/08	..	by wave energy or particle radiation
B32B 2310/0806	...	using electromagnetic radiation
B32B 2310/0812	....	using induction
B32B 2310/0818	.....	using eddy currents
B32B 2310/0825	....	using IR radiation
B32B 2310/0831	....	using UV radiation
B32B 2310/0837	....	using actinic light
B32B 2310/0843	....	using laser
B32B 2310/085	....	using X-ray
B32B 2310/0856	....	using gamma-ray
B32B 2310/0862	....	using micro-wave

B32B 2310/0868	....	using radio frequency
B32B 2310/0875	...	using particle radiation
B32B 2310/0881	....	using ion-radiation, e.g. alpha-rays
B32B 2310/0887	....	using electron radiation, e.g. beta-rays
B32B 2310/0893	....	using neutron radiation
B32B 2310/12	..	using dielectric properties
B32B 2310/14	..	Corona, ionisation, electrical discharge, plasma treatment

**Guidance heading:****B32B 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

B32B 2311/005	.	Shape memory alloys
B32B 2311/02	.	Noble metals
B32B 2311/04	..	Gold
B32B 2311/06	..	Platinum
B32B 2311/08	..	Silver
B32B 2311/09	..	Palladium
B32B 2311/10	.	Mercury
B32B 2311/12	.	Copper
B32B 2311/14	.	Lead
B32B 2311/16	.	Tin
B32B 2311/18	.	Titanium
B32B 2311/20	.	Zinc
B32B 2311/22	.	Nickel or cobalt
B32B 2311/24	.	Aluminium
B32B 2311/30	.	Iron, e.g. steel

**Guidance heading: Inorganic materials used for the layers, laminate or apparatus components****B32B 2313/00      Elements other than metals**

B32B 2313/02 . Boron

B32B 2313/04 . Carbon

**B32B 2315/00** **Other materials containing non-metallic inorganic compounds not provided for in groups [L32B 311:00](#) to [B32B 2313/04](#)**

B32B 2315/02 . Ceramics

B32B 2315/06 . Concrete

B32B 2315/08 . Glass

B32B 2315/085 . . Glass fiber cloth or fabric

B32B 2315/10 . Mica

B32B 2315/12 . Asbestos

B32B 2315/14 . Mineral wool

B32B 2315/16 . Clay

B32B 2315/18 . Plaster

#### **Guidance heading:**

**B32B 2317/00** **Animal or vegetable based**

B32B 2317/02 . Cork

B32B 2317/04 . Linoleum

B32B 2317/06 . Bone ; Horn ; Ivory

B32B 2317/08 . Natural leather

B32B 2317/10 . Natural fibres, e.g. wool, cotton

B32B 2317/12 . Paper, e.g. cardboard

B32B 2317/122 . . Kraft paper

B32B 2317/125 . . impregnated with thermosetting resin

B32B 2317/127 . . Corrugated cardboard

B32B 2317/16 . Wood, e.g. woodboard, fibreboard, woodchips

B32B 2317/18 . Cellulose, modified cellulose or cellulose derivatives, e.g. viscose ( [B32B 2317/10](#) , [B32B 2317/12](#) , [B32B 2317/16](#) take precedence )

B32B 2317/20 . Starch

B32B 2317/22 . Natural rubber ( synthetic rubber [B32B 2319/00](#) )

B32B 2317/24 . Oil ( [B32B 2318/02](#) takes precedence )

**Guidance heading:** Other natural products or their composites used for the layers, laminate or apparatus components not provided for in groups [B32B 2311/00](#) to [B32B 2315/12](#) and [B32B 2319/00](#) to [B32B 2398/20](#)

**B32B 2318/00 Mineral based**

B32B 2318/02 . Oil

B32B 2318/04 . Stone

**Guidance heading:**

**B32B 2319/00 Synthetic rubber ( natural rubber [B32B 2317/22](#) )**

**Guidance heading:** Organic materials used for the layers, laminate or apparatus components

**B32B 2323/00 Polyalkenes**

B32B 2323/04 . Polyethylene

B32B 2323/043 . . HDPE, i.e. high density polyethylene

B32B 2323/046 . . LDPE, i.e. low density polyethylene

B32B 2323/10 . Polypropylene

B32B 2323/16 . EPDM, i.e. ethylene propylene diene monomer

**B32B 2325/00 Polymers of vinyl-aromatic compounds, e.g. polystyrene**

**B32B 2327/00 Polyvinylhalogenides**

B32B 2327/06 . PVC, i.e. polyvinylchloride

B32B 2327/12 . containing fluorine

B32B 2327/18 . . PTFE, i.e. polytetrafluoroethylene

**B32B 2329/00 Polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals**

B32B 2329/04 . Polyvinylalcohol

B32B 2329/06 . PVB, i.e. polyvinylbutyral

<b>B32B 2331/00</b>	<b>Polyvinylesters</b>
B32B 2331/04	. Polymers of vinyl acetate, e.g. PVA
<b>B32B 2333/00</b>	<b>Polymers of unsaturated acids or derivatives thereof</b>
B32B 2333/04	. Polymers of esters
B32B 2333/08	. . Polymers of acrylic acid esters, e.g. PMA, i.e. polymethylacrylate
B32B 2333/12	. . Polymers of methacrylic acid esters, e.g. PMMA, i.e. polymethylmethacrylate
<b>B32B 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> to <a href="#">B32B 2333/00</a></b>
B32B 2355/02	. ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers
<b>B32B 2361/00</b>	<b>Phenoplast, aminoplast</b>
<b>B32B 2363/00</b>	<b>Epoxy resins</b>
<b>B32B 2367/00</b>	<b>Polyesters, e.g. PET, i.e. polyethylene terephthalate</b>
<b>B32B 2369/00</b>	<b>Polycarbonates</b>
<b>B32B 2371/00</b>	<b>Polyethers, e.g. PEEK, i.e. polyether-etherketone ; PEK, i.e. polyetherketone</b>
<b>B32B 2375/00</b>	<b>Polyureas ; Polyurethanes</b>
<b>B32B 2377/00</b>	<b>Polyamides</b>
<b>B32B 2379/00</b>	<b>Other polymers having nitrogen, with or without oxygen or carbon only, in the main chain</b>
B32B 2379/08	. Polyimides
<b>B32B 2383/00</b>	<b>Polysiloxanes</b>
<b>B32B 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> to <a href="#">B32B 2383/00</a></b>
<b>B32B 2391/00</b>	<b>Waxes</b>

**B32B 2395/00** Bituminous material, e.g. tar, asphalt

**B32B 2398/00** Unspecified macromolecular compounds

B32B 2398/10 . Thermosetting resins

B32B 2398/20 . Thermoplastics

**B32B 2405/00** Adhesive articles, e.g. adhesive tapes ( labels [B32B 2519/00](#) )

**B32B 2410/00** Agriculture-related articles

**Guidance heading:**

**B32B 2413/00** Belts ( conveyer belts [B32B 2433/02](#) ; drive belts [B32B 2433/04](#) )

**Guidance heading:** Particular articles

**NOTE**

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

**B32B 2419/00** Buildings or parts thereof ( walls, panels [B32B 2607/00](#) )

B32B 2419/02 . Bricks

B32B 2419/04 . Tiles for floors or walls ( tiles for roofs [B32B 2419/06](#) )

B32B 2419/06 . Roofs, roof membranes

**B32B 2425/00** Cards, e.g. identity cards, credit cards

**B32B 2429/00** Carriers for sound or information

B32B 2429/02 . Records or discs

**B32B 2432/00** Cleaning articles, e.g. mops, wipes ( personal care [B32B 2555/00](#) )

**B32B 2433/00** Closed loop articles

B32B 2433/02 . Conveyer belts



B32B 2433/04	. Driving belts
<b>B32B 2435/00</b>	<b>Closures, end caps, stoppers</b>
B32B 2435/02	. for containers
<b>B32B 2437/00</b>	<b>Clothing ( anti-ballistic clothing <a href="#">B32B 2571/02</a> )</b>
B32B 2437/02	. Gloves, shoes
B32B 2437/04	. Caps, helmets
<b>B32B 2439/00</b>	<b>Containers ; Receptacles ( closures therefor <a href="#">B32B 2435/00</a> )</b>
B32B 2439/02	. Open containers
B32B 2439/06	. . Bags, sacks, sachets
B32B 2439/40	. Closed containers
B32B 2439/46	. . Bags
B32B 2439/60	. . Bottles
B32B 2439/62	. . Boxes, cartons, cases
B32B 2439/66	. . Cans, tins
B32B 2439/70	. Food packaging
B32B 2439/80	. Medical packaging
<b>B32B 2451/00</b>	<b>Decorative or ornamental articles ( wall paper <a href="#">B32B 2607/02</a> )</b>
<b>B32B 2457/00</b>	<b>Electrical equipment</b>
B32B 2457/04	. Insulators
B32B 2457/08	. PCBs, i.e. printed circuit boards
B32B 2457/10	. Batteries
B32B 2457/12	. Photovoltaic modules
B32B 2457/14	. Semiconductor wafers
B32B 2457/16	. Capacitors
B32B 2457/18	. Fuel cells
B32B 2457/20	. Displays, e.g. liquid crystal displays, plasma displays

B32B 2457/202	..	LCD, i.e. liquid crystal displays
B32B 2457/204	..	Plasma displays
B32B 2457/206	..	Organic displays, e.g. OLED
B32B 2457/208	..	Touch screens
<b>B32B 2459/00</b>		<b>Nets, e.g. camouflage nets</b>
<b>B32B 2471/00</b>		<b>Floor coverings ( <a href="#">B32B 2419/04</a> takes precedence )</b>
B32B 2471/02	.	Carpets
B32B 2471/04	.	Mats
<b>B32B 2475/00</b>		<b>Frictional elements</b>
<b>B32B 2479/00</b>		<b>Furniture ( upholstery <a href="#">B32B 2601/00</a> )</b>
<b>B32B 2509/00</b>		<b>Household appliances</b>
B32B 2509/10	.	Refrigerators or refrigerating equipment
<b>B32B 2519/00</b>		<b>Labels, badges</b>
B32B 2519/02	.	RFID tags
<b>B32B 2535/00</b>		<b>Medical equipment, e.g. bandage, prostheses, catheter ( medical patches <a href="#">B32B 2556/00</a> )</b>
<b>B32B 2551/00</b>		<b>Optical elements</b>
B32B 2551/08	.	Mirrors
<b>B32B 2553/00</b>		<b>Packaging equipment or accessories not otherwise provided for</b>
B32B 2553/02	.	Shock absorbing
B32B 2553/023	..	for use in loose form, e.g. dunnage
B32B 2553/026	..	Bubble films
<b>B32B 2554/00</b>		<b>Paper of special types, e.g. banknotes</b>
<b>B32B 2555/00</b>		<b>Personal care</b>
B32B 2555/02	.	Diapers or napkins

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