COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

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;
   • 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. 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 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.

5. In this subclass:
   • 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.

WARNING

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

B32B 3/24 covered by B32B 3/266
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.

- Receptacles [i.e. rigid containers], e.g. tanks
- characterised by feature of form at particular places, e.g. in edge regions (not used)
- characterised by fillings or added members in hollow portions (not used)
- Tubular products

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

**WARNING**
Group B32B 3/00 is incomplete pending reclassification of documents from group B29D 2009/00.

Groups B29D 2009/00 and B32B 3/00 should be considered in order to perform a complete search.

- characterised by features of form at particular places, e.g. in edge regions (non-uniform thickness B32B 3/263)
- 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
- for securing layers together; for attaching the product to another member, e.g. to a support
- 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)
- spaced apart pieces on the surface of a layer
- 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.

- characterised by a layer of regularly-arranged cells, e.g. a honeycomb structure
- characterised by a face layer formed of separate pieces of material which are juxtaposed side-by-side (B32B 5/02 takes precedence)
- secured to a flexible backing
- characterised by an internal layer formed of separate pieces of material which are juxtaposed side-by-side (B32B 5/02 takes precedence)

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.

- characterised by structural features of a [fibrous or filamentary layer (layer formed of metallic wires B32B 15/02; layer formed of natural mineral fibres B32B 19/02; layer formed of wood fibres B32B 21/02; coated or impregnated fibrous or filamentary layer B32B 2255/02 or B32B 2260/02)]

**NOTES**
1. This group covers, in addition to filamentary and fibrous layers as defined in Note (4) following the title of this subclass, layers of substances having an intrinsic fibrous nature (e.g. paper, wood), if the fibrous nature is important and the particular substance is not important.
2. When classifying in group B32B 5/02, the chemical composition of the fibres is further classified by using the indexing codes B32B 2262/00 - B32B 2262/14, whenever appropriate.

- {Non-woven fabric}
5/24 . . . [Woven fabric]
5/26 . . . [Knitted fabric]
5/28 . . . [Net structure, e.g. spaced apart filaments bonded at the crossing points]
5/04 . . . characterised by a layer being specifically extensible by reason of its structure or arrangement, e.g. by reason of the chemical nature of the fibres or filaments
5/06 . . . characterised by a fibrous or filamentary layer (mechanically connected, e.g. by needling, sewing, stitching, hydroentangling, hook and loop-type fasteners) to another layer, e.g. of fibres, of paper
5/08 . . . the fibres or filaments of a layer being of different substances, e.g. conjugate fibres, mixture of different fibres
5/10 . . . characterised by a fibrous or filamentary layer reinforced with filaments
5/12 . . . characterised by the relative arrangement of fibres or filaments of different layers, e.g. the fibres or filaments being parallel or perpendicular to each other
5/14 . . . characterised by a layer differing constitutionally or physically in different parts, e.g. denser near its faces
5/142 . . . [Variation across the area of the layer]
5/145 . . . [Variation across the thickness of the layer]
5/147 . . . [by treatment of the layer]
5/16 . . . characterised by features of a layer formed of particles, e.g. chips, powder, 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)
5/18 . . . characterised by features of a layer, e.g. foamed material
5/20 . . . foamed in situ
5/22 . . . characterised by the presence of two or more layers which are next to each other and are fibrous, filamentary, formed of particles or foamed (B32B 19/06, B32B 19/08 B32B 19/047, B32B 29/005 - B32B 29/04 take precedence)
5/24 . . . one layer being a fibrous or filamentary layer
5/245 . . . . . . . . . . . . [another layer next to it being a foam layer]
5/26 . . . . . another layer [next to it also being fibrous or filamentary (relative arrangement of fibres or filaments of different layers B32B 5/12; all layers being fibrous or filamentary B32B 2250/20; two or more impregnated fibrous or filamentary layers B32B 2260/023)]
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 (all layers being foamed B32B 2250/22)]
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
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.

**WARNING**

Group B32B 7/09 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.

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.

**WARNING**

Layered products comprising a layer of metal

- all layers being exclusively metallic (making layered metal workpieces by pressure cladding B32K 20/22; making coatings with a metallic material characterised by its composition C23C 30/00)
- all layers being formed of iron alloys or steels
- one layer being formed of an iron alloy or steel, another layer being formed of aluminium or an aluminium alloy
- one layer being formed of an iron alloy or steel, another layer being formed of a metal other than iron or aluminium
- [the said other metal being copper or nickel or an alloy thereof]
- [all layers being formed of aluminium or aluminium alloys]
- [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]
- [one layer being formed of a noble metal or a noble metal alloy]
- [Layer formed of wires, e.g. mesh]
- 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 17/06 takes precedence; next to a bituminous or tarry layer B32B 11/08; next to a water-setting substance layer B32B 13/06)].
Layered products characterised by particular substances used

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

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

NOTES

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 - B32B 17/10807, whereby transparent polymeric layers other than the interlayer (B32B 17/1055) are classified using indexing codes

17/10009 . . . [characterized by the number, the constitution or treatment of glass sheets]
17/10018 . . . . [comprising only one glass sheet]
17/10027 . . . . [the glass sheet not being an outer layer]
17/10036 . . . . [comprising two outer glass sheet]
Layered products characterised by particular substances used

Layered products essentially comprising ceramics, e.g. refractory products

NOTE
In group B32B 18/00, from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further
Layered products characterised by particular substances used

B32B

Layered products comprising [a layer of] natural mineral fibres or particles, e.g. asbestos, mica

19/00

- [the layer of fibres or particles being impregnated or] embedded in a plastic substance
- next to another layer [of the same or of a different material (B32B 17/067 takes precedence)]
- [of metal]
- [of wood]
- [of natural rubber or synthetic rubber]
- [of synthetic resin]
- [of paper or cardboard]
- [of foam]
- [made of particles]
- next to a fibrous or filamentary layer
- comprising asbestos

Layered products comprising [a layer of] wood, e.g. wood board, veneer, wood particle board

21/00

- [the layer being formed] of fibres, chips, or particles [e.g. MDF, HDF, OSB, chipboard, particle board, hardboard]
- 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 (B32B 17/062 and B32B 23/044 take precedence); next to a layer of a particular substance B32B 9/042; next to a bituminous or tarry layer B32B 11/042; next to a water setting substance layer B32B 13/042; next to a metal layer B32B 15/042; next to a layer formed of natural mineral fibres or particles B32B 19/042)]
- [of wood (B32B 21/13 takes precedence)]
- [of natural rubber or synthetic rubber]
- [of foam]
- [of synthetic resin]
- of paper or cardboard
- Next to a fibrous or filamentary layer
- next to a particulate layer
- all layers being exclusively wood
- comprising wood board or veneer

Layered products comprising [a layer of] cellulosic plastic substances [, i.e. substances obtained by chemical modification of cellulose, e.g. cellulose ethers, cellulose esters, viscose]

23/00

- in the form of fibres or filaments [(not used)]
- 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)]
- [of metal]
- [of wood]
- [of natural rubber or synthetic rubber (all layers being polymeric B32B 2250/24)]
- [of foam]
- [of paper or cardboard]
- [of synthetic resin (all layers being polymeric B32B 2250/24)]
- next to a fibrous or filamentary layer
- next to a particulate layer
- characterised by containing special compounding ingredients
- Modifying agents

Layered products comprising (a layer of) natural or synthetic rubber

25/00

- with fibres or particles (being present as additives in the layer)
- 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 15/046; 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]
- [of natural rubber or synthetic rubber (all layers being made of natural or synthetic rubber B32B 2250/248)]
- [of foam]
- [of particles]
- of paper or cardboard
- of synthetic resin [all layers being polymeric B32B 2250/24]
- next to a fibrous or filamentary layer
- comprising natural rubber
- comprising [synthetic rubber copolymers (B32B 25/18 and B32B 25/20 take precedence)]
- comprising polydieneis [homopolymers] or polyhalodienes [homopolymers (B32B 25/12 takes precedence)]
- comprising butyl or halobutyl rubber
- comprising silicone rubber

Layered products comprising (a layer of) synthetic resin

27/00

- in the form of fibres or filaments [(not used)]
- as impregnant, bonding, or embedding substance [(not used)]
- 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]

NOTE

This group covers all synthetic resins except those covered by B32B 25/00 or B32B 23/00
Layered products characterised by particular substances used

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 - B32B 2250/246) }

27/10 . . . of paper or cardboard
27/12 . . . to a fibrous or filamentary layer
27/14 . . . to a particulate layer
27/16 . . . specially treated, e.g. irradiated { (B32B 2255/10 takes precedence) }
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. styrene (co)polymers]
27/304 . . . [comprising vinyl halide (co)polymers, e.g. PVC, PVDC, PF, PVDF]
27/306 . . . [comprising vinyl acetate or vinyl alcohol (co)polymers]
27/308 . . . [comprising acrylic (co)polymers]
27/32 . . . comprising polyolefins { (B32B 27/30 takes precedence) }
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, amines 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 (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) }

29/005 . . . { next to another layer of paper or cardboard layer (all layers being made of paper or cardboard B32B 2250/26) }
29/007 . . . { next to a foam layer }
29/002 . . . next to a fibrous or filamentary layer
29/004 . . . next to a particulate layer
29/006 . . . specially treated, e.g. surfaced, parchmentised { (B32B 2255/12, B32B 2260/028 take precedence) }
29/008 . . . 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

WARNING

Groups B32B 33/00 and B32B 33/00 should be considered in order to perform a complete search.

Methods or apparatus for making layered products: Treatment of the layers of or 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 act 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 act 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 }
2037/0009 . . . { 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 }
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 laminating processes, or
  b. in line with the laminating processes, just before or immediately after.]
Methods or apparatus for making layered products; Treatment of the layers or of the layered products

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

38/0012 . {Mechanical treatment, e.g. roughening, deforming, stretching}

**NOTE**

When classifying in group B32B 38/0012, the treatment can be further classified into indexing codes chosen from B32B 2038/0016-B32B 2038/0028

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)}

**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

38/004 . . [by physically contacting the layers, e.g. by the use of heated platens or rollers]
2038/0044 . . {for creating local stresses}
2038/0048 . . {Annealing, relaxing}
2038/0052 . . [Other operations not otherwise provided for]
2038/0056 . . {Moistening}
2038/006 . . {Relieving internal or residual stresses}
2038/0064 . . {Smoothing, polishing, making a glossy surface}
2038/0068 . . {Changing crystal orientation}
2038/0072 . . {Orienting fibers}
2038/0076 . . {Curing, vulcanising, cross-linking}
2038/008 . . {Sewing, stitching}
2038/0084 . . {Foaming}
2038/0088 . . {Expanding, swelling}
2038/0092 . . {Metallizing}
2038/0096 . . {Riveting}
38/04 . Punching, slitting or perforating

**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

2038/0042 . . {Punching}
2038/0045 . . {Slitting}
2038/0047 . . {Perforating}
38/06 . Embossing
38/08 . Impregnating
38/10 . Removing layers, or parts of layers, mechanically or chemically
38/105 . . {on edges}
38/12 . Deep-drawing
38/14 . Printing or colouring
38/145 . . {Printing}
38/16 . Drying; Softening; Cleaning
38/162 . . {Cleaning}
38/164 . . {Drying}

**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

2038/166 . . . {Removing moisture}
2038/168 . . . {Removing solvent}
38/18 . Handling of layers or the laminate
38/1808 . . {characterised by the laying up of the layers}
38/1816 . . . {Cross feeding of one or more of the layers}
38/1825 . . . {characterised by the control or constructional features of devices for tensioning, stretching or registration}
38/1833 . . . {Positioning, e.g. registration or centering}
38/1841 . . . . {during laying up}
38/185 . . . . . {combined with the cutting of one or more layers}
38/1858 . . . {using vacuum}
38/1866 . . {conforming the layers or laminate to a convex or concave profile}
38/1875 . . {Tensioning}
38/1883 . . {Detensioning}
2038/1891 . . {Using a robot for handling the layers}

39/00 Layout of apparatus or plants, e.g. modular laminating systems

41/00 Arrangements for controlling or monitoring lamination processes; Safety arrangements
41/02 . Safety arrangements
2041/04 . {Detecting wrong registration, misalignment, deviation, failure}
2041/06 . {Starting the lamination machine or method}
43/00 Operations specially adapted for layered products and not otherwise provided for, e.g. repairing; Apparatus therefor
43/003 . . {Cutting}
43/006 . . {Delaminating}

2250/00 Layers arrangement
2250/02 . 2 layers
2250/03 . 3 layers
2250/04 . 4 layers
2250/05 . 5 or more layers
2250/20 . All layers being fibrous or filamentary
2250/22 . All layers being foamed
2250/24 . All layers being polymeric
2250/242 . . All polymers belonging to those covered by group B32B 27/32
2250/244 . . All polymers belonging to those covered by group B32B 27/36
2250/246 . . All polymers belonging to those covered by groups B32B 27/32 and B32B 27/30
2250/248 . . All polymers belonging to those covered by group B32B 25/00
2250/26 . . All layers being made of paper or paperboard
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

2255/00 Coating on the layer surface

NOTE
This group is for classification of coatings on a layered product. Specific details of coatings or processes thereof can be found in C08J 7/00, B05D, C09D, C09J, C23C or D06M.

2255/02 . on fibrous or filamentary layer
2255/04 . on a particulate layer
2255/06 . on metal layer
2255/08 . on wood layer
2255/10 . on synthetic resin layer or on natural or synthetic rubber layer
2255/12 . on paper layer
2255/20 . Inorganic coating
2255/24 . Organic non-macromolecular coating
2255/26 . Polymeric coating
2255/28 . Multiple coating on one surface

2260/00 Impregnation or embedding of a layer; Bonding a fibrous, filamentary or particulate layer by using a binder

2260/02 . Composition of the impregnated, bonded or embedded layer
2260/021 . Fibrous or filamentary layer (layers of natural mineral fibres or particles being impregnated in a plastic substance B32B 19/02)
2260/023 . Two or more layers
2260/025 . Particulate layer (layers of natural mineral fibres or particles being impregnated in a plastic substance B32B 19/02)
2260/026 . Wood layer
2260/028 . Paper layer
2260/04 . Impregnation material
2260/042 . Bituminous or tarry substance
2260/044 . Water-setting substance, e.g. concrete, plaster
2260/046 . Synthetic resin
2260/048 . Natural or synthetic rubber

2262/00 Composition of fibres which form a fibrous or filamentary layer or are present as additives

2262/02 . Synthetic macromolecular fibres
2262/0207 . Elastomeric fibres
2262/0215 . Thermoplastic elastomer fibres
2262/0223 . Vinyl resin fibres
2262/0223 . Aromatic vinyl resin, e.g. styrenic (co)polymers
2262/0238 . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
2262/0246 . Acrylic resin fibres

2262/0253 . Polyolefin fibres (vinyl or acrylic copolymers B32B 2262/0223 or B32B 2262/0246)
2262/0261 . Polyamide fibres
2262/0269 . Aromatic polyamide fibres
2262/0276 . Polyester fibres
2262/0284 . Polyethylene terephthalate [PET] or polybutylene terephthalate [PBT]
2262/0292 . Polyurethane fibres
2262/04 . Cellulosic plastic fibres, e.g. rayon
2262/06 . Vegetal fibres
2262/062 . Cellulose fibres, e.g. cotton
2262/065 . Lignocellulosic fibres, e.g. jute, sisal, hemp, flax, bamboo
2262/067 . Wood fibres
2262/08 . Animal fibres, e.g. hair, wool, silk
2262/10 . Inorganic fibres (layered products comprising a layer of natural mineral fibres B32B 19/00)
2262/101 . Glass fibres
2262/103 . Metal fibres
2262/105 . Ceramic fibres
2262/106 . Carbon fibres, e.g. graphite fibres
2262/108 . Rockwool fibres
2262/12 . Conjugate fibres, e.g. core/sheath, side-by-side
2262/14 . Mixture of at least two fibres made of different materials

2264/00 Composition of particles which form a particulate layer or are present as additives

2264/02 . Synthetic macromolecular particles
2264/0207 . Particles made of materials belonging to B32B 25/00
2264/0214 . Particles made of materials belonging to B32B 27/00
2264/0221 . Thermoplastic elastomer particles
2264/0228 . Vinyl resin particles
2264/0235 . Aromatic vinyl resin, e.g. styrenic (co)polymers
2264/0242 . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
2264/025 . Acrylic resin particles
2264/0257 . Polyelefin particles (vinyl or acrylic copolymers B32B 2264/0228, B32B 2264/025)
2264/0264 . Polyamide particles
2264/0271 . Aromatic polyamide particles
2264/0278 . Polyester particles
2264/0285 . PET or PBT
2264/0292 . Polyurethane particles
2264/04 . Cellulosic particles, e.g. rayon
2264/06 . Vegetal particles
2264/062 . Cellulose particles, e.g. cotton
2264/065 . Lignocellulosic particles, e.g. jute, sisal, hemp, flax, bamboo
2264/067 . Wood particles
2264/08 . Animal particles, e.g. leather
2264/10 . Inorganic particles (layered products comprising a layer of natural mineral fibres B32B 19/00)
2264/101 . Glass particles
2264/102 . Oxide or hydroxide particles, e.g. silica particles, TiO₂ particles
2264/104 . Oxysalt particles, e.g. carbonate, sulfate, phosphate or nitrate particles
2264/105 . Metal particles
2264/107 . Ceramic particles
2264/108 . Carbon particles, e.g. graphite particles
Layer arrangements; Coating, impregnation or embedding of layers; Composition of fibres, particles or foam present...

2264/12. Mixture of at least two particles made of different materials

**2266/00** Composition of foam

2266/02. Organic
2266/0207. Materials belonging to B32B 25/00
2266/0214. Materials belonging to B32B 27/00
2266/0221. Vinyl resin
2266/0228. Aromatic vinyl resin, e.g. styrenic (co)polymers
2266/0235. Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
2266/0242. Polyolefin (vinyl or acrylic copolymers B32B 2266/0221, B32B 2266/0242)
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
2266/0301. Bituminous or tarry material
2266/04. Inorganic
2266/045. Metal
2266/049. Water-setting material, e.g. concrete, plaster or asbestos cement
2266/053. Mineral element, e.g. asbestos or mica
2266/057. Silicon-containing material, e.g. glass
2266/06. Open cell foam
2266/08. Closed cell foam
2266/10. characterised by the foam pores
2266/102. Nanopores, i.e. with average diameter smaller than 0.1 µm
2266/104. Micropores, i.e. with average diameter in the range from 0.1 µm to 0.1 mm
2266/106. Unimodal pore distribution
2266/108. Bimodal pore distribution
2266/12. Gel
2266/122. Hydrogel, i.e. a gel containing an aqueous composition
2266/124. Organogel, i.e. a gel containing an organic composition
2266/126. Aerogel, i.e. a supercritically dried gel
2266/128. Xerogel, i.e. an air dried gel
2266/14. Adhesive foam

**2270/00** Resin or rubber layer containing a blend of at least two different polymers

**2272/00** Resin or rubber layer comprising scrap, waste or recycling material

**2274/00** Thermoplastic elastomer material (thermoplastic elastomer fibres B32B 2262/0215, thermoplastic elastomer particles B32B 2264/0221, thermoplastic elastomer foam B32B 2266/0292)

**2305/00** Condition, form or state of the layers or laminate

2305/02. Cellular or porous
2305/022. Foam
2305/024. Honeycomb
2305/026. Porous
2305/028. Hollow fillers; Syntactic material

2305/07. Parts immersed or impregnated in a matrix
2305/073. Partially
2305/076. Prepregs
2305/08. Reinforcements
2305/10. Fibres of continuous length
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

**Condition, form, state or properties of the layers or laminate**

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

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
2307/31. Heat sealable
2307/40. having particular optical properties (light or UV resistant B32B 2307/71)
2307/402. Coloured
2307/4023. on the layer surface, e.g. ink
2307/4026. within the layer by addition of a colorant, e.g. pigments, dyes
2307/404. Multi-coloured
2307/406. Bright, glossy, shiny surface
2307/408. Matt, dull surface
2307/409. Iridescent, pearlescent surface
2307/41. Opaque
Condition, form, state or properties of the layers or laminate

Parameters for the laminating or treatment process; Apparatus details

Operating procedures; Apparatus details
### 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

<table>
<thead>
<tr>
<th>B32B 2311/00</th>
<th>Metals, their alloys or their compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2311/005</td>
<td>Shape memory alloys</td>
</tr>
<tr>
<td>2311/02</td>
<td>Noble metals</td>
</tr>
<tr>
<td>2311/04</td>
<td>Gold</td>
</tr>
<tr>
<td>2311/06</td>
<td>Platinum</td>
</tr>
<tr>
<td>2311/08</td>
<td>Silver</td>
</tr>
<tr>
<td>2311/09</td>
<td>Palladium</td>
</tr>
<tr>
<td>2311/10</td>
<td>Mercury</td>
</tr>
<tr>
<td>2311/12</td>
<td>Copper</td>
</tr>
<tr>
<td>2311/14</td>
<td>Lead</td>
</tr>
<tr>
<td>2311/16</td>
<td>Tin</td>
</tr>
<tr>
<td>2311/18</td>
<td>Titanium</td>
</tr>
<tr>
<td>2311/20</td>
<td>Zinc</td>
</tr>
<tr>
<td>2311/22</td>
<td>Nickel or cobalt</td>
</tr>
<tr>
<td>2311/24</td>
<td>Aluminium</td>
</tr>
<tr>
<td>2311/30</td>
<td>Iron, e.g. steel</td>
</tr>
</tbody>
</table>

### Inorganic materials used for the layers, laminate or apparatus components

<table>
<thead>
<tr>
<th>B32B 2313/00</th>
<th>Elements other than metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2313/02</td>
<td>Boron</td>
</tr>
<tr>
<td>2313/04</td>
<td>Carbon</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B32B 2315/00</th>
<th>Other materials containing non-metallic inorganic compounds not provided for in groups B32B 2311/00 - B32B 2313/04</th>
</tr>
</thead>
<tbody>
<tr>
<td>2315/02</td>
<td>Ceramics</td>
</tr>
<tr>
<td>2315/06</td>
<td>Concrete</td>
</tr>
<tr>
<td>2315/08</td>
<td>Glass</td>
</tr>
<tr>
<td>2315/085</td>
<td>Glass fiber cloth or fabric</td>
</tr>
<tr>
<td>2315/10</td>
<td>Mica</td>
</tr>
<tr>
<td>2315/12</td>
<td>Asbestos</td>
</tr>
<tr>
<td>2315/14</td>
<td>Mineral wool</td>
</tr>
<tr>
<td>2315/16</td>
<td>Clay</td>
</tr>
<tr>
<td>2315/18</td>
<td>Plaster</td>
</tr>
</tbody>
</table>

### 2317/00 Animal or vegetable based

<table>
<thead>
<tr>
<th>B32B 2317/00</th>
<th>Animal or vegetable based</th>
</tr>
</thead>
<tbody>
<tr>
<td>2317/02</td>
<td>Cork</td>
</tr>
<tr>
<td>2317/04</td>
<td>Linoleum</td>
</tr>
</tbody>
</table>

### 2318/00 Mineral based

<table>
<thead>
<tr>
<th>B32B 2318/00</th>
<th>Mineral based</th>
</tr>
</thead>
<tbody>
<tr>
<td>2318/02</td>
<td>Oil</td>
</tr>
<tr>
<td>2318/04</td>
<td>Stone</td>
</tr>
</tbody>
</table>

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

### Organic materials used for the layers, laminate or apparatus components

<table>
<thead>
<tr>
<th>B32B 2323/00</th>
<th>Polyalkenes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2323/04</td>
<td>Polyethylene</td>
</tr>
<tr>
<td>2323/043</td>
<td>HDPE, i.e. high density polyethylene</td>
</tr>
<tr>
<td>2323/046</td>
<td>LDPE, i.e. low density polyethylene</td>
</tr>
<tr>
<td>2323/10</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>2323/16</td>
<td>EPDM, i.e. ethylene propylene diene monomer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B32B 2325/00</th>
<th>Polymers of vinyl-aromatic compounds, e.g. polystyrene</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>B32B 2327/00</th>
<th>Polyvinylhalogenides</th>
</tr>
</thead>
<tbody>
<tr>
<td>2327/06</td>
<td>PVC, i.e. polyvinylchloride</td>
</tr>
<tr>
<td>2327/12</td>
<td>containing fluorine</td>
</tr>
<tr>
<td>2327/18</td>
<td>PTFE, i.e. polytetrafluoroethylene</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B32B 2329/00</th>
<th>Polyvinylalcohols, polyvinylethers, polyvinylketones or polyvinylketals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2329/04</td>
<td>Polyvinylalcohol</td>
</tr>
<tr>
<td>2329/06</td>
<td>PVB, i.e. polyvinylbutyral</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B32B 2331/00</th>
<th>Polynylesters</th>
</tr>
</thead>
<tbody>
<tr>
<td>2331/04</td>
<td>Polymers of vinyl acetate, e.g. PVA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B32B 2333/00</th>
<th>Polymers of unsaturated acids or derivatives thereof</th>
</tr>
</thead>
<tbody>
<tr>
<td>2333/04</td>
<td>Polymers of esters</td>
</tr>
<tr>
<td>2333/08</td>
<td>Polymers of acrylic acid esters, e.g. PMA, i.e. polymethacrylate</td>
</tr>
<tr>
<td>2333/12</td>
<td>Polymers of methacrylic acid esters, e.g. PMMA, i.e. polymethacrylate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B32B 2355/00</th>
<th>Specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of index codes B32B 2323/00 - B32B 2333/00</th>
</tr>
</thead>
</table>

### B32B 2355/00 Specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of index codes B32B 2323/00 - B32B 2333/00
Organic materials used for the layers, laminate or apparatus components

2355/02  . ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers
2361/00  Phenoplast, aminoplast
2363/00  Epoxy resins
2367/00  Polysters, e.g. PET, i.e. polyethylene terephthalate
2369/00  Polycarbonates
2371/00  Polyethers, e.g. PEEK, i.e. polyether-etherketone; PEK, i.e. polyetherketone
2375/00  Polureas; Polyurethanes
2377/00  Polyamides
2379/00  Other polymers having nitrogen, with or without oxygen or carbon only, in the main chain
2379/08  . Polymides
2383/00  Polysiloxanes
2386/00  Specific polymers obtained by polycondensation or polyaddition not provided for in a single one of index codes B32B 2363/00 - B32B 2383/00
2391/00  Waxes
2395/00  Bituminous material, e.g. tar, asphalt
2398/00  Unspecified macromolecular compounds
2398/10  . Thermosetting resins
2398/20  . Thermoplastics

Particular articles

NOTE

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

2405/00  . Adhesive articles, e.g. adhesive tapes (labels B32B 2519/00)
2410/00  . Agriculture-related articles
2413/00  . Belts (conveyor belts B32B 2433/02; drive belts B32B 2433/04)
2419/00  . Buildings or parts thereof (walls, panels B32B 2607/00)
2419/02  . Bricks
2419/04  . Tiles for floors or walls (tiles for roofs B32B 2419/06)
2419/06  . Roofs, roof membranes
2425/00  . Cards, e.g. identity cards, credit cards
2429/00  . Carriers for sound or information
2429/02  . Records or discs
2432/00  . Cleaning articles, e.g. mops, wipes (personal care B32B 2555/00)
2433/00  . Closed loop articles
2433/02  . Conveyor belts
2433/04  . Driving belts
2435/00  . Closures, end caps, stoppers
2435/02  . for containers
2437/00  . Clothing (anti-ballistic clothing B32B 2571/02)
2437/02  . Gloves, shoes
2437/04  . Caps, helmets
2439/00  . Containers; Receptacles (closures therefor B32B 2435/00)
2439/02  . Open containers
2439/06  . Bags, sacks, sachets
2439/40  . Closed containers
2439/46  . Bags
2439/60  . Bottles
2439/62  . Boxes, cartons, cases
2439/66  . Cans, tins
2439/70  . Food packaging
2439/80  . Medical packaging
2451/00  . Decorative or ornamental articles (wall paper B32B 2607/02)
2457/00  . Electrical equipment
2457/04  . Insulators
2457/08  . PCBs, i.e. printed circuit boards
2457/10  . Batteries
2457/12  . Photovoltaic modules
2457/14  . Semiconductor wafers
2457/16  . Capacitors
2457/18  . Fuel cells
2457/20  . Displays, e.g. liquid crystal displays, plasma displays
2457/202  . LCD, i.e. liquid crystal displays
2457/204  . Plasma displays
2457/206  . Organic displays, e.g. OLED
2457/208  . Touch screens
2459/00  . Nets, e.g. camouflage nets
2471/00  . Floor coverings (B32B 2419/04 takes precedence)
2471/02  . Carpets
2471/04  . Mats
2475/00  . Frictional elements
2479/00  . Furniture (upholstery B32B 2601/00)
2509/00  . Household appliances
2509/10  . Refrigerators or refrigerating equipment
2519/00  . Labels, badges
2519/02  . RFID tags
2535/00  . Medical equipment, e.g. bandage, prostheses, catheter (medical patches B32B 2556/00)
2551/00  . Optical elements
2551/08  . Mirrors
2553/00  . Packaging equipment or accessories not otherwise provided for
2553/02  . Shock absorbing
2553/023  . for use in loose form, e.g. dunnage
2553/026  . Bubble films
2554/00  . Paper of special types, e.g. banknotes
2555/00  . Personal care
2555/02  . Diapers or napkins
2556/00  . Patches, e.g. medical patches, repair patches
2559/00  . Photographic equipment or accessories
2571/00  . Protective equipment
<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2571/02</td>
<td>Defensive, e.g. armour plates, anti-ballistic clothing (camouflage nets [B32B 2459/00])</td>
</tr>
<tr>
<td>2581/00</td>
<td>Seals; Sealing equipment; Gaskets</td>
</tr>
<tr>
<td>2590/00</td>
<td>Signboards, advertising panels, road signs</td>
</tr>
<tr>
<td>2597/00</td>
<td>Tubular articles, e.g. hoses, pipes</td>
</tr>
<tr>
<td>2601/00</td>
<td>Upholstery</td>
</tr>
<tr>
<td>2603/00</td>
<td>Vanes, blades, propellers, rotors with blades</td>
</tr>
<tr>
<td>2605/00</td>
<td>Vehicles</td>
</tr>
<tr>
<td>2605/003</td>
<td>Interior finishings</td>
</tr>
<tr>
<td>2605/006</td>
<td>Transparent parts made from plastic material, e.g. windows</td>
</tr>
<tr>
<td>2605/08</td>
<td>Cars</td>
</tr>
<tr>
<td>2605/10</td>
<td>Trains</td>
</tr>
<tr>
<td>2605/12</td>
<td>Ships</td>
</tr>
<tr>
<td>2605/16</td>
<td>Submarines</td>
</tr>
<tr>
<td>2605/18</td>
<td>Aircraft (blades, propellers [B32B 2603/00])</td>
</tr>
<tr>
<td>2607/00</td>
<td>Walls, panels</td>
</tr>
<tr>
<td>2607/02</td>
<td>Wall papers, wall coverings</td>
</tr>
</tbody>
</table>