CPC  COOPERATIVE PATENT CLASSIFICATION

B  PERFORMING OPERATIONS; TRANSPORTING
(NOTES omitted)

SHAPING

B32  LAYERED PRODUCTS

B32B  LAYERED PRODUCTS, i.e. PRODUCTS BUILT-UP OF STRATA OF FLAT OR NON-FLAT, e.g. CELLULAR OR HONEYCOMB, FORM

NOTES

1. This subclass covers:
   • layered products comprising different kinds of material or layered products not characterised by the particular kind of material used;
   • a product similar to a layered product but comprising only material in the form of a sheet or network embedded in a mass of plastics or of physically-similar substances which mass penetrates the said sheet or network and lies on both sides of the latter (e.g. so that the sheet or network reinforces the plastics substance) PROVIDED THAT the embedded sheet or network extends coherently or connectedly over substantially the whole area of the product; thus the embedded sheet or network may be a fabric or a series of rods connected by cross wires. The manner of making such a product is, however, classified in this subclass only if it is essentially a process of building-up an assembly of layers of which at least one outer layer is preformed. If the embedded material comprises only a series of unconnected rods, the product is not classified in this subclass.

2. This subclass does not cover:
   • processes or apparatus used in, or in connection with, the production or treatment of any product, if the process or apparatus is fully classifiable in a single other class or subclass for processes or apparatus, e.g. B05, B29, B44D, C08J, C09J, C23;
   • compositions or preparation or treatment thereof, unless they are essentially restricted to layered products and cannot be fully classified in another class without ignoring this restriction;
   • etched metallic pattern on the surface of a printed circuit board.

3. In this subclass:
   • a film formed on a layer by spreading a substance thereon is not considered to constitute a layer itself if it serves only as an adhesive or its purpose is merely to finish a surface of a product;
   • 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.

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

- **3/02** . characterised by features of form at particular places, e.g., in edge regions (non-uniform thickness B32B 3/263)
- **3/04** . characterised by [at least one] layer folded at the edge, e.g., over another layer (characterised by at least one layer enveloping or enclosing a material)
- **3/06** . for securing layers together; for attaching the product to another member, e.g., to a support (or to another product, e.g., groove/tongue, interlocking)
- **3/08** . characterised by added members at particular parts (layer formed of separate pieces of material which are juxtaposed side-by-side B32B 3/14, B32B 3/18)
- **3/085** . {spaced apart pieces on the surface of a layer}
- **3/10** . characterised by a discontinuous layer, i.e., formed of separate pieces of material

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

- **3/12** . characterised by a layer of regularly-arranged cells, e.g., a honeycomb structure
- **3/14** . characterised by a face layer formed of separate pieces of material (which are juxtaposed side-by-side B32B 5/02 takes precedence)
- **3/16** . secured to a flexible backing
- **3/18** . 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.

- **5/02** . characterised by structural features of a [fibrous or filamentary layer (layer formed of metallic wires B32B 15/02; layer formed of natural mineral fibres B32B 19/02; layer formed of wood fibres B32B 21/02; 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.}

- **5/022** . {Non-woven fabric}
7/04  . .  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 entire 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.

**Layered products comprising a particular substance not covered by groups B32B 11/00 - B32B 29/00**

- (comprising natural stone or artificial stone)
- (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))
- (comprising carbon, e.g. graphite, composite carbon)
- comprising animal or vegetable substances, e.g. cork, bamboo, starch
- (comprising leather)
- 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)
- (of metal)
- (of wood)
- (of natural rubber or synthetic rubber)
- (of synthetic resin)
- (of foam)
- (made of fibres or filaments)
- (made of particles)
- (of paper or cardboard)

**Layered products comprising a [layer of] bituminous or tarry substances**

- with fibres or particles (being present as additives in the layer)
- 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)
- [of wood]
- [of natural rubber or synthetic rubber]
- [of synthetic resin]
- [of foam]
- [of paper or cardboard]
- [of metal]
- next to a fibrous or filamentary layer
- next to a particulate layer

**Layered products comprising a [layer of] water-setting substance, e.g. concrete, plaster, asbestos cement, or like builders' material**

- with fibres or particles (being present as additives in the layer)
- 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)
- [of natural rubber or synthetic rubber]
- [of foam]
- [made of particles]
- [of metal]
- [of paper or cardboard]
- [of wood; of wood particle board]
- [of synthetic resin]
- next to a fibrous or filamentary layer

**Layered products comprising a [layer of] metal**

- 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)
- [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 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 17/061 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)

**Layered products comprising a particular substance used with the meanings indicated:**

- "essentially" means that if an alteration or removal of such a layer occurred it would alter the scope of the invention.
- "particulate layer" means a layer of particles, e.g. chips, chopped fibres, powder.
- "specific substance" covers specified alternative substances if they are all covered by a single main group.

**WARNING**
Group B32B 7/08 is impacted by reclassification into group B32B 7/09.
Groups B32B 7/08 and B32B 7/09 should be considered in order to perform a complete search.

**WARNING**
Group B32B 7/09 is incomplete pending reclassification of documents from group B32B 7/08.
Groups B32B 7/08 and B32B 7/09 should be considered in order to perform a complete search.

- at least one layer having inter-reactive properties
- using interposed adhesives or interposed materials with bonding properties
- applied in spaced arrangements, e.g. in stripes
Layered products characterised by particular substances used

B32B

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; constructional 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

17/10385 . . . . . [for Ohmic resistance heating (Ohmic resistance heating in general H05B 3/84)]
17/10394 . . . . . [Alarm wires (burglar alarms by breaking glass G08B 13/04)]
17/10403 . . . . . [for radiation shielding (radiation shielding in general H05K 9/00)]
17/10412 . . . . . [for reinforcement]
17/10422 . . . . . [for aesthetic reasons]
17/10431 . . . . . [Devices for the modulation of light incorporated into the laminated glazing (metallic or dielectric coatings B32B 17/1017; coating on glass in general C03C 17/00)]
17/1044 . . . . . [Invariable transmission]
17/10449 . . . . . [Wavelength selective transmission (filters per se G02B 5/20)]
17/10458 . . . . . [Polarization selective transmission (polarizing elements per se G02B 5/30)]
17/10467 . . . . . [Variable transmission]
17/10477 . . . . . [Thermochromic]
17/10486 . . . . . [Photochromic]
17/10495 . . . . . [Optoelectronic, i.e. optical valve]
17/10504 . . . . . [Liquid crystal layer (devices for the control of the intensity of the light based on liquid crystals G02F 1/13)]
17/10513 . . . . . [Electrochromic layer (devices for the control of the intensity of the light based on electrochromic elements G02F 1/15)]
17/10522 . . . . . [Electrophoretic layer (devices for the control of the intensity of the light based on electrophoresis G02F 1/167)]
17/10532 . . . . . [Suspended particle layer (devices for the control of the intensity of the light based on suspension of oriented dipolar particles G02F 1/172)]
17/10541 . . . . . [The laminated glazing acting as an illumination device, i.e. comprising a light source or a light guide (lighting devices for vehicle interior B60O 3/20; structural combinations of lighting devices with other articles P21V 33/00; light guides in general G02B 6/00)]
17/1055 . . . . . [Characterized by the resin layer, i.e. interlayer]
17/10559 . . . . . [Shape of the cross-section]
17/10568 . . . . . [Varying in thickness]
17/10577 . . . . . [Surface roughness]
17/10587 . . . . . [Created by embossing]
17/10596 . . . . . [Created by melt fracture]
17/10605 . . . . . [Type of plasticizer]
17/10614 . . . . . [Comprising particulate matter for purposes other than dyeing]
17/10623 . . . . . [Whitening agents reflecting visible light]
17/10633 . . . . . [Infrared radiation absorbing or reflecting agents]
17/10642 . . . . . [Thermally conductive agents]
17/10651 . . . . . [Comprising colorants, e.g. dyes or pigments]
17/1066 . . . . . [Imparting a tint in certain regions only, i.e. shade band]
17/10669 . . . . . [Luminescent agents (luminescent materials C09K 11/00; optical brightening agents C08K 5/0041)]
17/10678 . . . . . [Comprising UV absorbers or stabilizers, e.g. antioxidants]
17/10688 . . . . . [Adjustment of the adherence to the glass layers]
17/10697 . . . . . [Being cross-linked]
17/10706 . . . . . [Being photo-polymerized]
17/10715 . . . . . [Containing polyether]
17/10724 . . . . . [Containing polyamide]
17/10733 . . . . . [Containing epoxy]
17/10743 . . . . . [Containing acrylate (co)polymers or salts thereof]
17/10752 . . . . . [Containing polycarbonate]
17/10761 . . . . . [Containing vinyl acetal]
17/1077 . . . . . [Containing polyurethane]
17/10779 . . . . . [Containing polyester]
17/10788 . . . . . [Containing ethylene vinylacetate]
17/10798 . . . . . [Containing silicone]
17/10807 . . . . . [Making layered products containing glass and synthetic resin layers; apparatus therefor]
17/10816 . . . . . [By pressing]
17/10825 . . . . . [Isostatic pressing, i.e. using non rigid pressure-exerting members against rigid parts (isostatic presses in general B30B 11/001)]
17/10834 . . . . . [Using a fluid]
17/10844 . . . . . [Using a membrane between the layered product and the fluid]
17/10853 . . . . . [The membrane being bag-shaped]
17/10862 . . . . . [Using pressing-rolls]
17/10871 . . . . . [In combination with particular heat treatment]
17/1088 . . . . . [By superposing a plurality of layered products]
17/10889 . . . . . [Shaping the sheets, e.g. by using a mould (B32B 17/10816 takes precedence)]
17/10899 . . . . . [By introducing interlayers of synthetic resin]
17/10908 . . . . . [In liquid form]
17/10917 . . . . . [Between two pre-positioned glass layers (spacing elements for window units comprising two or more parallel panes E06B 3/663)]
17/10926 . . . . . [By spraying (spraying in general B05)]
17/10935 . . . . . [As a preformed layer, e.g. formed by extrusion]
17/10944 . . . . . [In powder form]
17/10954 . . . . . [By using an aligning laminating device]
17/10963 . . . . . [Specially adapted for repairing the layered products]
17/10972 . . . . . [Degassing during the lamination (B32B 17/10816 takes precedence; during molding B29C 37/006)]
17/10981 . . . . . [Pre-treatment of the layers]
17/1099 . . . . . [After-treatment of the layered product, e.g. cooling]

18/00 Layered products essentially comprising ceramics, e.g. refractory products

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

23/00 Layered products comprising [a layer of] cellulosic plastic substances [, i.e. substances obtained by chemical modification of cellulose, e.g. cellulose ethers, cellulose esters, viscose]

23/02 . in the form of fibres or filaments { (not used) }

23/06 . next to a fibrous or filamentary layer

23/10 . next to a particulate layer

23/12 . next to a particulate layer

23/14 . characterised by containing special compounding ingredients

23/16 . Modifying agents

23/18 . Fillers

23/20 . comprising esters

23/22 . comprising ethers

25/00 Layered products comprising [a layer of] natural or synthetic rubber (B32B 5/02, B32B 5/16, B32B 5/18; B32B 2274/00) take precedence; thermoplastic elastomer (B32B 2274/00)

25/02 . with fibres or particles { being present as additives in the layer }

25/04 . comprising rubber as the main or only constituent of a layer, which is next to another layer of the same or of a different material (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)

25/042 . of natural rubber or synthetic rubber { all layers being made of natural or synthetic rubber (B32B 22/50/248) }

25/045 . of foam

25/047 . of particles

25/05 . of paper or cardboard

25/08 . of synthetic resin { all layers being polymeric B32B 22/50/24 }

25/10 . next to a fibrous or filamentary layer

25/12 . comprising natural rubber

25/14 . comprising { synthetic rubber copolymers (B32B 25/18 and B32B 25/20 take precedence) }

25/16 . comprising polydienes { homopolymers } or polyhalodienes { homopolymers (B32B 25/12 takes precedence) }

25/18 . comprising butyl or halobutyl rubber

25/20 . comprising silicone rubber

27/00 Layered products comprising [a layer of] synthetic resin (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

27/02 . in the form of fibres or filaments { (not used) }

27/04 . as impregnant, bonding, or embedding substance { (not used) }

27/06 . as the main or only constituent of a layer, which is next to another layer of the same or of a different material (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 21/048; next to a cellulosic plastic layer B32B 23/08; next to a natural or synthetic rubber layer B32B 25/08)
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 . . next to a fibrous or filamentary layer 27/14 . . next 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. styrenic (co)polymers } 27/304 . . { comprising vinyl halide (co)polymers, e.g. PVC, PVDC, PVF, PVDF } 27/306 . . { comprising vinyl acetate or vinyl alcohol (co)polymers } 27/308 . . { comprising acrylic (co)polymers } 27/32 . . comprising polylefins { (B32B 27/30 takes precedence) } 27/322 . . { comprising halogenated polylefins, e.g. PTFE } 27/325 . . { comprising polycycloolefins } 27/327 . . { comprising polylefins obtained by a metallocene or single-site catalyst } 27/34 . . comprising polyamides 27/36 . . comprising polyesters 27/365 . . { comprising polycarbonates } 27/38 . . comprising epoxy resins 27/40 . . comprising polyurethanes 27/42 . . comprising condensation resins of aldehydes, e.g. with phenols, ureas or melamines

29/00 Layered products comprising [a layer of] paper or cardboard

29/002 . . [as the main or only constituent of a layer, which is next to another layer of the same or of a different material (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 paperboard B32B 2250/26)]

29/007 . . [next to a foam layer]

29/02 next to a fibrous or filamentary layer

29/04 . . next to a particulate layer

29/06 . . specially treated, e.g. surfaced, parchmentised { (B32B 2255/12, B32B 2260/028 take precedence) } 29/08 . . Corrugated paper or cardboard

33/00 Layered products characterised by particular properties or particular surface features, e.g. particular surface coatings; Layered products designed for particular purposes not covered by another single class

WARNING

Group B32B 33/00 is incomplete pending reclassification of documents from group B29D 2009/00.

Groups B29D 2009/00 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 of the layered products

NOTE

In groups B32B 37/00 {, B32B 38/00, B32B 41/00} and B32B 39/00, the following expressions are used with the meaning indicated:

• "lay-up" is considered to be the action of combining separate layers, one on top of the other, in order to form a half-product for entering the laminating process

• "laminating" means the action of combining previously unconnected (but possibly laid up) layers to become one product whose layers will remain together;

• "partial laminating" occurs when one layer does not fully cover a surface of another layer, whereby the layer with the greater surface area is laminated on only part of its surface;

• "adhesive" means a layer, or part of a layer, applied in any state or in any manner which is incorporated for the purpose of bonding.

37/00 Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding

37/0007 . . [involving treatment or provisions in order to avoid deformation or air inclusion, e.g. to improve surface quality]

37/0015 . . [to avoid warp or curl]

37/0023 . . [around holes, apertures or channels present in at least one layer]

37/003 . . [to avoid air inclusion]

37/0038 . . [involving application of liquid to the layers prior to lamination, e.g. wet laminating (B32B 37/12 takes precedence)]

37/0046 . . [characterised by constructional aspects of the apparatus]

37/0053 . . [Constructional details of laminating machines comprising rollers; Constructional features of the rollers]

2037/0061 . . [the apparatus being an office laminator]

2037/0069 . . [the apparatus being originally designed for another function, e.g. printer, photocopier]

37/0076 . . [characterised in that the layers are not bonded on the totality of their surfaces]

37/0084 . . [Point bonding]
Methods or apparatus for making layered products; Treatment of the layers or of the layered products

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.}

38/00 Ancillary operations in connection with laminating processes

37/02 characterised by a sequence of laminating steps, e.g. by adding new layers at consecutive laminating stations

37/06 characterised by the heating method

37/08 characterised by the cooling method

37/10 characterised by the pressing technique, e.g. using action of vacuum or fluid pressure

37/1009 using vacuum and fluid pressure

37/1018 using only vacuum

37/1027 Pressing using at least one press band

37/1036 Pressing between one press band and a cylinder

37/1045 Intermittent pressing, e.g. by oscillating or reciprocating motion of the pressing means

37/1054 Regulating the dimensions of the laminate, e.g. by adjusting the nip or platen gap

37/12 characterised by using adhesives

37/1207 Heat-activated adhesive (laminating by the partial melting of layers to form the bond

37/1215 [Hot-melt adhesive]

37/1223 [film-shaped]

37/123 [net-shaped]

37/1238 [in the form of powder]

37/1246 [Other adhesives]

37/1253 [curable]

37/1261 [moisture curable]

37/1269 [multi-component adhesive]

37/1276 [water-based adhesive]

37/1284 Application of adhesive

37/1292 selectively, e.g. in stripes, in patterns

37/14 characterised by the properties of the layers

37/142 [Laminating of sheets, panels or inserts, e.g. stiffeners, by wrapping in at least one outer layer, or inserting into a preformed pocket]

37/144 using layers with different mechanical or chemical conditions or properties, e.g. layers with different thermal shrinkage, layers under tension during bonding (constructual features for tensioning B32B 38/1825 takes precedence]

37/146 whereby one or more of the layers is a honeycomb structure

37/148 whereby layers material is selected in order to facilitate recycling of the laminate

37/15 with at least one layer being manufactured and immediately laminated before reaching its stable state, e.g. in which a layer is extruded and laminated while in semi-molten state

37/153 [at least one layer is extruded and immediately laminated while in semi-molten state]

37/156 [at least one layer is calendered and immediately laminated]

37/16 with all layers existing as coherent layers before laminating

37/18 involving the assembly of discrete sheets or panels only

37/182 [one or more of the layers being plastic]

37/185 [Laminating sheets, panels or inserts between two discrete plastic layers]

37/187 [the layers being placed in a carrier before going through the lamination process]

37/20 involving the assembly of continuous webs only

37/203 [One or more of the layers being plastic]

37/206 [Laminating a continuous layer between two continuous plastic layers]

37/22 involving the assembly of both discrete and continuous layers

37/223 [One or more of the layers being plastic]

37/226 [Laminating sheets, panels or inserts between two continuous plastic layers]

37/24 with at least one layer not being coherent before laminating, e.g. made up from granular material sprinkled onto a substrate (B32B 37/15 takes precedence)

37/263 [Vapour deposition]

37/264 [Pressure equalizing layers]

37/266 [Cushioning layers]

37/268 [Release layers]

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

37/30 Partial laminating

37/304 [Cutting, tearing or severing, e.g. bursting]

37/466 Cutting 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]
Methods or apparatus for making layered products; Treatment of the layers or of the layered products

B32B

38/008 . . . (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 231000

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 27/36
2250/248 . . . All polymers belonging to those covered by group B32B 25/00
2250/26 . . . All layers being made of paper or paperboard
2250/40 . Symmetrical or sandwich layers, e.g. ABA, ABCBA, ABCCBA
2250/42 . Alternating layers, e.g. ABAB(C), AABBAABB(C)
2250/44 . Number of layers variable across the laminate

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 synthetic resin or rubber layer being a foamed layer
2255/14 . on paper layer
2255/20 . Inorganic coating
2255/24 . Metallic coating
2255/26 . Organic non-macromolecular coating
2255/28 . Polymeric coating

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
2262/023 . Aromatic vinyl resin, e.g. styrenic (co)polymers
2262/0238 . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
2262/0246 . Acryllic 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 . Polystyrene teraphthalate [PET] or polybutylene teraphthalate [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 . Polyolefin 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. styrene (co)polymers
2266/0235 . Vinyl halide, e.g. PVC, PVDC, PVF, PVDF
2266/0242 . Acrylic resin
2266/025 . 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

| 2307/412 | Transparent |
| 2307/414 | Translucent |
| 2307/416 | Reflective |
| 2307/418 | Refractive |
| 2307/42 | Polarizing, birefringent, filtering |
| 2307/422 | Luminescent, fluorescent, phosphorescent |
| 2307/50 | having particular mechanical properties |
| 2307/51 | Elastic |
| 2307/514 | Oriented |
| 2307/516 | mono-axially |
| 2307/518 | bi-axially |
| 2307/52 | multi-axially |
| 2307/536 | Hardness |
| 2307/538 | Roughness |
| 2307/54 | Yield strength; Tensile strength |
| 2307/542 | Shear strength |
| 2307/544 | Torsion strength; Torsion stiffness |
| 2307/546 | Flexural strength; Flexion stiffness |
| 2307/548 | Creep |
| 2307/552 | Fatigue strength |
| 2307/554 | Wear resistance |
| 2307/558 | Impact strength, toughness |
| 2307/56 | Damping, energy absorption |
| 2307/58 | Cleatability |
| 2307/581 | Resistant to cut |
| 2307/582 | Tearability |
| 2307/5825 | Tear resistant |
| 2307/584 | Scratch resistance |
| 2307/70 | Other properties |
| 2307/702 | Amorphous |
| 2307/704 | Crystalline |
| 2307/706 | Anisotropic |
| 2307/708 | Isotropic |
| 2307/71 | Resistive to light or to UV |
| 2307/712 | Weather resistant |
| 2307/714 | Inert, i.e. inert to chemical degradation, corrosion |
| 2307/7145 | Rot proof, resistant to bacteria, mildew, mould, fungi |
| 2307/716 | Degradable |
| 2307/7163 | Biodegradable |
| 2307/7166 | Water-soluble, water-dispersible |
| 2307/718 | Weight, e.g. weight per square meter |
| 2307/72 | Density |
| 2307/722 | Non-uniform density |
| 2307/724 | Permeability to gases, adsorption |
| 2307/7242 | Non-permeable |
| 2307/7244 | Oxygen barrier |
| 2307/7246 | Water vapor barrier |
| 2307/7248 | Odour barrier |
| 2307/726 | Permeability to liquids, absorption |
| 2307/7265 | Non-permeable |
| 2307/728 | Hydrophilic |
| 2307/73 | Hydrophobic |
| 2307/732 | Dimensional properties |
| 2307/734 | Dimensional stability |
| 2307/736 | Shrinkable |
| 2307/738 | Thermofomability |
| 2307/74 | Oxygen absorber |
| 2307/744 | Non-slip, anti-slip |
| 2307/746 | Slipping, anti-blocking, low friction |
| 2307/748 | Releasability |
| 2307/75 | Printability |
| 2307/752 | Corrosion inhibitor |
| 2307/754 | Self-cleaning |
| 2307/756 | Refurbishable, i.e. marks or scratches can be removed |
| 2307/758 | Odour absorbent |
| 2307/762 | Self-repairing, self-healing |
| 2307/764 | Insect repellent |

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

| 2309/02 | Temperature |
| 2309/022 | Temperature vs pressure profiles |
| 2309/025 | Temperature vs time profiles |
| 2309/027 | Ambient temperature |
| 2309/04 | Time |
| 2309/06 | Angles |
| 2309/08 | Dimensions, e.g. volume |
| 2309/10 | Linear, e.g. length, distance, width |
| 2309/105 | Thickness |
| 2309/12 | Pressure |
| 2309/125 | Pressure vs time profiles |
| 2309/14 | Velocity, e.g. feed speeds |
| 2309/16 | Tension |
| 2309/60 | In a particular environment |
| 2309/62 | Inert |
| 2309/64 | Sterile |
| 2309/65 | Dust free, e.g. clean room |
| 2309/66 | Fluid other than air |
| 2309/68 | Vacuum |
| 2309/70 | Automated, e.g. using a computer or microcomputer |
| 2309/72 | For measuring or regulating, e.g. systems with feedback loops |

### Operating procedures; Apparatus details

| 2310/00 | Treatment by energy or chemical effects |
| 2310/021 | using electrical effects (B32B 2310/08 and B32B 2310/12 take precedence) |
| 2310/022 | Electrical resistance |
| 2310/024 | Peltier effect |
| 2310/025 | Electrostatic charges |
| 2310/027 | using friction |
| 2310/028 | using vibration, e.g. sonic or ultrasonic |
| 2310/04 | using liquids, gas or steam |
| 2310/0409 | using liquids |
| 2310/0418 | other than water |
| 2310/0427 | Liquified gases |
| 2310/0436 | Oil |
| 2310/0445 | using gas or flames (B32B 2310/0427 takes precedence) |
| 2310/0454 | Hot air |
| 2310/0463 | other than air |
| 2310/0472 | inert gas |
| 2310/0481 | Ozone |
| 2310/049 | using steam or damp |
| 2310/08 | by wave energy or particle radiation |
| 2310/0806 | using electromagnetic radiation |
| 2310/0812 | using induction |
| 2310/0818 | using eddy currents |
| 2310/0825 | using IR radiation |
### 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>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>2311/005</td>
<td>Shape memory alloys</td>
</tr>
<tr>
<td>2311/02</td>
<td>Noble metals</td>
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<tr>
<td>2311/04</td>
<td>Gold</td>
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<tr>
<td>2311/06</td>
<td>Platinum</td>
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<td>2311/08</td>
<td>Silver</td>
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<td>Mercury</td>
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<td>Copper</td>
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<td>2311/14</td>
<td>Lead</td>
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<tr>
<td>2311/16</td>
<td>Tin</td>
</tr>
<tr>
<td>2311/18</td>
<td>Titanium</td>
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<tr>
<td>2311/20</td>
<td>Zinc</td>
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<tr>
<td>2311/22</td>
<td>Nickel or cobalt</td>
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<tr>
<td>2311/24</td>
<td>Aluminium</td>
</tr>
<tr>
<td>2311/30</td>
<td>Iron, e.g. steel</td>
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</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2315/00</td>
<td>Other materials containing non-metallic inorganic compounds not provided for in groups B32B 2311/00 - B32B 2315/04</td>
</tr>
<tr>
<td>2315/02</td>
<td>Ceramics</td>
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<td>2315/06</td>
<td>Concrete</td>
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<td>2315/08</td>
<td>Glass</td>
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<tr>
<td>2315/085</td>
<td>Glass fiber cloth or fabric</td>
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<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>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2317/02</td>
<td>Cork</td>
</tr>
<tr>
<td>2317/04</td>
<td>Linoleum</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>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2323/00</td>
<td>Polyalkenes</td>
</tr>
<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>
<tr>
<td>2325/00</td>
<td>Polymers of vinyl-aromatic compounds, e.g. polystyrene</td>
</tr>
</tbody>
</table>

### 2327/00 Polyvinylhalogenides

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

### 2331/00 Polynylesters

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

### 2333/00 Polymers of unsaturated acids or derivatives thereof

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</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. polymethylacrylate</td>
</tr>
<tr>
<td>2333/12</td>
<td>Polymers of methacrylic acid esters, e.g. PMMA, i.e. polymethylmethacrylate</td>
</tr>
</tbody>
</table>

### 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

- ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers
- Phenoplast, aminoplast
- Epoxy resins
- Polyesters, e.g. PET, i.e. polyethylene terephthalate
- Polycarbonates
- Polyethers, e.g. PEEK, i.e. polyether-etherketone; PEK, i.e. polyetherketone
- Polyureas; Polyurethanes
- Polyamides
- Other polymers having nitrogen, with or without oxygen or carbon only, in the main chain
- Polyimides
- Polysiloxanes
- Specific polymers obtained by polycondensation or polyaddition not provided for in a single one of index codes B32B 2363/00 - B32B 2383/00
- Waxes
- Bituminous material, e.g. tar, asphalt
- Unspecified macromolecular compounds
- Thermosetting resins
- Thermoplastics

**Particular articles**

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

- Adhesive articles, e.g. adhesive tapes (labels B32B 2519/00)
- Agriculture-related articles
- Belts (conveyor belts B32B 2433/02; drive belts B32B 2433/04)
- Buildings or parts thereof (walls, panels B32B 2607/00)
- Bricks
- Tiles for floors or walls (tiles for roofs B32B 2431/06)
- Roofs, roof membranes
- Cards, e.g. identity cards, credit cards
- Carriers for sound or information
- Records or discs
- Cleaning articles, e.g. mops, wipes (personal care B32B 2555/00)
- Closed loop articles
- Conveyor belts
- Driving belts
- Closures, end caps, stoppers
- for containers
- Clothing (anti-ballistic clothing B32B 2571/02)
- Gloves, shoes
- Caps, helmets
- Containers; Receptacles (closures therefor B32B 2435/00)
- Open containers
- Bags, sacks, sachets
- Closed containers
- Bags
- Bottles
- Boxes, cartons, cases
- Cans, tins
- Food packaging
- Medical packaging
- Decorative or ornamental articles (wall paper B32B 2607/02)
- Electrical equipment
- Insulators
- PCBs, i.e. printed circuit boards
- Batteries
- Photovoltaic modules
- Semiconductor wafers
- Capacitors
- Fuel cells
- Displays, e.g. liquid crystal displays, plasma displays
- LCD, i.e. liquid crystal displays
- Plasma displays
- Organic displays, e.g. OLED
- Touch screens
- Nets, e.g. camouflage nets
- Floor coverings (B32B 2419/04 takes precedence)
- Carpets
- Mats
- Frictional elements
- Furniture (upholstery B32B 2601/00)
- Household appliances
- Refrigerators or refrigerating equipment
- Labels, badges
- RFID tags
- Medical equipment, e.g. bandage, prostheses, catheter (medical patches B32B 2556/00)
- Optical elements
- Mirrors
- Packaging equipment or accessories not otherwise provided for
- Shock absorbing
- for use in loose form, e.g. dunnage
- Bubble films
- Paper of special types, e.g. banknotes
- Personal care
- Diapers or napkins
- Patches, e.g. medical patches, repair patches
- Photographic equipment or accessories
- Protective equipment
Particular articles

2571/02 defensive, e.g. armour plates, anti-ballistic clothing
   (camouflage nets B32B 2459/00)

2581/00 Seals; Sealing equipment; Gaskets

2590/00 Signboards, advertising panels, road signs

2597/00 Tubular articles, e.g. hoses, pipes

2601/00 Upholstery

2603/00 Vanes, blades, propellers, rotors with blades

2605/00 Vehicles
   2605/003 Interior finishings
   2605/006 Transparent parts made from plastic material, e.g.
       windows

2605/08 Cars

2605/10 Trains

2605/12 Ships

2605/16 Submarines

2605/18 Aircraft (blades, propellers B32B 2603/00)

2607/00 Walls, panels

2607/02 Wall papers, wall coverings