

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

[N: **WARNING** [C2012.02]

The following IPC are not used in the internal ECLA classification scheme Subject matter covered by these groups is classified in the following ECLA groups - [B32B1/04](#) covered by [B32B3/02-B32B3/08](#) - [B32B1/06](#) covered by [B32B13/02-B32B3/08](#) - [B32B3/22](#) covered by [B32B3/08-B2B3/22](#) - [B32B3/24](#) covered by [B32B3/26B](#) - [B32B5/28](#) covered by [L32B260/02A-L32B260/02A1](#) - [B32B17/02](#) covered by [L32B262/10A](#) - [B32B17/04](#) covered by [L32B262/10A](#) and [L32B260/04](#) - [B32B17/12](#) covered by [B32B17/06G](#) - [B32B23/02](#) covered by [L32B262/04](#) and [B32B5/02-B32B5/12](#) - [B32B27/02](#) covered by [L32B262/02](#)- [L32B262/02M](#) and [B32B5/02](#)- [B32B5/12](#) - [B32B27/04](#) covered by [L32B260/04D](#)

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Notes

[C9409]This subclass covers:

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

This subclass does not cover:

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

In this subclass:

- a film formed on a layer by spreading a substance thereon is not considered to constitute a layer itself if it serves only as an adhesive or its purpose is merely to finish a surface of a product;
- groups designating products cover also methods or apparatus specially adapted for producing such products.

In this subclass, the following terms or expressions are used with the meanings indicated:

- "layer" is a sheet or strip or anything else having a small

thickness relatively to its other dimensions which, together with at least one other layer, exists in a product, whether it pre-existed, e.g. as a separate sheet or strip, or was formed during the production of the layered product. It may or may not be homogeneous or cohesive; it may be an assembly of fibres or pieces of material. It may be discontinuous, e.g. in the form of a grating, honeycomb, or frame. It may 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 [N: being] interengaged or connected, e.g. by adhesive.

In this subclass, - "First place rule" is used in the following groups [B32B9/04](#), [B32B11/04](#), [B32B13/04](#), [B32B15/04](#), [B32B19/04](#), [B32B21/04](#), [B32B23/04C](#)-[B32B23/12](#), [B32B25/04](#), [B32B27/06](#), [B32B29/00B](#). However, when these groups are not characterised by the specific material adjacency to be classified, then, multiple classification is given, e.g. a layered product having a stone layer next to a bituminous layer would be classified in [B32B9/04](#) and in [B32B11/04](#). For a cellulosic plastic layer next to a metal layer or to a wood layer [B32B23/04A](#) or [B32B23/04B](#), respectively, take precedence (i.e. first rule does not apply). For layered products comprising at least two ceramic layers, products comprising only ceramic layers are classified in group [B32B18/00](#) and products comprising two ceramics layers and at least one layer of another material are classified in [B32B18/00](#) and [B32B9/04](#).

B32B1/00 Layered products having a general shape other than plane [C1202]

Note

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

B32B1/02 . Receptacles, [N: i.e. rigid containers], e.g. tanks [C1202]

B32B1/04 . characterised by feature of form at particular places, e.g. in edge regions [N: (not used)] [C1202]

B32B1/06 . characterised by fillings or added members in hollow portions [N: (not used)] [C1202]

B32B1/08 . Tubular products

- B32B3/00** Layered products comprising a layer with external or internal discontinuities or unevennesses, or a layer of non-planar form [N: (fibrous or filamentary layers B32B5/02; particulate layers B32B5/16; foamed layers B32B5/18); Layered products having particular features of form (receptacles or tubular products B32B1/00)] [N1204]
- B32B3/02** . characterised by features of form at particular places, e.g. in edge regions [N: (non-uniform thickness B32B3/26A)] [C1202]
- B32B3/04** . . characterised by [N: at least one] layer folded at the edge, e.g. over another layer [N: ; characterised by at least one layer enveloping or enclosing a material] [C1202]
- B32B3/06** . . for securing layers together; for attaching the product to another member, e.g. to a support [N: , or to another product, e.g. groove/tongue, interlocking] [C1202]
- B32B3/08** . . characterised by added members at particular parts [N: (layer formed of separate pieces of material which are juxtaposed side-by-side B32B3/14, B32B3/18)] [N1204]
- B32B3/08B** . . . [N: spaced apart pieces on the surface of a layer] [N1204]
- B32B3/10** . characterised by a discontinuous layer, i.e. formed of separate pieces of material [C1202]
- Note**
[C9409] In this group, a series of spaced separate elements forming in effect a broken surface should be regarded as a layer.
- B32B3/12** . . characterised by a layer of regularly- arranged cells, e.g. a honeycomb structure [C1202]
- B32B3/14** . . characterised by a face layer formed of separate pieces of material [N: which are juxtaposed side-by-side (B32B5/02 takes precedence)] [N1204]
- B32B3/16** . . . secured to a flexible backing
- B32B3/18** . . characterised by an internal layer formed of separate pieces of material [N: which are juxtaposed side-by-side (B32B5/02 takes precedence)] [N1204]
- B32B3/20** . . . of hollow pieces, e.g. tubes; of pieces with channels or cavities
- B32B3/22** . . . of spaced pieces [N: (not used)] [C1202]
- B32B3/26** . characterised by a particular shape of the outline of the cross-section of a continuous layer; characterised by a layer with cavities or internal voids [N: (B32B27/20A takes precedence; foam layer B32B15/08)]; [N: characterised by an apertured layer] [N1204]
- B32B3/26A** . . [N: characterised by a layer having non-uniform thickness] [N1202]
- B32B3/26B** . . [N: characterised by an apertured layer, the apertures going through the whole thickness of the layer, e.g. expanded metal, perforated layer, slit layer regular cells B32B3/12)] [N1204]
- B32B3/28** . . characterised by a layer comprising a deformed thin sheet [N: , i.e. the layer having its entire thickness deformed out of the plane], e.g. corrugated, crumpled (B32B29/08 takes precedence)] [C1202]
- B32B3/30** . . characterised by a layer formed with recesses or projections, e.g. [N: hollows, grooves, protuberances, ribs (apertured layer B32B3/26B; layer with cavities or internal voids B32B3/26)] [C1202]
- B32B5/00** Layered products characterised by the non- homogeneity or physical structure [N: , i.e. comprising a fibrous, filamentary, particulate or foam layer; Layered products characterised by having a layer differing constitutionally or physically in different parts] [C1202]

Note

[C9409] 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.

- B32B5/02
 - . characterised by structural features of a [N: fibrous or filamentary layer (B32B15/02, B32B21/02 take precedence; layer formed of particles B32B5/16; layers formed of natural mineral fibres B32B19/00; coated or impregnated fibrous or filamentary layers L32B255/02 or L32B260/02A)] [N1204]
- B32B5/02A
 - . . [N: Non-woven fabric] [N1202]
- B32B5/02B
 - . . [N: Woven fabric] [N1202]
- B32B5/02C
 - . . [N: Knitted fabric] [N1202]
- B32B5/02D
 - . . [N: Net structure, e.g. spaced apart filaments bonded at the crossing points] [N1204]
- B32B5/04
 - . . characterised by a layer being specifically extensible by reason of its structure or arrangement [N: , e.g. by reason of the chemical nature of the fibres or filaments] [C1202]
- B32B5/06
 - . . characterised by a fibrous [N: or filamentary] layer [N: mechanically connected, e.g. by needling, sewing, stitching, hydroentangling, hook and loop-type fasteners] to another layer, e.g. of fibres, of paper [N1204]
- B32B5/08
 - . . the fibres or filaments of a layer being of different substances [N: , e.g. conjugate fibres, mixture of different fibres] [C1202]
- B32B5/10
 - . . characterised by a fibrous [N: or filamentary] layer reinforced with filaments [N1204]
- B32B5/12
 - . . characterised by the relative arrangement of fibres or filaments of [N: different layers, e.g. the fibres or filaments being parallel or perpendicular to each other] [C1202]
- B32B5/14
 - . characterised by a layer differing constitutionally or physically in different parts, e.g. denser near its faces
- B32B5/14A
 - . . [N: Variation across the area of the layer] [N1202]
- B32B5/14B
 - . . [N: Variation across the thickness of the layer] [N1202]
- B32B5/14D
 - . . [N: by treatment of the layer] [N1204]
- B32B5/16
 - . characterised by features of a layer formed of particles, e.g. chips, powder [N: , granules (B32B21/02 takes precedence; layers formed of natural mineral particles B32B19/00; coated or impregnated particulate layers L32B255/04 or L32B260/02B)] [C1202]
- B32B5/18
 - . characterised by features of a layer [N: of] foamed material [C1202]
- B32B5/20
 - . . foamed in situ
- B32B5/22
 - . characterised by the presence of two or more layers which [N: are next to each other and are fibrous, filamentary, formed of particles or foamed (B32B19/06, B32B19/04H B32B19/04F, B32B29/00B2 to B32B29/04 take precedence)] [N1204]
- B32B5/24
 - . . one layer being a fibrous or filamentary layer
- B32B5/24A
 - . . . [N: another layer next to it being a foam layer] [N1204]
- B32B5/26
 - . . . another layer [N: next to it also being fibrous or filamentary (relative

- arrangement of fibres or filaments of different layers B32B5/12; all layers being fibrous or filamentary L32B250/20; two or more impregnated fibrous or filamentary layers L32B260/02A1)] [N1204]
- B32B5/28 . . . impregnated with or embedded in a plastic substance [N: (not used)] [C1202]
- B32B5/30 . . . one layer [N: being formed of particles, e.g. chips,] granules, powder [C1202]
- B32B5/32 . . . N: at least two layers being foamed and next to each other (all layers being foamed L32B250/22)] [N1204]
- B32B7/00 Layered products characterised by the relation between layers, i.e. products comprising layers having different physical properties and products characterised by the interconnection of layers [C1202]**
- B32B7/00A . [N: in respect of orientation of features (B32B5/12 takes precedence)] [N1202]
- B32B7/02 . in respect of physical properties, e.g. hardness
- B32B7/04 . characterised by the connection of layers
- B32B7/04A . . [N: the layers being not connected over the whole surface, e.g. discontinuous connection, patterned connection (B32B7/14 takes precedence)] [N1202]
- B32B7/06 . . permitting easy separation [N: , e.g. releasable layer] [C1202]
- B32B7/08 . . by mechanical connection, e.g. stitching [N: (B32B5/06 takes precedence)] [C1202]
- B32B7/10 . . one or both of the layers having inter-reactive properties [C1202]
- B32B7/12 . . using an adhesive [N: , i.e. any interposed material having adhesive or bonding properties]
- B32B7/14 . . . applied in strips or other spaced arrangement

Guide heading: Layered products characterised by particular substances used

Note

[C9409]In groups B32B9/00 to B32B29/00, 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;
- [N: "essentially" means that if an alteration or removal of such a layer occurred it would alter the scope of the invention]

B32B9/00 Layered products comprising a particular substance not covered by groups B32B11/00 to B32B29/00 [C1202]

- B32B9/00A . [N: comprising natural stone or artificial stone] [N1202]
- B32B9/00C . [N: comprising one layer of ceramic material, e.g. porcelain, ceramic tile (layered products with at least two ceramic layers composed mainly of ceramic B32B18/00)] [N1202]
- B32B9/00C2 . . [N: comprising carbon, e.g. graphite, composite carbon] [N1202]
- B32B9/02 . comprising animal or vegetable substances [N: , e.g. cork, bamboo, starch] [C1202]

- B32B9/02A . . [N: comprising leather] [N1202]
- B32B9/04 . comprising such [N: 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 (B32B17/06 takes precedence; layered products with at least two ceramic layers composed mainly of ceramic B32B18/00)] [N1204]
- B32B9/04A . . [N: of metal] [N1202]
- B32B9/04B . . [N: of wood] [N1202]
- B32B9/04C . . [N: of natural rubber or synthetic rubber] [N1202]
- B32B9/04D . . [N: of synthetic resin] [N1202]
- B32B9/04F . . [N: of foam] [N1202]
- B32B9/04G . . [N: made of fibres or filaments] [N1202]
- B32B9/04H . . [N: made of particles] [N1202]
- B32B9/06 . . of paper or cardboard

- B32B11/00** **Layered products comprising [N: a layer of] bituminous or tarry substances [C1202]**
- B32B11/02 . with fibres or particles [N: being present as additives in the layer] [C1202]
- B32B11/04 . comprising such [N: 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 (B32B17/06 takes precedence)] [N1204]
- B32B11/04B . . [N: of wood] [N1202]
- B32B11/04C . . [N: of natural rubber or synthetic rubber] [N1202]
- B32B11/04D . . [N: of synthetic resin] [N1202]
- B32B11/04F . . [N: of foam] [N1202]
- B32B11/06 . . of paper or cardboard
- B32B11/08 . . of metal
- B32B11/10 . next to a fibrous or filamentary layer
- B32B11/12 . next to a particulate layer

- B32B13/00** **Layered products comprising a [N: a layer of] water-setting substance, e.g. concrete, plaster, asbestos cement, or like builders` material [C1202]**
- B32B13/02 . with fibres or particles [N: being present as additives in the layer] [C1202]
- B32B13/04 . comprising such [N: 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 (B32B17/06 takes precedence)] [N1204]
- B32B13/04C . . [N: of natural rubber or synthetic rubber] [N1202]
- B32B13/04F . . [N: of foam] [N1202]
- B32B13/04H . . [N: made of particles] [N1202]
- B32B13/06 . . of metal
- B32B13/08 . . of paper or cardboard
- B32B13/10 . . of wood; of wood particle board

- B32B13/12 . . of synthetic resin
- B32B13/14 . next to a fibrous or filamentary layer
- B32B15/00** **Layered products comprising [N: a layer of] metal [C1202]**
- B32B15/01 . all layers being exclusively metallic [N: making layered metal workpieces by pressure cladding [B23K20/22](#); making coatings with a metallic material characterised by its composition [C23C30/00](#)]
- B32B15/01B . . [N: all layers being formed of iron alloys or steels]
- B32B15/01C . . [N: one layer being formed of an iron alloy or steel, another layer being formed of aluminium or an aluminium alloy]
- B32B15/01D . . [N: one layer being formed of an iron alloy or steel, another layer being formed of a metal other than iron or aluminium]
- B32B15/01D1 . . . [N: the said other metal being copper or nickel or an alloy thereof]
- B32B15/01E . . [N: all layers being formed of aluminium or aluminium alloys]
- B32B15/01F . . [N: 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]
- B32B15/01N . . [N: one layer being formed of a noble metal or a noble metal alloy]
- B32B15/02 . [N: Layer formed of wires, e.g. mesh] [C1202]
- B32B15/04 . comprising metal as the main or only constituent of a layer, [N: which is next to another layer of the same or of a different material (B32B17/06A and B32B23/04A take precedence; next to a bituminous or tarry layer B32B11/08; next to a water-setting substance layer B32B13/06)] [N1204]
- B32B15/04A . . [N: of metal ([B32B15/01](#) takes precedence)] [N1202]
- B32B15/04F . . [N: of foam] [N1202]
- B32B15/06 . . of [N: natural rubber or synthetic] rubber [C1202]
- B32B15/08 . . of synthetic resin
- B32B15/082 . . . comprising vinyl resins; comprising acrylic resins [N1202]
- B32B15/085 . . . comprising polyolefins [N1202]
- B32B15/088 . . . comprising polyamides [N1202]
- B32B15/09 . . . comprising polyesters [N1202]
- B32B15/092 . . . comprising epoxy resins [N1202]
- B32B15/095 . . . comprising polyurethanes [N1202]
- B32B15/098 . . . comprising condensation resins of aldehydes, e.g. with phenols, ureas or melamines [N1202] [N1204]
- B32B15/10 . . of wood
- B32B15/12 . . of paper or cardboard
- B32B15/14 . next to a fibrous or filamentary layer
- B32B15/16 . next to a particulate layer
- B32B15/18 . comprising iron or steel [N: ([B32B15/01B](#), [B32B15/01C](#) and [B32B15/01D](#) take precedence)]
- B32B15/20 . comprising aluminium or copper [N: ([B32B15/01E](#) and [B32B15/01F](#) take precedence)]

B32B17/00 Layered products essentially comprising sheet glass, or glass, slag, or like fibres

- B32B17/02 . in the form of fibres or filaments
- B32B17/04 . . bonded with or embedded in a plastic substance
- B32B17/06 . comprising glass as the main or only constituent of a layer, next to another layer of a specific [N: material (coating on glass [C03C17/00](#); safety glazings [B32B17/08](#) or [B32B17/10](#); fire protective glazing with intumescent layers [B32B17/06J](#))] [C1201]
- B32B17/06A . . [N: metal] [N1201]
- B32B17/06B . . [N: wood] [N1201]
- B32B17/06C . . [N: rubber] [N1201]
- B32B17/06D . . [N: synthetic resin ([B32B17/10](#) takes precedence)] [N1201]
- B32B17/06E . . [N: paper or cardboard] [N1201]
- B32B17/06F . . [N: foam] [N1201]
- B32B17/06G . . [N: fibres or filaments] [N1201]
- B32B17/06H . . [N: particulate matter] [N1201]
- B32B17/06J . . [N: intumescent layers ([B32B17/10E18](#) takes precedence)] [N1201]
- B32B17/08 . . of cellulosic plastic substance [N: or gelatin] [C1201]
- B32B17/10 . . of synthetic resin [N: (producing optical elements from plastics [B29D11/00](#); constructional form of optical elements G02B)] [N9706]

[N: Notes

1. 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 [B32B17/10C](#) to [B32B17/10L](#), whereby transparent polymeric layers other than the interlayer ([B32B17/10G](#)) are classified using ICO codes

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- B32B17/10C . . . [N: characterized by the number, the constitution or treatment of glass sheets] [M1201]
- B32B17/10C2 [N: comprising only one glass sheet] [C1201]
- B32B17/10C2B [N: the glass sheet not being an outer layer] [N9911] [C1201]
- B32B17/10C4 [N: comprising two outer glass sheet] [C1201]
- B32B17/10C4B [N: at least one intermediate layer consisting of a glass sheet] [M1201]
- B32B17/10C4B4 [N: at least one intermediate air space (IG window units comprising two or more parallel glass panes [E06B3/66](#))] [N1201]
- B32B17/10C6 [N: comprising at least two glass sheets, only one of which being an outer layer] [C1201]
- B32B17/10C8 [N: comprising at least two glass sheets, neither of which being an outer layer] [C1201]
- B32B17/10C20 [N: Properties of the bulk of a glass sheet] [N1201]
- B32B17/10C22 [N: thermally hardened (chemical strengthening [B32B17/10C30B](#))] [N1201]
- B32B17/10C24 [N: having a predetermined coefficient of thermal expansion [CTE]] [N1201]
- B32B17/10C26 [N: having predetermined tint or excitation purity] [N1201]

B32B17/10C28	. . . .	[N: having a composition deviating from the basic composition of soda-lime glass, e.g. borosilicate] [N1201]
B32B17/10C30	. . . .	[N: Treatment of at least one glass sheet (cutting of laminated glass C03B33/07D)] [N1201]
B32B17/10C30B	. . . . .	[N: Chemical strengthening] [N1201]
B32B17/10C30D	. . . . .	[N: Face treatment, e.g. etching, grinding or sand blasting] [N1201]
B32B17/10C30F	. . . . .	[N: Edge treatment, chamfering] [N1201]
B32B17/10E	. . .	[N: particular functional features of the laminated glazing] [C1201]
B32B17/10E10	. . . .	[N: Coatings of a metallic or dielectric material on a constituent layer of glass or polymer] [C1201]
B32B17/10E10B	. . . . .	[N: being not continuous, e.g. in edge regions] [N1201]
B32B17/10E10B2	. . . . .	[N: patterned in the form of columns or grids] [N1201]
B32B17/10E10D	. . . . .	[N: Dielectric coatings] [N1201]
B32B17/10E10D2	. . . . .	[N: Doped dielectric layer, electrically conductive, e.g. SnO ₂ :F] [N1201]
B32B17/10E10M	. . . . .	[N: Metallic coatings] [N1201]
B32B17/10E10M2	. . . . .	[N: Metallic layers sandwiched by dielectric layers] [N1201]
B32B17/10E10P	. . . . .	[N: in the form of particles] [N1201]
B32B17/10E12	. . . .	[N: containing decorations or patterns for aesthetic reasons; metal wires for this purpose B32B17/10E32J] [C1201]
B32B17/10E12B	. . . . .	[N: created by printing techniques] [N1201]
B32B17/10E12B2	. . . . .	[N: on glass pane] [N1201]
B32B17/10E12B4	. . . . .	[N: on interlayer] [N1201]
B32B17/10E12B6	. . . . .	[N: on intermediate layer] [N1201]
B32B17/10E16	. . . .	[N: Edge features, e.g. inserts or holes] [C1201]
B32B17/10E16B	. . . . .	[N: Edge sealing] [C1201]
B32B17/10E18	. . . .	[N: Intumescent layers for fire protection] [C1201]
B32B17/10E20	. . . .	[N: containing liquid layers] [C1201]
B32B17/10E22	. . . .	[N: containing temporary protective coatings or layers] [C1201]
B32B17/10E26	. . . .	[N: Specific parts of the laminated glazing being colored or tinted (tinted glass B32B17/10C26 ; tinted interlayer B32B17/10G08)] [C1201]
B32B17/10E26B	. . . . .	[N: comprising an obscuration band] [N1201]
B32B17/10E26F	. . . . .	[N: comprising a tinted intermediate film] [N1201]
B32B17/10E30	. . . .	[N: Reinforcements of the laminated glazing against impact or intrusion; metal wires for this purpose B32B17/10E32H] [C1201]
B32B17/10E32	. . . .	[N: containing metal wires] [C1201]
B32B17/10E32B	. . . . .	[N: for Ohmic resistance heating (Ohmic resistance heating in general H05B3/84)] [N1201]
B32B17/10E32D	. . . . .	[N: Alarm wires (burglar alarms by breaking glass G08B13/04)] [N1201]
B32B17/10E32F	. . . . .	[N: for radiation shielding (radiation shielding in general H05K9/00)] [N1201]
B32B17/10E32H	. . . . .	[N: for reinforcement] [N1201]
B32B17/10E32J	. . . . .	[N: for aesthetic reasons] [N1201]
B32B17/10E40	. . . .	[N: Devices for the modulation of light incorporated into the laminated glazing (metallic or dielectric coatings B32B17/10E10 ; coating on glass in

		general C03C17/00] [N1201]
B32B17/10E40B	. . . . .	[N: Invariable transmission] [N1201]
B32B17/10E40B2	. . . . .	[N: Wavelength selective transmission (filters per se G02B5/20)] [N1201]
B32B17/10E40B4	. . . . .	[N: Polarization selective transmission (polarizing elements per se G02B5/30)] [N1201]
B32B17/10E40D	. . . . .	[N: Variable transmission] [N1201]
B32B17/10E40D2	. . . . .	[N: thermochromic] [N1201]
B32B17/10E40D4	. . . . .	[N: photochromic] [N1201]
B32B17/10E40D6	. . . . .	[N: optoelectronic , i.e. optical valve] [N1201]
B32B17/10E40D62	. . . . .	[N: liquid crystal layer (devices for the control of the intensity of the light based on liquid crystals G02F1/13)] [N1201]
B32B17/10E40D64	. . . . .	[N: electrochromic layer (devices for the control of the intensity of the light based on electrochromic elements G02F1/15)] [N1201]
B32B17/10E40D66	. . . . .	[N: electrophoretic layer (devices for the control of the intensity of the light based on electrophoresis G02F1/167)] [N1201]
B32B17/10E40D68	. . . . .	[N: suspended particle layer (devices for the control of the intensity of the light based on suspension of oriented dipolar particles G02F1/17A)] [N1201]
B32B17/10E50	. . . . .	[N: The laminated glazing acting as an illumination device , i.e. comprising a light source or a light guide (light guides in general G02B6/00 ; structural combinations of lighting devices with other articles F21V33/00 ; lighting devices for vehicle interior B60Q3/02)] [N1201]
B32B17/10G	. . . . .	[N: characterized by the resin layer , i.e. interlayer] [C1201]
B32B17/10G2	. . . . .	[N: Shape of the cross-section] [N1201]
B32B17/10G2B	. . . . .	[N: varying in thickness] [N1201]
B32B17/10G2D	. . . . .	[N: Surface roughness] [N1201]
B32B17/10G2D2	. . . . .	[N: created by embossing] [N1201]
B32B17/10G2D4	. . . . .	[N: created by melt fracture] [N1201]
B32B17/10G4	. . . . .	[N: Type of plasticizer] [N1201]
B32B17/10G6	. . . . .	[N: comprising particulate matter for purposes other than dyeing] [N1201]
B32B17/10G6B	. . . . .	[N: Whitening agents reflecting visible light] [N1201]
B32B17/10G6D	. . . . .	[N: Infrared radiation absorbing or reflecting agents] [N1201]
B32B17/10G6F	. . . . .	[N: Thermally conductive agents] [N1201]
B32B17/10G8	. . . . .	[N: comprising colorants, e.g. dyes or pigments] [N1201]
B32B17/10G8B	. . . . .	[N: imparting a tint in certain regions only , i.e. shade band] [N1201]
B32B17/10G8D	. . . . .	[N: Luminescent agents (luminescent materials C09K11/00 , optical brightening agents C08K5/00P4)] [N1201]
B32B17/10G10	. . . . .	[N: comprising UV absorbers or stabilizers , e.g. antioxidants] [N1201]
B32B17/10G12	. . . . .	[N: Adjustment of the adherence to the glass layers] [C1201]
B32B17/10G14	. . . . .	[N: being cross-linked] [C1201]
B32B17/10G16	. . . . .	[N: being photo-polymerized] [C1201]
B32B17/10G18	. . . . .	[N: containing polyether]
B32B17/10G20	. . . . .	[N: containing polyamide]
B32B17/10G22	. . . . .	[N: containing epoxy]

B32B17/10G24	. . . .	[N: containing acrylate (co)polymers or salts thereof] [C1201]
B32B17/10G26	. . . .	[N: containing polycarbonate]
B32B17/10G28	. . . .	[N: containing vinyl acetal] [C0302]
B32B17/10G30	. . . .	[N: containing polyurethane]
B32B17/10G32	. . . .	[N: containing polyester]
B32B17/10G36	. . . .	[N: containing ethylene vinylacetate] [N1201]
B32B17/10G42	. . . .	[N: containing silicone] [N1201]
B32B17/10L	. . .	[N: Making layered products containing glass and synthetic resin layers; apparatus therefor] [C1201]
B32B17/10L10	. . . .	[N: by pressing]
B32B17/10L10B	. . . . .	[N: isostatic pressing, i.e. using non rigid pressure-exerting members against rigid parts (isostatic presses in general B30B11/00B)] [C1201]
B32B17/10L10B2	. . . . .	[N: using a fluid]
B32B17/10L10B2B	. . . . .	{7 dots} [N: using a membrane between the layered product and the fluid]
B32B17/10L10B2B2	. . . . .	{8 dots} [N: the membrane being bag-shaped]
B32B17/10L10B4	. . . . .	[N: using pressing-rolls]
B32B17/10L10D	. . . . .	[N: in combination with particular heat treatment]
B32B17/10L12	. . . . .	[N: by superposing a plurality of layered products]
B32B17/10L14	. . . . .	[N: shaping the sheets, e.g. by using a mould (B32B17/10L10 takes precedence)]
B32B17/10L16	. . . . .	[N: by introducing interlayers of synthetic resin]
B32B17/10L16B	. . . . .	[N: in liquid form]
B32B17/10L16B2	. . . . .	[N: between two pre-positioned glass layers (between preformed layers in general B29C39/12B2; spacing elements for window units comprising two or more parallel panes E06B3/663)] [C9610]
B32B17/10L16D	. . . . .	[N: by spraying (spraying in general B05)]
B32B17/10L16F	. . . . .	[N: as a preformed layer, e.g. formed by extrusion]
B32B17/10L16H	. . . . .	[N: in powder form]
B32B17/10L16K	. . . . .	[N: by using an aligning laminating device]
B32B17/10L18	. . . . .	[N: specially adapted for repairing the layered products]
B32B17/10L20	. . . . .	[N: Degassing during the lamination (B32B17/10L10 takes precedence; during molding B29C37/00G)]
B32B17/10L22	. . . . .	[N: Pre-treatment of the layers]
B32B17/10L24	. . . . .	[N: After-treatment of the layered product, e.g. cooling]

B32B18/00

Laminated products composed mainly of ceramics, e.g. refractory materials ([N: semi-permeable membranes made of inorganic material [B01D71/02](#); ceramic coatings on glass [C03C17/00](#); joining of ceramic layers [C04B37/00](#); coating of ceramics [C04B41/45](#); applying ceramic coatings on metallic materials C23; applying ceramic coatings on silicon for semi-conductor purposes H01L]) [C0807]

[N: **Notes** [N0810]

In group [B32B18/00](#), from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further processing are indexed with codes chosen from [M04B237/00](#) to [M04B237/70R](#)

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- B32B19/00** **Layered products comprising [N: a layer of] natural mineral fibres or particles, e.g. asbestos, mica [C1202]**
- B32B19/02 . [N: the layer of fibres or particles being impregnated or] embedded in a plastic substance [C1202]
- B32B19/04 . next to another layer [N: of the same or of a different material (B32B17/06G takes precedence)] [N1204]
- B32B19/04A . . [N: of metal] [N1202]
- B32B19/04B . . [N: of wood] [N1202]
- B32B19/04C . . [N: of natural rubber or synthetic rubber] [N1202]
- B32B19/04D . . [N: of synthetic resin] [N1202]
- B32B19/04E . . [N: of paper or cardboard] [N1202]
- B32B19/04F . . [N: of foam] [N1202]
- B32B19/04H . . [N: made of particles] [N1202]
- B32B19/06 . next to a fibrous or filamentary layer
- B32B19/08 . comprising asbestos
- B32B21/00** **Layered products comprising [N: a layer of] wood, e.g. wood board, veneer, wood particle board [C1202]**
- B32B21/02 . [N: the layer being formed of fibres, chips, or particles, e.g. MDF, HDF, OSB, chipboard, particle board, hardboard] [C1202]
- B32B21/04 . comprising wood as the main or only constituent of a layer, [N: which is next to another layer of the same or of a different material (B32B17/06B and B32B23/04B take precedence; next to a layer of a particular substance B32B9/04B; next to a bituminous or tarry layer B32B11/04B; next to a water setting substance layer B32B13/10; next to a metal layer B32B15/10; next to a layer formed of natural mineral fibres or particles B32B19/04B)] [N1204]
- B32B21/04B . . [N: of wood (B32B21/13 takes precedence)] [N1204]
- B32B21/04C . . [N: of natural rubber or synthetic rubber] [N1202]
- B32B21/04F . . [N: of foam] [N1202]
- B32B21/06 . . of paper or cardboard
- B32B21/08 . . of synthetic resin [C1202]
- B32B21/10 . Next to a fibrous or filamentary layer
- B32B21/12 . next to a particulate layer
- B32B21/13 . all layers being exclusively wood
- B32B21/14 . comprising wood board or veneer
- B32B23/00** **Layered products comprising [N: a layer of] cellulosic plastic substances [N: , i.e. substances obtained by chemical modification of cellulose, e.g. cellulose ethers, cellulose esters, viscose] [C1202]**

- B32B23/02 . in the form of fibres or filaments [N: (not used)] [C1202]
- B32B23/04 . comprising such [N: 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 (B32B17/08 takes precedence)] [N1204]
- B32B23/04A . . [N: of metal] [N1202]
- B32B23/04B . . [N: of wood] [N1202]
- B32B23/04C . . [N: of natural rubber or synthetic rubber (all layers being polymeric L32B250/24)] [N1204]
- B32B23/04F . . [N: of foam] [N1202]
- B32B23/06 . . of paper or cardboard
- B32B23/08 . . of synthetic resin [N: (all layers being polymeric L32B250/24)] [N1204]
- B32B23/10 . next to a fibrous or filamentary layer
- B32B23/12 . next to a particulate layer
- B32B23/14 . characterised by containing special compounding ingredients
- B32B23/16 . . Modifying agents
- B32B23/18 . . Fillers
- B32B23/20 . comprising esters
- B32B23/22 . comprising ethers
- B32B25/00** **Layered products comprising [N: a layer of] natural or synthetic rubber [N: (B32B5/02, B32B5/16, B32B5/18 take precedence; thermoplastic elastomer L32B274/00)] [N1204]**
- B32B25/02 . with fibres or particles [N: being present as additives in the layer] [C1202]
- B32B25/04 . comprising rubber as the main or only constituent of a layer, [N: which is next to another layer of the same or of a different material (B32B17/06C takes precedence; next to a layer of a particular substance B32B9/04C; next to a bituminous or tarry layer B32B11/04C; next to a water setting substance layer B32B13/04C; next to a metal layer B32B15/06; next to a layer formed of natural mineral fibres or particles B32B19/04C; next to a wood layer B32B21/04C; next to a cellulosic plastic layer B32B23/04C)] [N1204]
- B32B25/04C . . [N: of natural rubber or synthetic rubber (all layers being made of natural or synthetic rubber L32B250/24F)] [N1204]
- B32B25/04F . . [N: of foam] [N1202]
- B32B25/04H . . [N: of particles] [N1202]
- B32B25/06 . . of paper or cardboard
- B32B25/08 . . of synthetic resin [N: (all layers being polymeric L32B250/24)] [N1204]
- B32B25/10 . next to a fibrous or filamentary layer [C1202]
- B32B25/12 . comprising natural rubber [C1202]
- B32B25/14 . comprising [N: synthetic rubber copolymers (B32B25/18 and B32B25/20 take

ence)] [C1202]

- B32B25/16 . comprising polydienes [N: homopolymers] or poly-halodienes [N: homopolymers (B32B25/12 takes precedence)] [N1204]
- B32B25/18 . comprising butyl or halobutyl rubber [C1202]
- B32B25/20 . comprising silicone rubber [C1202]
- B32B27/00** **Layered products comprising [N: a layer of] synthetic resin [N: (B32B5/02, B32B5/16, B32B5/18 take precedence; thermoplastic elastomer L32B274/00)]**
- [N: **Notes**
This group covers all synthetic resins except those covered by B32B25/00 or B32B23/00]
- B32B27/02 . in the form of fibres or filaments [N: (not used)] [C1202]
- B32B27/04 . as impregnant, bonding, or embedding substance [N: (not used)] [C1202]
- B32B27/06 . as the main or only constituent of a layer, [N: which is next to another layer of the same or of a different material (B32B17/06D takes precedence; next to a layer of a particular substance B32B9/04D; next to a bituminous or tarry layer B32B11/04D; next to a water setting substance layer B32B13/12; next to a metal layer B32B15/08; next to a layer formed of natural mineral fibres or particles B32B19/04D ; next to a wood layer B32B21/08; next to a cellulosic plastic layer B32B23/08; next to a natural or synthetic rubber layer B32B25/08)] [N1204]
- B32B27/06F . . [N: of foam] [N1202]
- B32B27/08 . . of synthetic resin [N: (all layers being polymeric, made of polymers belonging to those covered by B32B27/32, by B32B27/36, or by B32B27/30 and B32B27/32, L32B250/24 to L32B250/24C)] [N1204]
- B32B27/10 . . of paper or cardboard
- B32B27/12 . next to a fibrous or filamentary layer [C1202]
- B32B27/14 . next to a particulate layer [C1202]
- B32B27/16 . specially treated, e.g. irradiated [N: (L32B255/10 takes precedence)] [N1204]
- B32B27/18 . characterised by the use of special additives [C1202]
- B32B27/20 . . using fillers, pigments, thixotroping agents [C1202]
- B32B27/20A . . . [N: the fillers creating voids or cavities, e.g. by stretching] [N1202]
- B32B27/22 . . using plasticisers
- B32B27/24 . . using solvents or swelling agents
- B32B27/26 . . using curing agents
- B32B27/28 . comprising synthetic resins not wholly covered by any one of the sub-groups [N: B32B27/30 to B32B27/42] [C1202]
- B32B27/28A . . [N: comprising polyimides] [N1202]
- B32B27/28B . . [N: comprising polysiloxanes] [N1202]

- B32B27/28C . . [N: comprising polyethers] [N1202]
- B32B27/28D . . [N: comprising polysulphones; polysulfides] [N1202]
- B32B27/28E . . [N: comprising polyketones] [N1202]

- B32B27/30 . comprising vinyl [N: (co)polymers; comprising acrylic (co)polymers] [C1202]
- B32B27/30A . . [N: comprising aromatic vinyl (co)polymers, e.g. styrenic (co)polymers] [N1204]
- B32B27/30B . . [N: comprising vinyl halide (co)polymers, e.g. PVC, PVDC, PVF, PVDF] [N1202]
- B32B27/30C . . [N: comprising vinyl acetate or vinyl alcohol (co)polymers] [N1202]
- B32B27/30D . . [N: comprising acrylic (co)polymers] [N1202]

- B32B27/32 . comprising polyolefins [N: (B32B27/30 takes precedence)] [C1202]
- B32B27/32A . . [N: comprising halogenated polyolefins, e.g. PTFE]
- B32B27/32B . . [N: comprising polycycloolefins] [N1202]
- B32B27/32C . . [N: comprising polyolefins obtained by a metallocene or single-site catalyst] [N1202]

- B32B27/34 . comprising polyamides [C1202]

- B32B27/36 . comprising polyesters [C1202]
- B32B27/36A . . [N: comprising polycarbonates] [N1202]

- B32B27/38 . comprising epoxy resins [C1202]

- B32B27/40 . comprising polyurethanes [C1202]

- B32B27/42 . comprising condensation resins of aldehydes, e.g. with phenols, ureas or melamines [C1202]

- B32B29/00** **Layered products comprising [N: a layer of] paper or cardboard [C1202]**

- B32B29/00B . [N: as the main or only constituent of a layer, which is next to another layer of the same or of a different material (B32B17/06E takes precedence; next to a layer of a particular substance B32B9/06; next to a bituminous or tarry layer B32B11/06; next to a water-setting substance layer B32B13/08; next to a metal layer B32B15/12; next to a layer formed of natural mineral fibres or particles B32B19/04E; next to a wood layer B32B21/06; next to a cellulosic plastic layer B32B23/06; next to a natural or synthetic rubber layer B32B25/06; next to a synthetic resin layer B32B27/10)] [N1204]
- B32B29/00B2 . . [N: next to another layer of paper or cardboard layer (all layers being made of paper or paperboard L32B250/26)] [N1204]
- B32B29/00B4 . . [N: next to a foam layer] [N1202]

- B32B29/02 . next to a fibrous or filamentary layer

- B32B29/04 . next to a particulate layer

- B32B29/06 . specially treated, e.g. surfaced, parchmented [N: (L32B255/12, L32B260/02D take precedence)] [N1204]

- B32B29/08 . Corrugated paper, corrugated cardboard

B32B33/00 Layered products characterised by particular properties or particular surface features, e.g. particular surface coatings (surface unevennesses or non-uniformities [B32B3/00](#)); Layered products designed for particular purposes not covered by another single class

Guide heading: Methods or apparatus for making layered products; Treatment of the layers or of the layered products [\[N0509\]](#)

Note

[\[N0509\]](#) In groups [B32B37/00](#) [[N: .B32B38/00](#), [B32B41/00](#)] and [B32B39/00](#), the following expressions are used with the meaning indicated:

[N: - "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 [[N: 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.

B32B37/00 **Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding** [[N: \(making non-planar products \[B32B1/00\]\(#\); making products characterised by particular features of structure or of composition, see the relevant groups for such products, e.g. making layered products containing glass and synthetic resin layers \[B32B17/10L\]\(#\); coating of single webs or the like \[B05\]\(#\)\)](#)] [\[N0509\]](#)

[B32B37/00A](#) . [[N: involving treatment or provisions in order to avoid deformation or air inclusion, e.g. to improve surface quality](#)] [\[N0509\]](#) [\[C1203\]](#)

[B32B37/00A2](#) . . [[N: to avoid warp or curl](#)] [\[N0509\]](#)

[B32B37/00A4](#) . . [[N: around holes, apertures or channels present in at least one layer](#)] [\[N0509\]](#)

[B32B37/00A6](#) . . [[N: to avoid air inclusion](#)][\[N0509\]](#)

[B32B37/00B](#) . [[N: involving application of liquid to the layers prior to lamination, e.g. wet laminating \(\[B32B37/12\]\(#\) takes precedence\) \(applying liquids in general \[B05\]\(#\)\)](#)] [\[N0509\]](#)

[B32B37/00C](#) . [[N: characterised by constructional aspects of the apparatus](#)] [\[N0509\]](#)

[B32B37/00C2](#) . . [[N: Constructional details of laminating machines comprising rollers; Constructional features of the rollers](#)] [\[N0509\]](#)

[B32B37/00D](#) . [[N: characterised in that the layers are not bonded on the totality of their surfaces](#)] [\[N0509\]](#)

[B32B37/00D2](#) . . [[N: Point bonding](#)] [\[N0806\]](#)

[B32B37/02](#) . characterised by a sequence of laminating steps, e.g. by adding new layers at consecutive laminating stations [\[N0509\]](#)

- B32B37/02B . . [N: Transfer laminating] [N0806]
- B32B37/04 . characterised by the partial melting of at least one layer [N0509]
- B32B37/06 . characterised by the heating method [N0509]
- B32B37/06B . . [N: resulting in the laminate being partially bonded [B32B37/00D](#) takes precedence] [N0509]
- B32B37/08 . characterised by the cooling method [N0509]
- B32B37/08B . . [N: Quenching] [N0806]
- B32B37/10 . characterised by the pressing technique, e.g. using action of vacuum or fluid pressure [N0509]
- B32B37/10A . . using vacuum and fluid pressure [N1203]
- B32B37/10B . . [N: using only vacuum] [N0509] [C1203]
- B32B37/10C . . [N: Pressing using at least one press band (pressing means with cooperating endless bands in general [B30B5/06](#))] [N0509]
- B32B37/10C2 . . . [N: Pressing between one press band and a cylinder] [N0509]
- B32B37/10D . . [N: Intermittent pressing, e.g. by oscillating or reciprocating motion of the pressing means ([B32B37/00D](#) takes precedence)] [N0509]
- B32B37/10E . . [N: Regulating the dimensions of the laminate, e.g. by adjusting the nip or platen gap] [N0509]
- B32B37/12 . characterised by using adhesive [N0509]
- B32B37/12B . . [N: Heat-activated adhesive (laminating by the partial melting of layers to form the bond [B32B37/04](#) takes precedence)] [N0509]
- B32B37/12D . . [N: Application of adhesive] [N0509]
- B32B37/12D2 . . . [N: selectively, e.g. in stripes, in patterns ([B32B37/00D](#) takes precedence)] [N0509]
- B32B37/14 . characterised by the properties of the layers [N0509]
- B32B37/14A . . [N: Laminating of sheets, panels or inserts, e.g. stiffeners, by wrapping in at least one outer layer, or inserting into a preformed pocket] [N0509]
- B32B37/14B . . [N: using layers with different mechanical or chemical conditions or properties, e.g. layers with different thermal shrinkage, layers under tension during bonding (constructional features for tensioning [B32B38/18B](#) takes precedence)] [N0509]
- B32B37/14C . . [N: whereby one or more of the layers is a honeycomb structure] [N0509]
- B32B37/15 . . 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 [N0509]
- B32B37/15B . . . [N: at least one layer is extruded and immediately laminated while in semi-molten state] [N0509]
- B32B37/15D . . . [N: at least one layer is calendered and immediately laminated] [N0806]
- B32B37/16 . . with all layers existing as coherent layers before laminating [N0509]
- B32B37/18 . . . involving the assembly of discrete sheets or panels only [N0509]
- B32B37/18A [N: one or more of the layers being plastic] [N0509]
- B32B37/18A4 [N: Laminating sheets, panels or inserts between two discrete plastic layers] [N0509]

- B32B37/18B [N: the layers being placed in a carrier before going through the lamination process] [N0806]
- B32B37/20 . . . involving the assembly of continuous webs only [N0509]
- B32B37/20A [N: One or more of the layers being plastic] [N0509]
- B32B37/20A4 [N: Laminating a continuous layer between two continuous plastic layers] [N0509]
- B32B37/22 . . . involving the assembly of both discrete and continuous layers [N0509]
- B32B37/22A [N: One or more of the layers being plastic] [N0509]
- B32B37/22A4 [N: Laminating sheets, panels or inserts between two continuous plastic layers] [N0509]
- B32B37/24 . . with at least one layer not being coherent before laminating, e.g. made up from granular material sprinkled onto a substrate ([B32B37/15](#) takes precedence) [N0509]
- [N: **Note** [N0806]
When classifying in group [B32B37/24](#), the technique can be further indexed by using the ICO codes chosen from [L32B37/24](#) and subgroups]
- B32B37/26 . . with at least one layer which influences the bonding during the lamination process, e.g. release layers or pressure equalising layers [N0509]
- [N: **Note** [N0806]
When classifying in group [B32B37/26](#), said at least one layer can be further indexed by using the ICO codes chosen from [L32B37/26](#) and subgroups]
- B32B37/28 . involving assembly of non-flat intermediate products which are flattened at a later step, e.g. tubes [N0509]
- B32B37/30 . Partial laminating [N0509]
- B32B38/00 Ancillary operations in connection with laminating processes [N0509]**
- B32B38/00A . [N: Cutting, tearing or severing, e.g. bursting; Cutter details (cutting in general [B26D](#); laminating combined with punching or perforating [B32B38/04](#); removing all or part of the layers [B32B38/10](#); cutting in combination with laying up and registration [B32B38/18B2B2](#) takes precedence)] [N0509]
- B32B38/00B . [N: Electrical discharge treatment, e.g. corona, plasma treatment; wave energy or particle radiation ([B32B38/00E](#) and [B29C59/00](#) take precedence)] [N0509] [C1203]
- [N: **Notes** [N1203]
Laminate treatment is further indexed in group [L32B310/00](#)]
- B32B38/00C . [N: Mechanical treatment, e.g. roughing, deforming, stretching] [N0509]
- [N: **Notes** [N0806]
when classifying in group [B32B38/00C](#), the treatment can be further indexed by using the ICO codes chosen from [L32B38/00C](#) and subgroups]
- B32B38/00D . [N: increasing porosity ([B32B38/04](#) takes precedence)] [N0509]

- B32B38/00E . [N: Heat treatment (for heating or cooling of layers during lamination [B32B37/06](#), [B32B37/08](#))] [N0509]
- [N: **Note**
[N0806] When classifying in group [B32B38/00E](#), the heat treatment can be further indexed by using the ICO codes chosen from [L32B38/00E](#) and subgroups
]
- B32B38/00E2 . . [N: by physically contacting the layers, e.g. by the use of heated platens or rollers] [N0509]
- B32B38/04 . Punching, slitting or perforating [N0509]
- [N: **Note** [N0806]
When classifying in group [B32B38/04](#), the operation can be further indexed by using the ICO codes chosen from [L32B38/04](#) and subgroups
]
- B32B38/06 . Embossing [N0509]
- B32B38/08 . Impregnating [N0509]
- B32B38/10 . Removing layers, or parts of layers, mechanically or chemically ([punching, slitting or perforating B32B38/04](#)) [N0509]
- B32B38/10A . . [N: on edges] [N0806]
- B32B38/12 . Deep-drawing [N0509]
- B32B38/14 . Printing or colouring [N0509]
- B32B38/14A . . [N: Printing] [N0806]
- B32B38/16 . Drying; Softening; Cleaning [N0509]
- B32B38/16A . . [N: Cleaning] [N0509]
- B32B38/16B . . [N: Drying] [N0806]
- [N: **Note** [N0806]
When classifying in group [B32B38/16B](#), the drying operation can be further indexed by using the ICO codes chosen from [L32B38/16B](#) and subgroups
]
- B32B38/18 . Handling of layers or the laminate [N0509]
- B32B38/18A . . [N: characterised by the laying up of the layers] [N0509]
- B32B38/18A2 . . . [N: Cross feeding of one or more of the layers] [N0509]
- B32B38/18B . . [N: characterised by the control or constructional features of devices for tensioning, stretching or registration] [N0509]
- B32B38/18B2 . . . [N: Positioning, e.g. registration or centering] [N0509]
- B32B38/18B2B [N: during laying up] [N0509]
- B32B38/18B2B2 [N: combined with the cutting of one or more layers] [N0509]
- B32B38/18C . . [N: using vacuum] [N0509]
- B32B38/18D . . [N: conforming the layers or laminate to a convex or concave profile] [N0509]
- B32B38/18E . . [N: Tensioning] [N0806]

- B32B38/18F . . . [N: Detensioning] [N0806]
- B32B39/00** **Layout of apparatus or plants, e.g. modular laminating systems** [N0509]
- B32B41/00** **Arrangements for controlling or monitoring lamination processes; Safety arrangements** [N0509]
- B32B41/02 . Safety arrangements [N0509]
- B32B43/00** **Operations specially adapted for layered products and not otherwise provided for, e.g. repairing; Apparatus therefor** [N0509] [C0908]
- B32B43/00A . [N: Cutting] [N0509]
- B32B43/00D . [N: Delaminating] [N0509]