

CPC COOPERATIVE PATENT CLASSIFICATION

D TEXTILES; PAPER

TEXTILES OR FLEXIBLE MATERIALS NOT OTHERWISE PROVIDED FOR

D04 BRAIDING; LACE-MAKING; KNITTING; TRIMMINGS; NON-WOVEN FABRICS

D04H MAKING TEXTILE FABRICS, e.g. FROM FIBRES OR FILAMENTARY MATERIAL (weaving [D03](#); knitting [D04B](#); braiding [D04C](#); net-making [D04G](#); sewing [D05B](#); tufting [D05C](#); finishing non-woven fabrics [D06](#)); FABRICS MADE BY SUCH PROCESSES OR APPARATUS, e.g. FELTS, NON-WOVEN FABRICS; COTTON-WOOL; WADDING {; NON-WOVEN FABRICS FROM STAPLE FIBRES, FILAMENTS OR YARNS, BONDED WITH AT LEAST ONE WEB-LIKE MATERIAL DURING THEIR CONSOLIDATION}(non-woven fabrics having an intermediate or external layer of a different kind, e.g. of woven fabric, [B32B](#))

NOTES

- In this subclass, the following terms or expressions are used with the meaning indicated:
 - "non-woven fabrics" means fabrics formed wholly or partly of textile material by processes comprising operations other than the weaving, knitting, braiding, lacing or knotting of yarns, threads or filaments for which provision is made in other subclasses of section [D](#). This expression includes felts, cotton-wool and wadding;
 - "fibre" means a relatively-short, elongated member of natural or man-made material;
 - "filament" means an endless or quasi-endless, elongated member of natural or man-made material;
 - "yarn" means a unitary assembly of fibres, usually produced by spinning;
 - "thread" means an assembly of yarns or filaments, usually produced by twisting;
 - "synthetic" fibres or filaments means fibres or filaments or the like manufactured from synthesising polymers or small molecules. Examples are polyamide, acrylic, polyester or carbon fibres;
 - "artificial" fibres or filaments means fibres or filaments or the like manufactured by man from natural polymers or their derivatives. Examples are regenerated cellulosic fibres or semi-synthetic fibres;
 - "man-made" fibres or filaments means fibres or filaments which are manufactured by man including "synthetic" or "artificial" fibres.
- In this subclass:
 - some of the non-woven fabrics can also be regarded as "layered products" within the meaning of subclass [B32B](#), and further classification in that subclass should be considered in accordance with the notes thereto;
 - in cases where the making of non-woven fabrics involves the use of particular chemical compounds or compositions, e.g. for treating or bonding fibres, filaments or yarns, further classification in other appropriate subclasses should also be considered.
- By varying the proportions of fibres or threads, and the chemical compounds or compositions, the final products may be given the appearance of paper, cardboard, leather or the like.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

Kinds or types of non-woven fabrics; Apparatus or processes for making such products

1/00 Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres

1/005 . {Making three-dimensional articles by consolidation ([D04H 1/22](#) takes precedence)}

WARNING

This group is no longer used for the classification of new documents as from April 1, 2011. The backfile is being reclassified into groups [D04H 1/00](#), [D04H 1/42](#)

1/02 . Cotton wool; Wadding

1/04 . from fleeces or layers composed of fibres having existing or potential cohesive properties, e.g. natural fibres, prestretched or fibrillated artificial fibres ([felting apparatus \[D04H 17/00\]\(#\)](#))

1/06 . . by treatment to produce shrinking, swelling, crimping or curling of fibres

WARNING

Groups [D04H 1/067](#) and [D04H 1/073](#) are not complete pending a reorganisation. See also group [D04H 1/06](#)

1/067 . . . Regenerated cellulose series

1/073 . . . Acrylonitrile series

1/08 . . and hardened by felting; Felts or felted products

- 1/09 . . . Silk
WARNING
 Group [D04H 1/09](#) is not complete pending a reorganisation. See also group [D04H 1/08](#)
- 1/10 . . . Felts made from mixtures of fibres
 1/12 and incorporating artificial organic fibres
 1/14 and incorporating inorganic fibres
 1/16 . . . Laminated felts in which the separate layers are united by a felting process
 1/20 . . . Felts incorporating inserts or attachments, e.g. for ornamental purposes
 1/22 . . . Three-dimensional articles formed by felting processes
 1/24 . . . Covers felted on to three-dimensional articles
 1/26 . . Wood pulp
 1/28 . . Regenerated cellulose series
 1/30 . . Collagen
 1/32 . . Synthetic pulp
 1/40 . . from fleeces or layers composed of fibres without existing or potential cohesive properties
WARNING
 Groups [D04H 1/407](#) and [D04H 1/413](#) are not complete pending a reorganisation. See also group [D04H 1/40](#)
 Group [D04H 1/407](#) is not complete pending a reorganisation. See also group [D04H 1/40](#)
- 1/407 . . containing absorbing substances, e.g. activated carbon
 1/413 . . containing granules other than absorbent substances
 1/42 . . characterised by the use of certain kinds of fibres insofar as this use has no preponderant influence on the consolidation of the fleece
WARNING
 Groups [D04H 1/4209](#) - [D04H 1/52](#) are not complete pending a reorganisation. See also group [D04H 1/4209](#) and other subgroups of [D04H 1/42](#)
- 1/4209 . . . Inorganic fibres
 1/4218 Glass fibres
 1/4226 characterised by the apparatus for manufacturing the glass fleece
 1/4234 Metal fibres
 1/4242 Carbon fibres
 1/425 . . . Cellulose series
 1/4258 Regenerated cellulose series
 1/4266 . . . Natural fibres not provided for in group [D04H 1/425](#)
 1/4274 . . . Rags; Fabric scraps
 1/4282 . . . Addition polymers
 1/4291 Olefin series
 1/43 Acrylonitrile series
 1/4309 Polyvinyl alcohol
 1/4318 Fluorine series
 1/4326 . . . Condensation or reaction polymers
 1/4334 Polyamides
 1/4342 Aromatic polyamides
 1/435 Polyesters
 1/4358 Polyurethanes
- 1/4366 Phenol series
 1/4374 . . . using different kinds of webs, e.g. by layering webs
 1/4382 . . . Stretched reticular film fibres; Composite fibres; Mixed fibres; Ultrafine fibres; Fibres for artificial leather
WARNING
 Group [D04H 1/4382](#) is impacted by reclassification into groups [D04H 1/43825](#) – [D04H 1/43838](#).
 All groups listed in this Warning should be considered in order to perform a complete search.
- 1/43825 {Composite fibres}
WARNING
 Groups [D04H 1/43825](#) – [D04H 1/43832](#) are incomplete pending reclassification of documents from group [D04H 1/4382](#).
 All groups listed in this Warning should be considered in order to perform a complete search.
- 1/43828 {sheath-core}
 1/4383 {sea-island}
 1/43832 {side-by-side}
 1/43835 {Mixed fibres, e.g. at least two chemically different fibres or fibre blends}
WARNING
 Group [D04H 1/43835](#) is incomplete pending reclassification of documents from Group [D04H 1/4382](#).
 Groups [D04H 1/4382](#) and [D04H 1/43835](#) should be considered in order to perform a complete search.
- 1/43838 {Ultrafine fibres, e.g. microfibrres}
WARNING
 Group [D04H 1/43838](#) is incomplete pending reclassification of documents from Group [D04H 1/4382](#).
 Groups [D04H 1/4382](#) and [D04H 1/43838](#) should be considered in order to perform a complete search.
- 1/4391 . . . characterised by the shape of the fibres
WARNING
 Group [D04H 1/4391](#) is impacted by reclassification into groups [D04H 1/43912](#) – [D04H 1/43918](#).
 All groups listed in this Warning should be considered in order to perform a complete search.

- 1/43912 {fibres with noncircular cross-sections}
 - WARNING**
 - Group [D04H 1/43912](#) is incomplete pending reclassification of documents from group [D04H 1/4391](#).
 - Groups [D04H 1/4391](#) and [D04H 1/43912](#) should be considered in order to perform a complete search.
- 1/43914 {hollow fibres}
 - WARNING**
 - Group [D04H 1/43914](#) is incomplete pending reclassification of documents from group [D04H 1/4391](#).
 - Groups [D04H 1/4391](#) and [D04H 1/43914](#) should be considered in order to perform a complete search.
- 1/43916 {microcellular fibres, e.g. porous or foamed fibres}
 - WARNING**
 - Group [D04H 1/43916](#) is incomplete pending reclassification of documents from group [D04H 1/4391](#).
 - Groups [D04H 1/4391](#) and [D04H 1/43916](#) should be considered in order to perform a complete search.
- 1/43918 {nonlinear fibres, e.g. crimped or coiled fibres}
 - WARNING**
 - Group [D04H 1/43918](#) is incomplete pending reclassification of documents from group [D04H 1/4391](#).
 - Groups [D04H 1/4391](#) and [D04H 1/43918](#) should be considered in order to perform a complete search.
- 1/44 . . the fleeces or layers being consolidated by mechanical means, e.g. by rolling
- 1/45 . . . by forming intermeshing loops or stitches from some of the fibres
- 1/46 . . . by needling or like operations to cause entanglement of fibres ([D04H 1/45](#) takes precedence; [needling machines D04H 18/00](#))
- 1/465 {Hydraulic needling}
 - WARNING**
 - This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 1/42](#) and sub-groups, [D04H 1/46](#), [D04H 1/492](#), [D04H 1/495](#) and [D04H 18/04](#)
- 1/48 in combination with at least one other method of consolidation
- 1/482 in combination with shrinkage
- 1/485 in combination with weld-bonding
- 1/488 in combination with bonding agents
- 1/49 entanglement by fluid jet in combination with another consolidation means
- 1/492 by fluid jet ([D04H 1/49](#) takes precedence)
- 1/495 for formation of patterns, e.g. drilling or rearrangement
- 1/498 entanglement of layered webs
- 1/50 . . . by treatment to produce shrinking, swelling, crimping or curling of fibres ([in combination with needling D04H 1/482](#))
- 1/52 . . . by applying or inserting filamentary binding elements
- 1/54 . . by welding together the fibres, e.g. by partially melting or dissolving ([in combination with needling D04H 1/485](#))
- 1/5405 . . . {at spaced points or locations}
 - WARNING**
 - This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 1/42](#) and sub-groups, [D04H 1/54](#) and sub-groups
- 1/541 . . . Composite fibres, e.g. sheath-core, sea-island or side-by-side; Mixed fibres
 - WARNING**
 - Group [D04H 1/541](#) is impacted by reclassification into groups [D04H 1/5412](#) – [D04H 1/5418](#).
 - All groups listed in this Warning should be considered in order to perform a complete search.
- 1/5412 {sheath-core}
 - WARNING**
 - Group [D04H 1/5412](#) is incomplete pending reclassification of documents from group [D04H 1/541](#).
 - Groups [D04H 1/541](#) and [D04H 1/5412](#) should be considered in order to perform a complete search.
- 1/5414 {side-by-side}
 - WARNING**
 - Group [D04H 1/5414](#) is incomplete pending reclassification of documents from group [D04H 1/541](#).
 - Groups [D04H 1/541](#) and [D04H 1/5414](#) should be considered in order to perform a complete search.
- 1/5416 {sea-island}
 - WARNING**
 - Group [D04H 1/5416](#) is incomplete pending reclassification of documents from group [D04H 1/541](#).
 - Groups [D04H 1/541](#) and [D04H 1/5416](#) should be considered in order to perform a complete search.

- 1/5418 {Mixed fibres, e.g. at least two chemically different fibres or fibre blends}
- WARNING**
- Group [D04H 1/5418](#) is incomplete pending reclassification of documents from group [D04H 1/541](#).
- Groups [D04H 1/541](#) and [D04H 1/5418](#) should be considered in order to perform a complete search.
- 1/542 Adhesive fibres
- 1/544 Olefin series
- 1/545 Polyvinyl alcohol
- 1/546 Polyvinyl acetate
- 1/548 Acrylonitrile series
- 1/549 Polyamides
- 1/55 Polyesters
- 1/551 Resins thereof not provided for in groups [D04H 1/544](#) - [D04H 1/55](#)
- 1/552 by applying solvents or auxiliary agents
- 1/554 by radio-frequency heating
- 1/555 by ultrasonic heating
- 1/556 by infrared heating
- 1/558 in combination with mechanical or physical treatments other than embossing
- 1/559 the fibres being within layered webs
- 1/56 in association with fibre formation, e.g. immediately following extrusion of staple fibres
- 1/565 {by melt-blowing}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 1/42](#) and sub-groups, [D04H 1/54](#) and sub-groups
- 1/58 by applying, incorporating or activating chemical or thermoplastic bonding agents, e.g. adhesives (in combination with needling [D04H 1/488](#))
- WARNING**
- Groups [D04H 1/587](#) - [D04H 1/68](#) are not complete pending a reorganisation. See also groups [D04H 1/64](#) and other subgroups of [D04H 1/58](#)
- 1/587 characterised by the bonding agents used
- 1/593 to layered webs
- 1/60 the bonding agent being applied in dry state, e.g. thermo-activatable agents in solid or molten state, and heat being applied subsequently
- 1/62 at spaced points or locations
- 1/64 the bonding agent being applied in wet state, e.g. chemical agents in dispersions or solutions
- 1/641 {characterised by the chemical composition of the bonding agent}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 1/42](#) and sub-groups and [D04H 1/64](#) and sub-groups
- 1/642 {characterised by the impregnation or treatment-process or apparatus}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 1/42](#) and sub-groups and [D04H 1/645](#) and sub-groups
- 1/643 {characterised by a combination of the chemical composition and the impregnation or treatment process or apparatus}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 1/42](#) and sub-groups and [D04H 1/645](#) and sub-groups
- 1/645 Impregnation followed by a solidification process
- 1/65 using mixed or composite fibres
- 1/655 characterised by the apparatus for applying bonding agents
- 1/66 at spaced points or locations ([D04H 1/68](#) takes precedence)
- 1/68 the bonding agent being applied in the form of foam
- 1/70 characterised by the method of forming fleeces or layers, e.g. reorientation of fibres
- WARNING**
- Groups [D04H 1/72](#) - [D04H 1/76](#) are not complete pending a reorganisation. See also group [D04H 1/72](#)
- 1/72 the fibres being randomly arranged
- 1/724 forming webs during fibre formation, e.g. flash-spinning
- 1/728 by electro-spinning {(electro-spinning methods and apparatus [D01D 5/0007](#))}
- 1/732 by fluid current, e.g. air-lay
- 1/736 characterised by the apparatus for arranging fibres ([D04H 1/728](#), [D04H 1/732](#) take precedence)
- 1/74 the fibres being orientated, e.g. in parallel {(anisotropic fleeces)}
- 1/76 otherwise than in a plane, e.g. in a tubular way
- 3/00 Non-woven fabrics formed wholly or mainly of yarns or like filamentary material of substantial length**

- 3/002 . . Inorganic yarns or filaments
- 3/004 . . Glass yarns or filaments
- 3/005 . . Synthetic yarns or filaments ([D04H 3/013](#) takes precedence)
- 3/007 . . Addition polymers
- 3/009 . . Condensation or reaction polymers
- 3/011 . . . Polyesters
- 3/013 . . Regenerated cellulose series
- 3/015 . . Natural yarns or filaments
- 3/016 . . characterised by the fineness
- 3/018 . . characterised by the shape
- 3/02 . . characterised by the method of forming fleeces or layers, e.g. reorientation of yarns or filaments
- 3/03 . . at random
- 3/033 . . . reorientation immediately after yarn or filament formation
- 3/037 . . . reorientation by liquid
- 3/04 . . in rectilinear paths, e.g. crossing at right angles
- 3/045 . . . for net manufacturing
- 3/05 . . in another pattern, e.g. zig-zag, sinusoidal {([D04H 3/04](#) takes precedence)}
- 3/07 . . otherwise than in a plane, e.g. in a tubular way
- 3/073 . . . Hollow cylinder shaped
- 3/077 . . . Stick, rod or solid cylinder shaped
- 3/08 . . characterised by the method of strengthening or consolidating
- 3/10 . . with bonds between yarns or filaments made mechanically
- 3/102 . . . {by needling}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 3/002](#) - [D04H 3/018](#), [D04H 3/105](#) and [D04H 3/11](#)
- 3/105 . . . by needling (needling machines [D04H 18/00](#))
- 3/11 . . . by fluid jet
- 3/115 . . . by applying or inserting filamentary binding elements
- 3/12 . . with filaments or yarns secured together by chemical or thermo-activatable bonding agents, e.g. adhesives, applied or incorporated in liquid or solid form
- 3/14 . . with bonds between thermoplastic yarns or filaments produced by welding
- 3/147 . . . Composite yarns or filaments
- 3/153 . . . Mixed yarns or filaments
- 3/16 . . with bonds between thermoplastic filaments produced in association with filament formation, e.g. immediately following extrusion
- 3/163 . . . {at spaced points or locations}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 3/002](#) - [D04H 3/018](#), and [D04H 3/16](#)
- 3/166 . . . {the filaments being flash-spun}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 3/002](#) - [D04H 3/018](#), and [D04H 3/16](#)
- 5/00 Non woven fabrics formed of mixtures of relatively short fibres and yarns or like filamentary material of substantial length**
- WARNING**
- Groups [D04H 5/02](#) - [D04H 5/12](#) are not complete pending a reorganisation. See also group [D04H 5/02](#) and other subgroups of [D04H 5/00](#)
- 5/02 . . strengthened or consolidated by mechanical methods, e.g. needling (needling machines [D04H 18/00](#))
- 5/03 . . by fluid jet
- 5/04 . . strengthened or consolidated by applying or incorporating chemical or thermo-activatable bonding agents in solid or liquid form
- 5/06 . . strengthened or consolidated by welding-together thermoplastic fibres, filaments, or yarns
- 5/08 . . characterised by the method of forming fleeces or layers, e.g. reorientation of fibres or yarns
- 5/10 . . otherwise than in a plane, e.g. in a tubular way
- 5/12 . . Glass fibres
- 11/00 Non-woven pile fabrics (layered products forming non-woven pile fabrics [B32B](#))**
- 11/04 . . formed by zig-zag folding of a fleece or layer of staple fibres, filaments, or yarns, strengthened or consolidated at the folds
- 11/08 . . formed by creation of a pile on at least one surface of a non-woven fabric without addition of pile-forming material, e.g. by needling, by differential shrinking (needling machines [D04H 18/00](#))
- 13/00 Other non-woven fabrics**
- 13/001 . . {Making non-woven fabrics from staple fibres, filaments or yarns, bonded to at least one web-like material, e.g. woven, knitted non-woven fabric, paper, leather, during consolidation}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 13/00](#), [D04H 1/4374](#) and [B32B](#)
- 13/002 . . {characterised by the disposition or nature of their elements}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 13/00](#), [D04H 1/4374](#) and [B32B](#)

- 13/003 . . {strengthened or consolidated by mechanical methods ([needling machines D04H 18/00](#); [knitting D04B](#), [sewing D05B](#))}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 13/00](#), [D04H 1/4374](#), [D04H 1/44](#), [D04H 1/45](#) and sub-groups, [D04H 1/52](#), [D04H 3/105](#), [D04H 3/11](#), [D04H 3/115](#), [D04H 5/02](#) - [D04H 5/08](#) and [B32B](#)
- 13/005 . . . {by needling}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 13/00](#), [D04H 1/46](#) and sub-groups, [D04H 1/593](#), [D04H 3/105](#), [D04H 3/11](#), [D04H 3/115](#), [D04H 5/02](#) - [D04H 5/08](#) and [B32B](#)
- 13/006 . . {strengthened or consolidated by the use of bonding agents in solid or liquid form}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 13/00](#), [D04H 1/48](#) and sub-groups, [D04H 1/498](#), [D04H 5/04](#) and [B32B](#)
- 13/007 . . {strengthened or consolidated by welding together the various components}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 13/00](#), [D04H 1/54](#) and sub-groups, [D04H 1/559](#), [D04H 5/06](#) and [B32B](#)
- 13/008 . {Glass fibre products; Complete installations for making them}
- WARNING**
- This group is no longer used for the classification of new documents as from April 1, 2011. The backlog of this group is being continuously reclassified to [D04H 1/4218](#), [D04H 1/4226](#); [D04H 3/002](#) and [D04H 5/12](#)
- 13/02 . Production of non-woven fabrics by partial defibrillation of oriented thermoplastics films
- 17/00 Felting apparatus**
- 17/10 . for felting between rollers, e.g. heated rollers
- 17/12 . . Multi-roller apparatus
- 18/00 Needling machines**
- WARNING**
- Groups [D04H 18/02](#) and [D04H 18/04](#) are not complete pending a reorganisation. See also group [D04H 18/00](#)
- 18/02 . with needles
- 18/04 . with water jets