

CPC COOPERATIVE PATENT CLASSIFICATION

C CHEMISTRY; METALLURGY

(NOTES omitted)

CHEMISTRY

C03 GLASS; MINERAL OR SLAG WOOL {(organic glasses [C08](#); metallic glasses, amorphous metals [B22F](#), [C22C](#))}

C03C CHEMICAL COMPOSITION OF GLASSES, GLAZES, OR VITREOUS ENAMELS; SURFACE TREATMENT OF GLASS; SURFACE TREATMENT OF FIBRES OR FILAMENTS FROM GLASS, MINERALS OR SLAGS; JOINING GLASS TO GLASS OR OTHER MATERIALS

NOTES

1. This subclass covers compositions of polycrystalline fibres
2. This subclass does not cover the preparation of single-crystal fibres, which is covered by subclass [C30B](#)

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C03C 6/00	covered by	C03C 1/00
C03C 6/02-C03C 6/10	covered by	
C03C 10/02 - C03C 10/14	covered by	C03C 10/00
C03C 13/02	covered by	C03C 13/00
C03C 27/12	covered by	B32B 17/00

Chemical composition of glasses, glazes, or vitreous enamels

3/04 . containing silica

NOTE

In groups [C03C 1/00](#) - [C03C 14/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.

NOTE

If silica is specified as being present in a percent range covered by two of the groups [C03C 3/06](#), [C03C 3/062](#) or [C03C 3/076](#), classification is made in both groups. If the range is covered by the three groups, classification is made in group [C03C 3/04](#) itself.

1/00 Ingredients generally applicable to manufacture of glasses, glazes, or vitreous enamels

- 1/002 . {Use of waste materials, e.g. slags}
- 1/004 . {Refining agents ([refining C03B 5/225](#))}
- 1/006 . {to produce glass through wet route}
- 1/008 . . {for the production of films or coatings}
- 1/02 . Pretreated ingredients
- 1/022 . . {Purification of silica sand or other minerals}
- 1/024 . . {Chemical treatment of cullet or glass fibres}
- 1/026 . . {Pelletisation or prereacting of powdered raw materials ([apparatus or methods C03B 1/02](#))}
- 1/028 . . {Ingredients allowing introduction of lead or other easily volatile or dusty compounds}
- 1/04 . Opacifiers, e.g. fluorides or phosphates; Pigments
- 1/06 . . to produce non-uniformly pigmented, e.g. speckled, marbled, or veined products
- 1/08 . to produce crackled effects
- 1/10 . to produce uniformly-coloured transparent products
- 1/105 . . {by the addition of colorants to the forehearth of the glass melting furnace}

3/00 Glass compositions

- 3/045 . . {Silicon oxycarbide, oxynitride or oxycarbonitride glasses}
- 3/06 . . with more than 90% silica by weight, e.g. quartz {([C03C 3/045](#) takes precedence)}
- 3/061 . . . {by leaching a soluble phase and consolidating}
- 3/062 . . with less than 40% silica by weight
- 3/064 . . . containing boron
- 3/066 containing zinc
- 3/068 containing rare earths
- 3/07 . . . containing lead
- 3/072 containing boron
- 3/074 containing zinc
- 3/0745 {containing more than 50% lead oxide, by weight}
- 3/076 . . with 40% to 90% silica, by weight {([C03C 3/045](#) takes precedence)}
- 3/078 . . . containing an oxide of a divalent metal, e.g. an oxide of zinc
- 3/083 . . . containing aluminium oxide or an iron compound
- 3/085 containing an oxide of a divalent metal

3/087	. . . . . containing calcium oxide, e.g. common sheet or container glass	4/0071	. {for laserable glass}
3/089	. . . containing boron	4/0078	. {for glass for dosimeters}
3/091	. . . . . containing aluminium	4/0085	. {for UV-transmitting glass}
3/093	. . . . . containing zinc or zirconium	4/0092	. {for glass with improved high visible transmittance, e.g. extra-clear glass}
3/095	. . . containing rare earths	4/02	. for coloured glass
3/097	. . . containing phosphorus, niobium or tantalum	4/04	. for photosensitive glass
3/102	. . . containing lead	4/06	. . for phototropic or photochromic glass
3/105	. . . . . containing aluminium	4/065	. . . {for silver-halide free photochromic glass}
3/108	. . . . . containing boron	4/08	. for glass selectively absorbing radiation of specified wave lengths
3/11	. . . containing halogen or nitrogen	4/082	. . {for infra-red absorbing glass}
3/111	. . . . . {containing nitrogen}	4/085	. . {for ultra-violet absorbing glass}
3/112	. . . . . containing fluorine	4/087	. . {for X-rays absorbing glass}
3/115	. . . . . containing boron	4/10	. for infra-red transmitting glass
3/118	. . . . . containing aluminium	4/12	. for luminescent glass; for fluorescent glass
3/12	. Silica-free oxide glass compositions	4/14	. for electro-conductive glass
3/122	. . {containing oxides of As, Sb, Bi, Mo, W, V, Te as glass formers}	4/16	. for dielectric glass
3/125	. . {containing aluminium as glass former}	4/18	. for ion-sensitive glass
3/127	. . {containing TiO ₂ as glass former}	4/20	. for chemical resistant glass
3/14	. . containing boron	8/00	Enamels; Glazes (cold glazes for ceramics (C04B 41/48)); Fusion seal compositions being frit compositions having non-frit additions
3/142	. . . {containing lead}	8/02	. Frit compositions, i.e. in a powdered or comminuted form
3/145	. . . containing aluminium or beryllium	8/04	. . containing zinc
3/15	. . . containing rare earths	8/06	. . containing halogen
3/155	. . . . . containing zirconium, titanium, tantalum or niobium	8/08	. . containing phosphorus
3/16	. . containing phosphorus	8/10	. . containing lead
3/17	. . . containing aluminium or beryllium	8/12	. . . containing titanium or zirconium
3/19	. . . containing boron	8/14	. Glass frit mixtures having non-frit additions, e.g. opacifiers, colorants, mill-additions
3/21	. . . containing titanium, zirconium, vanadium, tungsten or molybdenum	8/16	. . with vehicle or suspending agents, e.g. slip
3/23	. . containing halogen and at least one oxide, e.g. oxide of boron	8/18	. . containing free metals
3/247	. . . containing fluorine and phosphorus	8/20	. . containing titanium compounds; containing zirconium compounds
3/253	. . containing germanium	8/22	. containing two or more distinct frits having different compositions
3/32	. Non-oxide glass compositions, e.g. binary or ternary halides, sulfides or nitrides of germanium, selenium or tellurium	8/24	. Fusion seal compositions being frit compositions having non-frit additions, i.e. for use as seals between dissimilar materials, e.g. glass and metal; Glass solders
3/321	. . {Chalcogenide glasses, e.g. containing S, Se, Te}	8/245	. . {containing more than 50% lead oxide, by weight}
3/323	. . . {containing halogen, e.g. chalcogen halide glasses}	10/00	Devitrified glass ceramics, i.e. glass ceramics having a crystalline phase dispersed in a glassy phase and constituting at least 50% by weight of the total composition
3/325	. . {Fluoride glasses}	10/0009	. {containing silica as main constituent}
3/326	. . . {containing beryllium}	10/0018	. {containing SiO ₂ , Al ₂ O ₃ and monovalent metal oxide as main constituents}
3/328	. . {Nitride glasses}	10/0027	. . {containing SiO ₂ , Al ₂ O ₃ , Li ₂ O as main constituents}
4/00	Compositions for glass with special properties	10/0036	. {containing SiO ₂ , Al ₂ O ₃ and a divalent metal oxide as main constituents}
NOTE		10/0045	. . {containing SiO ₂ , Al ₂ O ₃ and MgO as main constituents}
	When classifying in group C03C 4/00, classification is also made in the appropriate groups of group C03C 3/00 according to the glass composition.	10/0054	. {containing PbO, SnO ₂ , B ₂ O ₃ }
4/0007	. {for biologically-compatible glass}	10/0063	. {containing waste materials, e.g. slags}
4/0014	. . {Biodegradable glass}	10/0072	. {having a ferro-electric crystal phase}
4/0021	. . {for dental use}	10/0081	. {having a magnetic crystal phase}
4/0028	. {for crystal glass, e.g. lead-free crystal glass}	10/009	. {having a superconducting crystal phase}
4/0035	. {for soluble glass for controlled release of a compound incorporated in said glass}		
4/0042	. {for glass comprising or including particular isotopes}		
4/005	. {for opaline glass}		
4/0057	. {for ultrasonic delay lines glass}		
4/0064	. {for self-destructing glass (C03C 4/0014 takes precedence)}		

10/16	. Halogen containing crystalline phase	17/004	. . . {Coating the inside}
11/00	Multi-cellular glass{; Porous or hollow glass or glass particles}	17/005	. . . {Coating the outside}
11/002	. {Hollow glass particles}	17/006	. {with materials of composite character}
11/005	. {obtained by leaching after a phase separation step}	17/007	. . {containing a dispersed phase, e.g. particles, fibres or flakes, in a continuous phase}
11/007	. {Foam glass, e.g. obtained by incorporating a blowing agent and heating}	17/008	. . {comprising a mixture of materials covered by two or more of the groups C03C 17/02 , C03C 17/06 , C03C 17/22 and C03C 17/28 }
12/00	Powdered glass (C03C 8/02 takes precedence); Bead compositions	17/009	. . . {Mixtures of organic and inorganic materials, e.g. ormosils and ormocers}
12/02	. Reflective beads	17/02	. with glass (C03C 17/34 , C03C 17/44 take precedence)
13/00	Fibre or filament compositions (manufacture of fibres or filaments C03B 37/00)	17/04	. . by fritting glass powder
13/001	. {Alkali-resistant fibres}	17/06	. with metals (C03C 17/34 , C03C 17/44 take precedence)
13/002	. . {containing zirconium}	17/09	. . by deposition from the vapour phase
13/003	. {Conducting or semi-conducting fibres}	17/10	. . by deposition from the liquid phase
13/005	. {obtained by leaching of a soluble phase and consolidation}	17/22	. with other inorganic material (C03C 17/34 , C03C 17/44 take precedence)
13/006	. {Glass-ceramics fibres}	17/225	. . {Nitrides}
13/007	. . {containing zirconium}	17/23	. . Oxides (C03C 17/02 takes precedence)
13/008	. {Polycrystalline optical fibres}	17/245	. . . by deposition from the vapour phase
13/04	. Fibre optics, e.g. core and clad fibre compositions (light guides G02B 6/00)	17/2453	. . . . {Coating containing SnO ₂ }
13/041	. . {Non-oxide glass compositions}	17/2456	. . . . {Coating containing TiO ₂ }
13/042	. . . {Fluoride glass compositions}	17/25	. . . by deposition from the liquid phase
13/043	. . . {Chalcogenide glass compositions}	17/253	. . . . {Coating containing SnO ₂ }
13/044	. . . . {containing halogen, e.g. chalcogenide glass compositions}	17/256	. . . . {Coating containing TiO ₂ }
13/045	. . {Silica-containing oxide glass compositions}	17/27	. . . by oxidation of a coating previously applied
13/046	. . . {Multicomponent glass compositions}	17/28	. with organic material (C03C 17/34 , C03C 17/44 take precedence)
13/047	. . . {containing deuterium}	17/30	. . with silicon-containing compounds
13/048	. . {Silica-free oxide glass compositions}	17/32	. . with synthetic or natural resins (C03C 17/30 takes precedence)
13/06	. Mineral fibres, e.g. slag wool, mineral wool, rock wool	17/322	. . . {Polyurethanes or polyisocyanates}
14/00	Glass compositions containing a non-glass component, e.g. compositions containing fibres, filaments, whiskers, platelets, or the like, dispersed in a glass matrix (devitrified glass ceramics C03C 10/00)	17/324	. . . {Polyesters}
14/002	. {the non-glass component being in the form of fibres, filaments, yarns, felts or woven material}	17/326	. . . {Epoxy resins}
14/004	. {the non-glass component being in the form of particles or flakes}	17/328	. . . {Polyolefins}
14/006	. {the non-glass component being in the form of microcrystallites, e.g. of optically or electrically active material}	17/34	. with at least two coatings having different compositions (C03C 17/44 takes precedence)
14/008	. {the non-glass component being in molecular form}	17/3405	. . {with at least two coatings of organic materials (C03C 17/36 , C03C 17/42 take precedence)}
<u>Surface treatment of glass; Surface treatment of fibres or filaments from glass, minerals or slag</u>		17/3411	. . {with at least two coatings of inorganic materials (C03C 17/36 , C03C 17/42 take precedence)}
15/00	Surface treatment of glass, not in the form of fibres or filaments, by etching (etching or surface-brightening compositions, in general C09K 13/00)	17/3417	. . . {all coatings being oxide coatings}
15/02	. for making a smooth surface	17/3423	. . . {at least one of the coatings comprising a suboxide}
15/025	. . {for polishing crystal glass, i.e. lead glass}	17/3429	. . . {at least one of the coatings being a non-oxide coating}
17/00	Surface treatment of glass, not in the form of fibres or filaments, by coating (optical coatings of optical elements G02B 1/10)	17/3435	. . . . {comprising a nitride, oxynitride, boronitride or carbonitride}
17/001	. {General methods for coating; Devices therefor}	17/3441	. . . . {comprising carbon, a carbide or oxycarbide}
17/002	. . {for flat glass, e.g. float glass}	17/3447	. . . . {comprising a halide}
17/003	. . {for hollow ware, e.g. containers}	17/3452	. . . . {comprising a fluoride}
		17/3458	. . . . {comprising a chloride}
		17/3464	. . . . {comprising a chalcogenide}
		17/347	. . . . {comprising a sulfide or oxysulfide}
		17/3476	. . . . {comprising a selenide or telluride}
		17/3482	. . . . {comprising silicon, hydrogenated silicon or a silicide}
		17/3488	. . . . {comprising a boride or phosphide}
		17/3494	. . . . {comprising other salts, e.g. sulfate, phosphate}

- 17/36 . . . at least one coating being a metal
- 17/3602 . . . {the metal being present as a layer}
- 17/3605 {Coatings of the type glass/metal/inorganic compound}
- 17/3607 {Coatings of the type glass/inorganic compound/metal}
- 17/361 {Coatings of the type glass/metal/inorganic compound/metal/inorganic compound/other}
- 17/3613 {Coatings of type glass/inorganic compound/metal/inorganic compound/metal/other}
- 17/3615 {Coatings of the type glass/metal/other inorganic layers, at least one layer being non-metallic}
- 17/3618 {Coatings of type glass/inorganic compound/other inorganic layers, at least one layer being metallic}
- 17/3621 {one layer at least containing a fluoride}
- 17/3623 {one layer at least containing a chloride, bromide or iodide}
- 17/3626 {one layer at least containing a nitride, oxynitride, boronitride or carbonitride}
- 17/3628 {one layer at least containing a sulfide}
- 17/3631 {one layer at least containing a selenide or telluride}
- 17/3634 {one layer at least containing carbon, a carbide or oxycarbide}
- 17/3636 {one layer at least containing silicon, hydrogenated silicon or a silicide}
- 17/3639 {Multilayers containing at least two functional metal layers}
- 17/3642 {the multilayer coating containing a metal layer}
- 17/3644 {the metal being silver}
- 17/3647 {in combination with other metals, silver being more than 50%}
- 17/3649 {made of metals other than silver}
- 17/3652 {the coating stack containing at least one sacrificial layer to protect the metal from oxidation}
- 17/3655 {the multilayer coating containing at least one conducting layer}
- 17/3657 {the multilayer coating having optical properties}
- 17/366 {Low-emissivity or solar control coatings}
- 17/3663 {specially adapted for use as mirrors}
- 17/3665 {specially adapted for use as photomask}
- 17/3668 {the multilayer coating having electrical properties}
- 17/3671 {specially adapted for use as electrodes}
- 17/3673 {specially adapted for use in heating devices for rear window of vehicles}
- 17/3676 {specially adapted for use as electromagnetic shield}
- 17/3678 {specially adapted for use in solar cells}
- 17/3681 {the multilayer coating being used in glazing, e.g. windows or windscreens}
- 17/3684 {the multilayer coating being used for decoration purposes}
- 17/3686 {the multilayer coating being used for ovens}
- 17/3689 {one oxide layer being obtained by oxidation of a metallic layer}
- 17/3692 {one metallic layer being obtained by reduction of an oxide layer}
- 17/3694 {one layer having a composition gradient through its thickness}
- 17/3697 {one metallic layer at least being obtained by electroless plating}
- 17/38 at least one coating being a coating of an organic material
- 17/40 all coatings being metal coatings
- 17/42 . . . at least one coating of an organic material and at least one non-metal coating
- 17/44 . Lustring
- 19/00** **Surface treatment of glass, not in the form of fibres or filaments, by mechanical means (sand-blasting, grinding, or polishing glass B24)**
- 21/00** **Treatment of glass, not in the form of fibres or filaments, by diffusing ions or metals in the surface**
- 21/001 . {in liquid phase, e.g. molten salts, solutions}
- 21/002 . . {to perform ion-exchange between alkali ions (C03C 21/005 takes precedence)}
- 21/003 . . . {under application of an electrical potential difference}
- 21/005 . . {to introduce in the glass such metals or metallic ions as Ag, Cu}
- 21/006 . . {to perform an exchange of the type $Xn^{+} \rightarrow nH^{+}$ }
- 21/007 . {in gaseous phase}
- 21/008 . {in solid phase, e.g. using pastes, powders}
- 23/00** **Other surface treatment of glass not in the form of fibres or filaments**
- 23/0005 . {by irradiation}
- 23/001 . . {by infra-red light}
- 23/0015 . . {by visible light}
- 23/002 . . {by ultra-violet light}
- 23/0025 . . {by a laser beam}
- 23/003 . . {by X-rays}
- 23/0035 . . {by gamma-rays}
- 23/004 . . {by electrons, protons or alpha-particles}
- 23/0045 . . {by neutrons}
- 23/005 . . {by atoms}
- 23/0055 . . {by ion implantation}
- 23/006 . . {by plasma or corona discharge}
- 23/0065 . . {by microwave radiation}
- 23/007 . {by thermal treatment}
- 23/0075 . {Cleaning of glass (specially adapted to plate glass B08B 11/00)}
- 23/008 . {comprising a lixiviation step}
- 23/0085 . {Drying; Dehydroxylation}
- 23/009 . {Poling glass}
- 23/0095 . {Solution impregnating; Solution doping; Molecular stuffing, e.g. of porous glass (in manufacture of preforms C03B 37/012)}
- 25/00** **Surface treatment of fibres or filaments from glass, minerals, or slags {(woven fabrics D03; non-woven fabrics D04; treatment of fabrics in general or non-chemical aspects of treatment of glass fabrics D06M)}**
- 25/002 . {by thermal treatment}
- 25/005 . {by mechanical means}
- 25/007 . {by solution impregnating; solution doping or molecular stuffing of porous glass}
- 25/10 . by coating
- 25/1005 . . {with materials of composite character}

- 25/101 . . . {containing particles, fibres or flakes, e.g. in a continuous phase}
- 25/1015 . . {with rubber latex-containing coatings}
- 25/102 . . {Coating with colouring agent-containing compositions, e.g. for obtaining coloured textiles}
- 25/1025 . . {Fibres used for reinforcing cement-based products}
- 25/103 . . . {with organic coatings}
- 25/1035 . . . {with inorganic coatings}
- 25/104 . . {to obtain optical fibres}
- 25/1045 . . . {with organic coatings or claddings}
- 25/105 {Organic claddings}
- 25/1055 {Organic coatings}
- 25/106 {Single coatings}
- 25/1065 {Multiple coatings}
- 25/107 . . . {with inorganic coatings}
- 25/1075 {Carbon}
- 25/108 {Metals}
- 25/1085 {Multiple inorganic coatings}
- 25/109 . . . {with at least one organic coating and at least one inorganic coating}
- 25/1095 . . {to obtain coated fabrics}
- 25/12 . . General methods for coating; Devices therefor
- 25/14 . . . Spraying, e.g. pulverisation
- 25/143 {Pulverisation on continuous fibres}
- 25/146 {Pulverisation on fibres in suspension in a gaseous medium}
- 25/16 . . . Dipping
- 25/18 . . . using extrusion devices
- 25/20 . . . Contacting the fibres with applicators, e.g. rolls
- 25/22 . . . Depositing from the vapour phase
- 25/223 {by chemical vapour deposition or pyrolysis}
- 25/226 {by sputtering}
- 25/24 . . Coatings containing organic materials
- 25/243 . . . {Oils, waxes, fats or derivatives thereof}
- 25/246 . . . {Non-macromolecular compounds not covered by C03C 25/243}
- 25/26 . . . Macromolecular compounds or prepolymers {, e.g. sizing compositions}
- 25/28 obtained by reactions involving only carbon-to-carbon unsaturated bonds
- 25/285 {Acrylic resins}
- 25/30 Polyolefins
- 25/305 {Polyfluoro olefins}
- 25/32 obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds
- 25/321 {Starch or starch derivatives}
- 25/323 {Esters or alkyd resins}
- 25/325 {Polycarbonates}
- 25/326 {Polyureas or polyurethanes}
- 25/328 {Polyamides}
- 25/34 Condensation polymers of aldehydes, e.g. with phenols, ureas, melamines, amides or amines
- 25/36 Epoxy resins
- 25/38 . . . Organo-metal compounds
- 25/40 . . . Organo-silicon compounds
- 25/42 . . Coatings containing inorganic materials
- 25/44 . . . Carbon, e.g. graphite
- 25/46 . . . Metals
- 25/48 . . with two or more coatings having different compositions {C03C 25/104 takes precedence}

NOTE

In groups C03C 25/24 - C03C 25/40, organic coating compositions also cover mixtures of organic and inorganic compounds. A coating composition which cannot be completely classified in a single one of groups C03C 25/24 - C03C 25/40 should be classified in each relevant group, in accordance with the following rules:

- Compositions containing only one macromolecular constituent and one or more conventional inorganic or non-macromolecular compounds, e.g. acids, solvents, are classified according to the macromolecular constituent only.
- Compositions containing two or more macromolecular constituents and further conventional inorganic or non-macromolecular compounds are classified according to the macromolecular constituent present in the highest proportion. If, however, the other macromolecular constituents represent invention information, classification is also made for these constituents.
- Compositions containing macromolecular constituents present in

comparable proportions are classified according to these constituents.

- If non-macromolecular compounds in the composition also represent invention information, C03C 25/38, for specific solvents, fillers, dyes or pigments, surfactants, biocides or the like in C03C 25/24 or subgroups.

NOTE

If one or more of the individual coatings are of interest, for each of these coatings classification is also made in one or more of groups C03C 25/24 - C03C 25/46, in accordance with the note before group C03C 25/24.

- 25/50 . . . Coatings containing organic materials only
- 25/52 . . . Coatings containing inorganic materials only
- 25/54 . . . Combinations of one or more coatings containing organic materials only with one or more coatings containing inorganic materials only
- 25/60 . . by diffusing ions or metals in the surface
- 25/601 . . {in the liquid phase, e.g. using molten salts or solutions}
- 25/602 . . . {to perform ion-exchange between alkali ions (C03C 25/605 takes precedence)}
- 25/603 {under application of an electrical potential difference}
- 25/605 . . . {to introduce in the glass such metals or metallic ions as Ag or Cu}
- 25/606 . . . {to perform an exchange of the type $Xn+ \rightarrow nH+$ }

- 25/607 . . {in the gaseous phase}
- 25/608 . . {in the solid phase, e.g. using pastes, powders}
- 25/62 . . by application of electric or wave energy or particle radiation, or by ion implantation (for drying or dehydration [C03C 25/64](#))
- 25/6206 . . {Electromagnetic waves}
- 25/6213 . . . {Infra-red}
- 25/622 . . . {Visible light}
- 25/6226 . . . {Ultra-violet}
- 25/6233 . . . {Laser}
- 25/624 . . . {X-rays}
- 25/6246 . . . {Gamma-rays}
- 25/6253 . . . {Microwaves}
- 25/626 . . {Particle radiation or ion implantation}
- 25/6266 . . . {Electrons, protons or alpha-particles}
- 25/6273 . . . {Neutrons}
- 25/628 . . . {Atoms}
- 25/6286 . . . {Ion implantation}
- 25/6293 . . {Plasma or corona discharge}
- 25/64 . . Drying; Dehydration; Dehydroxylation
- 25/66 . . Chemical treatment, e.g. leaching, acid alkali treatment (dehydroxylation [C03C 25/46](#))
- 25/68 . . by etching
- 25/70 . . Cleaning, e.g. for reuse ([C03C 25/002](#), [C03C 25/62](#) and [C03C 25/66](#) take precedence)

Joining glass to glass or to other materials (fusion seal compositions [C03C 8/24](#))

NOTE

Layered products classified in groups [C03C 27/00](#) or [C03C 29/00](#) are also classified in subclass [B32B](#).

- 27/00** **Joining pieces of glass to pieces of other inorganic material; Joining glass to glass other than by fusing** ([C03C 17/00](#) takes precedence; layered structures comprising at least one glass sheet [B32B 17/00](#); wired glass [C03B](#); joining glass to ceramics [C04](#))
- 27/005 . . {with compositions containing more than 50% lead oxide by weight}
- 27/02 . . by fusing glass directly to metal
- 27/04 . . Joining glass to metal by means of an interlayer
- 27/042 . . {consisting of a combination of materials selected from glass, glass-ceramic or ceramic material with metals, metal oxides or metal salts}
- 27/044 . . . {of glass, glass-ceramic or ceramic material only}
- 27/046 . . . {of metals, metal oxides or metal salts only}
- 27/048 . . {consisting of an adhesive specially adapted for that purpose}
- 27/06 . . Joining glass to glass by processes other than fusing (fusing [C03B 23/20](#); units for use as elements for closing wall or like openings and comprising two or more parallel glass panes in spaced relationship, the panes being permanently secured together [E06B 3/66](#))
- 27/08 . . with the aid of intervening metal
- 27/10 . . with the aid of adhesive specially adapted for that purpose

29/00 **Joining metals with the aid of glass**

2201/00 **Glass compositions**

- 2201/02 . . Pure silica glass, e.g. pure fused quartz
- 2201/06 . . Doped silica-based glasses
- 2201/08 . . . containing boron or halide
- 2201/10 . . . containing boron ([C03C 2201/14](#) takes precedence)
- 2201/11 . . . containing chlorine
- 2201/12 . . . containing fluorine ([C03C 2201/14](#) takes precedence)
- 2201/14 . . . containing boron and fluorine
- 2201/20 . . containing non-metals other than boron or halide
- 2201/21 . . . containing molecular hydrogen
- 2201/22 . . . containing deuterium
- 2201/23 . . . containing hydroxyl groups
- 2201/24 . . . containing nitrogen, e.g. silicon oxy-nitride glasses
- 2201/26 . . . containing carbon
- 2201/28 . . . containing phosphorus
- 2201/30 . . containing metals
- 2201/31 . . . containing germanium
- 2201/32 . . . containing aluminium ([C03C 2201/36](#) takes precedence)
- 2201/34 . . . containing rare earth metals ([C03C 2201/36](#) takes precedence)
- 2201/3405 Scandium
- 2201/3411 Yttrium
- 2201/3417 Lanthanum
- 2201/3423 Cerium
- 2201/3429 Praseodymium
- 2201/3435 Neodymium
- 2201/3441 Samarium
- 2201/3447 Europium
- 2201/3452 Gadolinium
- 2201/3458 Terbium
- 2201/3464 Dysprosium
- 2201/347 Holmium
- 2201/3476 Erbium
- 2201/3482 Thulium
- 2201/3488 Ytterbium
- 2201/3494 Lutetium
- 2201/36 containing rare earth metals and aluminium, e.g. Er-Al co-doped
- 2201/40 . . . containing transition metals other than rare earth metals, e.g. Zr, Nb, Ta or Zn
- 2201/42 containing titanium
- 2201/50 . . . containing alkali metals
- 2201/54 . . . containing beryllium, magnesium or alkaline earth metals
- 2201/58 . . . containing metals in non-oxide form, e.g. CdSe
- 2201/60 . . containing organic material
- 2201/80 . . containing bubbles or microbubbles, e.g. opaque quartz glass
- 2203/00** **Production processes**
- 2203/10 . . Melting processes
- 2203/20 . . Wet processes, e.g. sol-gel process
- 2203/22 . . . using colloidal silica sols
- 2203/24 . . . using alkali silicate solutions
- 2203/26 . . . using alkoxides
- 2203/27 . . . the alkoxides containing other organic groups, e.g. alkyl groups
- 2203/28 functional groups, e.g. vinyl, glycidyl
- 2203/30 . . Additives

2203/32	. . . Catalysts	2217/214	. . . Al ₂ O ₃
2203/34	. . adding silica powder	2217/215	. . . In ₂ O ₃
2203/36	. . Gel impregnation	2217/216	. . . ZnO
2203/40	. Gas-phase processes	2217/217	. . . FeOx, CoOx, NiOx
2203/42	. . using silicon halides as starting materials	2217/218	. . . V ₂ O ₅ , Nb ₂ O ₅ , Ta ₂ O ₅
2203/44	. . . chlorine containing	2217/219	. . . CrOx, MoOx, WOx
2203/46	. . . fluorine containing	2217/22	. . . ZrO ₂
2203/50	. After-treatment	2217/228	. . . Other specific oxides
2203/52	. . Heat-treatment	2217/229	. . . Non-specific enumeration
2203/54	. . . in a dopant containing atmosphere	2217/23	. . . Mixtures
2204/00	Glasses, glazes or enamels with special properties	2217/231	. . . . In ₂ O ₃ /SnO ₂
2204/02	. Antibacterial glass, glaze or enamel	2217/232	. . . . CdO/SnO ₂
2204/04	. Opaque glass, glaze or enamel	2217/24	. . . Doped oxides
2204/06	. . opacified by gas	2217/241	. . . . with halides
2204/08	. Glass having a rough surface	2217/242	. . . . with rare earth metals
2205/00	Compositions applicable for the manufacture of vitreous enamels or glazes	2217/243	. . . . with S, Se, Te
2205/02	. for opaque enamels or glazes	2217/244	. . . . with Sb
2205/04	. for self-cleaning enamels or glazes	2217/25	. . Metals
2205/06	. for dental use	2217/251	. . . Al, Cu, Mg or noble metals
2207/00	Compositions specially applicable for the manufacture of vitreous enamels	2217/252	. . . . Al
2207/02	. containing ingredients for securing a good bond between the vitrified enamel and the metal	2217/253	. . . . Cu
2207/04	. for steel	2217/254	. . . . Noble metals
2207/06	. for cast iron	2217/255	. . . . . Au
2207/08	. for light metals	2217/256	. . . . . Ag
2207/10	. for copper, silver or gold	2217/257	. . . Refractory metals
2209/00	Compositions specially applicable for the manufacture of vitreous glazes	2217/258	. . . . Ti, Zr, Hf
2209/02	. to produce non-uniformly coloured glazes	2217/259	. . . . V, Nb, Ta
2213/00	Glass fibres or filaments	2217/26	. . . . Cr, Mo, W
2213/02	. Biodegradable glass fibres	2217/261	. . . Iron-group metals, i.e. Fe, Co or Ni
2213/04	. Dual fibres	2217/262	. . . Light metals other than Al
2214/00	Nature of the non-vitreous component	2217/263	. . . Metals other than noble metals, Cu or Hg
2214/02	. Fibres; Filaments; Yarns; Felts; Woven material		
2214/03	. . surface treated, e.g. coated		
2214/04	. Particles; Flakes		
2214/05	. . surface treated, e.g. coated		
2214/06	. Whiskers ss		
2214/07	. . surface treated, e.g. coated		
2214/08	. Metals		
2214/10	. Superconducting materials		
2214/12	. Polymers		
2214/14	. Waste material, e.g. to be disposed of		
2214/16	. Microcrystallites, e.g. of optically or electrically active material		
2214/17	. in molecular form (for molecular composites)		
2214/20	. Glass-ceramics matrix		
2214/30	. Methods of making the composites		
2214/32	. comprising a sol-gel process		
2214/34	. comprising an impregnation by molten glass step		
2217/00	Coatings on glass		
2217/20	. Materials for coating a single layer on glass		
2217/21	. . Oxides		
2217/211	. . . SnO ₂		
2217/212	. . . TiO ₂		
2217/213	. . . SiO ₂		
		2217/268	. . . Other specific metals
		2217/269	. . . Non-specific enumeration
		2217/27	. . . Mixtures of metals, alloys
		2217/28	. . Other inorganic materials
		2217/281	. . . Nitrides
		2217/282	. . . Carbides, silicides
		2217/283	. . . Borides, phosphides
		2217/284	. . . Halides
		2217/285	. . . . Fluorides
		2217/286	. . . . Chlorides
		2217/287	. . . Chalcogenides
		2217/288	. . . . Sulfides
		2217/289	. . . . Selenides, tellurides
		2217/29	. . Mixtures
		2217/40	. Coatings comprising at least one inhomogeneous layer
		2217/42	. . consisting of particles only
		2217/425	. . consisting of a porous layer
		2217/43	. . consisting of a dispersed phase in a continuous phase
		2217/44	. . . characterized by the composition of the continuous phase
		2217/445	. . . . Organic continuous phases
		2217/45	. . . . Inorganic continuous phases
		2217/452	. . . . . Glass

NOTE

This code is only to be used in combination with C03C classification symbols having the +IDT notation.

2217/46	. . . characterized by the dispersed phase	2218/322	. . . Oxidation
2217/465	. . . . having a specific shape	2218/324	. . . De-oxidation
2217/47	. . . . consisting of a specific material	2218/326	. . . Nitriding
2217/475	. . . . . Inorganic materials	2218/328	. . . Partly or completely removing a coating
2217/476	. . . . . Tin oxide or doped tin oxide	2218/33	. . . . by etching
2217/477	. . . . . Titanium oxide	2218/335	. . Reverse coating
2217/478	. . . . . Silica	2218/34	. . Masking
2217/479	. . . . . Metals	2218/345	. . Surface crystallisation
2217/48	. . . . having a specific function	2218/35	. . Exuding
2217/485	. . . . . Pigments	2218/355	. . Temporary coating
2217/70	. Properties of coatings	2218/36	. . Underside coating of a glass sheet
2217/71	. . Photocatalytic coatings	2218/365	. . Coating different sides of a glass substrate
2217/72	. . Decorative coatings		
2217/73	. . Anti-reflective coatings with specific characteristics		
2217/732	. . . made of a single layer		
2217/734	. . . comprising an alternation of high and low refractive indexes		
2217/74	. . UV-absorbing coatings		
2217/75	. . Hydrophilic and oleophilic coatings		
2217/76	. . Hydrophobic and oleophobic coatings		
2217/77	. . Coatings having a rough surface		
2217/775	. . . to provide anti-slip characteristics		
2217/78	. . Coatings specially designed to be durable, e.g. scratch-resistant		
2217/90	. Other aspects of coatings		
2217/91	. . Coatings containing at least one layer having a composition gradient through its thickness		
2217/92	. . Coating of crystal glass		
2217/93	. . Coatings containing a reinforcement comprising fibers or grids		
2217/94	. . Transparent conductive oxide layers [TCO] being part of a multilayer coating		
2217/944	. . . Layers comprising zinc oxide		
2217/948	. . . Layers comprising indium tin oxide [ITO]		
2218/00	Methods for coating glass		
2218/10	. Deposition methods		
2218/11	. . from solutions or suspensions		
2218/111	. . . by dipping, immersion		
2218/112	. . . by spraying		
2218/113	. . . by sol-gel processes		
2218/114	. . . by brushing, pouring or doctorblading		
2218/115	. . . electro-enhanced deposition		
2218/116	. . . by spin-coating, centrifugation		
2218/117	. . . by ultrasonic methods		
2218/118	. . . by roller-coating		
2218/119	. . . by printing		
2218/13	. . from melts		
2218/15	. . from the vapour phase		
2218/151	. . . by vacuum evaporation		
2218/152	. . . by cvd		
2218/1525	. . . . by atmospheric CVD		
2218/153	. . . . by plasma-enhanced cvd		
2218/154	. . . by sputtering		
2218/155	. . . . by reactive sputtering		
2218/156	. . . . by magnetron sputtering		
2218/17	. . from a solid phase		
2218/30	. Aspects of methods for coating glass not covered above		
2218/31	. . Pre-treatment		
2218/32	. . After-treatment		