SECTION C — CHEMISTRY; METALLURGY

C03 GLASS; MINERAL OR SLAG WOOL

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

Subclass index

CHEMICAL COMPOSITION
- For glasses....1/00, 3/00, 4/00, 6/00, 10/00-12/00
- For glazes, for vitreous enamels....1/00, 8/00
- For devitrified glass ceramics....10/00
- For fibres or filaments....13/00
- For glass containing a non-glass component....14/00

SURFACE TREATMENTS
- By diffusion into the surface....21/00
- By coating....17/00
- Other treatments....15/00, 19/00, 23/00
- Of fibres or filaments....25/00

JOINING....27/00, 29/00
GLASS OF SPECIAL STRUCTURE....10/00-12/00, 14/00

Chemical composition of glasses, glazes, or vitreous enamels

Note(s) [4]

In groups C03C 1/00-C03C 14/00, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.

1/00 Ingredients generally applicable to manufacture of glasses, glazes or vitreous enamels [1, 2006.01]

1/02 • Pretreated ingredients **[1, 2006.01]**

1/04 • Opacifiers, e.g. fluorides or phosphates; Pigments **[1, 2006.01]**

1/06 • • to produce non-uniformly pigmented, e.g. speckled, marbled, or veined products **[1, 2006.01]**

1/08 • to produce crackled effects **[1, 2006.01]**

1/10 • to produce uniformly-coloured transparent products **[1, 2006.01]**

3/00 Glass compositions (glass batch compositions C03C 6/00) **[1, 4, 2006.01]**

3/04 • containing silica **[1, 4, 2006.01]**

Note(s) [4]

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.

3/06 • • with more than 90% silica by weight, e.g. quartz **[1, 2006.01]**

3/062 • • with less than 40% silica by weight **[4, 2006.01]**

3/064 • • • containing boron **[4, 2006.01]**

3/066 • • • • containing zinc **[4, 2006.01]**

3/068 • • • • containing rare earths **[4, 2006.01]**

3/07 • • • containing lead **[4, 2006.01]**

3/072 • • • • containing boron **[4, 2006.01]**

3/074 • • • • • containing zinc **[4, 2006.01]**

3/076 • • with 40% to 90% silica by weight **[4, 2006.01]**

3/078 • • • containing an oxide of a divalent metal, e.g. an oxide of zinc **[4, 2006.01]**

3/083 • • • containing aluminium oxide or an iron compound **[4, 2006.01]**

3/085 • • • • containing an oxide of a divalent metal **[4, 2006.01]**

3/087 • • • • • containing calcium oxide, e.g. common sheet or container glass **[4, 2006.01]**

3/089 • • • containing boron **[4, 2006.01]**

3/091 • • • • containing aluminium **[4, 2006.01]**

3/093 • • • • • containing zinc or zirconium **[4, 2006.01]**

3/095 • • • containing rare earths **[4, 2006.01]**

3/097 • • • containing phosphorus, niobium or tantalum **[4, 2006.01]**

3/102 • • • containing lead **[4, 2006.01]**

3/105 • • • • containing aluminium **[4, 2006.01]**

3/108 • • • • containing boron **[4, 2006.01]**

3/11 • • • containing halogen or nitrogen **[4, 2006.01]**

3/112 • • • • containing fluorine **[4, 2006.01]**

3/115 • • • • • containing boron **[4, 2006.01]**

3/118 • • • • • • containing aluminium **[4, 2006.01]**

3/12 • Silica-free oxide glass compositions **[1, 4, 2006.01]**

3/14 • • containing boron **[1, 4, 2006.01]**

3/145 • • • containing aluminium or beryllium **[4, 2006.01]**

3/15 • • • containing rare earths **[4, 2006.01]**

3/155 • • • • containing zirconium, titanium, tantalum or niobium **[4, 2006.01]**

3/16 • • containing phosphorus **[1, 4, 2006.01]**
3/17 • • • containing aluminium or beryllium **[4, 2006.01]**
3/19 • • • containing boron **[4, 2006.01]**
3/21 • • • containing titanium, zirconium, vanadium, tungsten or molybdenum **[4, 2006.01]**
3/23 • • containing halogen and at least one oxide, e.g. oxide of boron **[4, 2006.01]**
3/247 • • • containing fluorine and phosphorus **[4, 2006.01]**
3/253 • • containing germanium **[4, 2006.01]**
3/32 • Non-oxide glass compositions, e.g. binary or ternary halides, sulfides, or nitrides of germanium, selenium or tellurium **[4, 2006.01]**

4/00 Compositions for glass with special properties [4, 2006.01]

Note(s) [4]

When classifying in group C03C 4/00, classification is also made in the appropriate subgroups of group C03C 3/00 according to the glass composition.

4/02 • for coloured glass **[4, 2006.01]**
4/04 • for photosensitive glass **[4, 2006.01]**
4/06 • • for phototropic or photochromic glass **[4, 2006.01]**
4/08 • for glass selectively absorbing radiation of specified wave lengths **[4, 2006.01]**
4/10 • for infra-red transmitting glass **[4, 2006.01]**
4/12 • for luminescent glass; for fluorescent glass **[4, 2006.01]**
4/14 • for electro-conductive glass **[4, 2006.01]**
4/16 • for dielectric glass **[4, 2006.01]**
4/18 • for ion-sensitive glass **[4, 2006.01]**
4/20 • for chemical resistant glass **[4, 2006.01]**

6/00 Glass batch compositions (single ingredients of batch compositions C03C 1/00) **[4, 2006.01]**

Note(s) [4]

This group covers also compositions which are intended to be heated sufficiently for their ingredients to fuse into a glass, e.g. glass furnace charges.

6/02 • containing silicates, e.g. cullet **[4, 2006.01]**
6/04 • containing uncombined silica, e.g. sand **[4, 2006.01]**
6/06 • containing halogen compounds **[4, 2006.01]**
6/08 • containing pellets or agglomerates **[4, 2006.01]**
6/10 • containing slag **[4, 2006.01]**

8/00 Enamels; Glazes (cold glazes for ceramics C04B 41/86)**; Fusion seal compositions being frit compositions having non-frit additions [4, 2006.01]**

8/02 • Frit compositions, i.e. in a powdered or comminuted form **[4, 2006.01]**
8/04 • • containing zinc **[4, 2006.01]**
8/06 • • containing halogen **[4, 2006.01]**
8/08 • • containing phosphorus **[4, 2006.01]**
8/10 • • containing lead **[4, 2006.01]**
8/12 • • • containing titanium or zirconium **[4, 2006.01]**
8/14 • Glass frit mixtures having non-frit additions, e.g. opacifiers, colorants, mill additions **[4, 2006.01]**
8/16 • • with vehicle or suspending agents, e.g. slip **[4, 2006.01]**
8/18 • • containing free metals **[4, 2006.01]**
8/20 • • containing titanium compounds; containing zirconium compounds **[4, 2006.01]**
8/22 • containing two or more distinct frits having different compositions **[4, 2006.01]**
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 **[4, 2006.01]**

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 [4, 2006.01]

10/02 • Non-silica and non-silicate crystalline phase, e.g. spinel, barium titanate **[4, 2006.01]**
10/04 • Silicate or polysilicate crystalline phase, e.g. mullite, diopside, sphene, plagioclase **[4, 2006.01]**
10/06 • • Divalent metal oxide aluminosilicate crystalline phase, e.g. anorthite, slagcerams **[4, 2006.01]**
10/08 • • • Magnesium aluminosilicate, e.g. cordierite **[4, 2006.01]**
10/10 • • Alkali metal aluminosilicate crystalline phase **[4, 2006.01]**
10/12 • • • Lithium aluminosilicate, e.g. spodumene, eucryptite **[4, 2006.01]**
10/14 • Silica crystalline phase, e.g. stuffed quartz, cristobalite **[4, 2006.01]**
10/16 • Halogen-containing crystalline phase **[4, 2006.01]**

11/00 Multi-cellular glass [1, 2006.01]

12/00 Powdered glass (C03C 8/02 takes precedence)**; Bead compositions [1, 4, 2006.01]**

12/02 • Reflective beads **[4, 2006.01]**

13/00 Fibre or filament compositions (manufacture of fibres or filaments C03B 37/00) **[1, 2006.01]**

13/02 • containing compounds of titanium or zirconium **[4, 2006.01]**
13/04 • Fibre optics, e.g. core and clad fibre compositions **[4, 2006.01]**
13/06 • Mineral fibres, e.g. slag wool, mineral wool, rock wool **[4, 2006.01]**

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 (glass batch compositions C03C 6/00; devitrified glass-ceramics C03C 10/00) **[4, 2006.01]**

Surface treatment of glass; Surface treatment of fibres or filaments from glass, minerals or slags

Note(s) [4]

Treatment of materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone is classified in subclass C04B.

15/00 Surface treatment of glass, not in the form of fibres or filaments, by etching [1, 2, 2006.01]

15/02 • for making a smooth surface **[1, 2006.01]**

17/00 Surface treatment of glass, e.g. of devitrified glass, not in the form of fibres or filaments, by coating [1, 2006.01]

17/02 • with glass (C03C 17/34, C03C 17/44 take precedence) **[1, 3, 2006.01]**
17/04 • • by fritting glass powder **[1, 2006.01]**
17/06 • with metals (C03C 17/34, C03C 17/44 take precedence) **[1, 3, 2006.01]**
17/09 • • by deposition from the vapour phase **[3, 2006.01]**
17/10 • • by deposition from the liquid phase **[1, 2006.01]**

17/22 • with other inorganic material (C03C 17/34, C03C 17/44 take precedence) **[1, 3, 2006.01]**
17/23 • • Oxides (C03C 17/02 takes precedence) **[3, 2006.01]**
17/245 • • • by deposition from the vapour phase **[3, 2006.01]**
17/25 • • • by deposition from the liquid phase **[3, 2006.01]**
17/27 • • • by oxidation of a coating previously applied **[3, 2006.01]**
17/28 • with organic material (C03C 17/34, C03C 17/44 take precedence) **[1, 3, 2006.01]**
17/30 • • with silicon-containing compounds **[1, 2006.01]**
17/32 • • with synthetic or natural resins (C03C 17/30 takes precedence) **[1, 2006.01]**
17/34 • with at least two coatings having different compositions (C03C 17/44 takes precedence) **[3, 2006.01]**
17/36 • • at least one coating being a metal **[3, 2006.01]**
17/38 • • • at least one coating being a coating of an organic material **[3, 2006.01]**
17/40 • • • all coatings being metal coatings **[3, 2006.01]**
17/42 • • at least one coating of an organic material and at least one non-metal coating **[3, 2006.01]**
17/44 • Lustring **[3, 2006.01]**

19/00 Surface treatment of glass, not in the form of fibres or filaments, by mechanical means (sand-blasting, grinding, or polishing glass B24) **[1, 2006.01]**

21/00 Treatment of glass, not in the form of fibres or filaments, by diffusing ions or metals into the surface [1, 2006.01]

23/00 Other surface treatment of glass not in the form of fibres or filaments [1, 2006.01]

25/00 Surface treatment of fibres or filaments from glass, minerals, or slags [1, 2006.01]
25/10 • by coating **[7, 2006.01]**
25/12 • • General methods for coating; Devices therefor **[7, 2006.01]**
25/14 • • • Spraying **[7, 2006.01]**
25/16 • • • Dipping **[7, 2006.01]**
25/18 • • • using extrusion devices **[7, 2006.01]**
25/20 • • • Contacting the fibres with applicators, e.g. rolls **[7, 2006.01]**
25/22 • • • Deposition from the vapour phase **[7, 2006.01]**

Note(s) [7, 2006.01]

1. In groups C03C 25/24-C03C 25/48, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. A coating composition, i.e. a mixture of two or more constituents, is classified in the last of groups C03C 25/24-C03C 25/42 that provides for at least one of these constituents.
3. When classifying in groups C03C 25/24-C03C 25/42 any individual constituent, i.e. compound or ingredient of a coating composition, which is not identified by the classification according to Note (2), and which itself is determined to be novel and non-obvious, must also be classified in the last appropriate place in groups C03C 25/24-C03C 25/42.
4. When classifying in groups C03C 25/24-C03C 25/42 any individual constituent of a coating composition which is not identified by the classification according to Note (2) or (3), and which is considered to represent information of interest for search, may also be classified in groups C03C 25/24-C03C 25/42. This can, for example, be the case when it is considered of interest to enable searching of coating compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information".

25/24 • • Coatings containing organic materials **[7, 2006.01]**
25/26 • • • Macromolecular compounds or prepolymers **[7, 2006.01]**
25/28 • • • • obtained by reactions involving only carbon-to-carbon unsaturated bonds, e.g. acrylic resins **[7, 2006.01]**
25/30 • • • • • Polyolefins **[7, 2006.01]**
25/32 • • • • obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds **[7, 2006.01]**
25/34 • • • • • Condensation polymers of aldehydes, e.g. with phenols, ureas, melamines, amides or amines **[7, 2006.01]**
25/36 • • • • • Epoxy resins **[7, 2006.01]**
25/38 • • • Organo-metallic compounds **[7, 2006.01]**
25/40 • • • Organo-silicon compounds **[7, 2006.01]**
25/42 • • Coatings containing inorganic materials **[7, 2006.01]**
25/44 • • • Carbon, e.g. graphite **[7, 2006.01]**
25/46 • • • Metals **[7, 2006.01]**
25/48 • • with two or more coatings having different compositions **[7, 2006.01]**

Note(s)

When classifying in this group, any individual coating which itself is determined to be novel and non-obvious must also be classified in groups C03C 25/24-C03C 25/42, according to Notes (1) to (4) before group C03C 25/24.

25/50 • • • Coatings containing organic materials only **[7, 2006.01]**
25/52 • • • Coatings containing inorganic materials only **[7, 2006.01]**
25/54 • • • Combinations of one or more coatings containing organic materials only with one or more coatings containing inorganic materials only **[7, 2006.01]**
25/60 • by diffusing ions or metals into the surface **[7, 2006.01]**
25/62 • by application of electric or wave energy or particle radiation, or by ion implantation (for drying or dehydration C03C 25/64) **[7, 2006.01]**
25/64 • Drying; Dehydration; Dehydroxylation **[7, 2006.01]**
25/66 • Chemical treatment, e.g. leaching, acid or alkali treatment (dehydroxylation C03C 25/64) **[7, 2006.01]**
25/68 • • by etching **[7, 2006.01]**
25/70 • Cleaning, e.g. for reuse (C03C 25/62-C03C 25/66 take precedence) **[7, 2006.01]**

Joining glass to glass or to other materials

Note(s)

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 17/00takes precedence; fusion seal compositions C03C 8/24; wired glass C03B; joining glass to ceramics C04) **[1, 2006.01]**

27/02 • by fusing glass directly to metal **[1, 2006.01]**

27/04 • Joining glass to metal by means of an interlayer **[1, 2006.01]**

27/06 • Joining glass to glass by processes other than fusing **[1, 2006.01]**

27/08 • • with the aid of intervening metal **[1, 2006.01]**

27/10 • • with the aid of adhesive specially adapted for that purpose **[1, 2006.01]**

27/12 • • • Laminated glass (mechanical features in manufacture of glass laminates part of which is of plastic material B32B) **[1, 2006.01]**

29/00 Joining metals with the aid of glass [1, 2006.01]