SECTION C — CHEMISTRY; METALLURGY

C04 CEMENTS; CONCRETE; ARTIFICIAL STONE; CERAMICS; REFRACTORIES

Note(s)

This class does not cover mechanical features provided for elsewhere, e.g. mechanical working B28, kilns F27.

C04B LIME; MAGNESIA; SLAG; CEMENTS; COMPOSITIONS THEREOF, e.g. MORTARS, CONCRETE OR LIKE BUILDING MATERIALS; ARTIFICIAL STONE; CERAMICS (devitrified glass-ceramics C03C 10/00)**; REFRACTORIES** (alloys based on refractory metals C22C)**; TREATMENT OF NATURAL STONE [4]**

Note(s) [6]

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

- "fillers" includes pigments, aggregates and fibrous reinforcing materials;
- "active ingredients" includes processing aids or property improvers, e.g. grinding aids used after the burning process or used in the absence of a burning process;
- "mortars", "concrete" and "artificial stone" are to be considered as a single group of materials, and therefore, in the absence of an indication to be contrary, they include mortar, concrete and other cementitious compositions.

Subclass index

Lime; Magnesia; Slag

2/00 Lime, magnesia or dolomite [4, 2006.01]

2/02 • Lime **[4, 2006.01]**

2/04 • • Slaking **[4, 2006.01]**

2/06 • • • with addition of substances, e.g. hydrophobic agents **[4, 2006.01]**

2/08 • • • Devices therefor **[4, 2006.01]**

2/10 • Preheating, burning, calcining or cooling (decarbonation during burning of cement raw materials C04B 7/43) **[4, 2006.01]**

2/12 • • in shaft or vertical furnaces **[4, 2006.01]**

5/00 Treatment of molten slag (manufacture of slag wool C03B; treatment of slag in or for the production of metals C21B, C22B)**; Artificial stone from molten slag [1, 4, 2006.01]**

5/02 • Granulating (granulating apparatus B01J 2/00); Dehydrating; Drying **[1, 2006.01]**

5/06 • Ingredients, other than water, added to the molten slag; Treatment with gases or gas generating material, e.g. to obtain porous slag **[4, 2006.01]**

Cements

Note(s) [4]

In groups C04B 7/00-C04B 32/00, 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.

7/00 Hydraulic cements [1, 2006.01]

7/02 • Portland cement **[1, 2006.01]**

7/04 • • using raw materials containing gypsum **[1, 2006.01]**
7/06 • • using alkaline raw materials **[1, 2006.01]**
7/12 • Natural pozzuolanas; Natural pozzuolana cements **[1, 4, 2006.01]**
7/13 • • Mixtures thereof with inorganic cementitious materials, e.g. Portland cements **[4, 2006.01]**
7/14 • Cements containing slag **[1, 2006.01]**
7/147 • • Metallurgical slag **[4, 2006.01]**
7/153 • • • Mixtures thereof with other inorganic cementitious materials or other activators **[4, 2006.01]**
7/17 • • • • with calcium oxide containing activators **[4, 2006.01]**
7/19 • • • • • Portland cements **[4, 2006.01]**
7/21 • • • • with calcium sulfate containing activators **[4, 2006.01]**
7/22 • Iron ore cements **[1, 2006.01]**
7/24 • Cements from oil shales, residues or waste other than slag **[1, 4, 2006.01]**
7/26 • • from raw materials containing flue dust **[1, 2006.01]**
7/28 • • from combustion residues (C04B 7/26 takes precedence) **[1, 4, 2006.01]**
7/30 • • from oil shale; from oil shale residues **[1, 4, 2006.01]**
7/32 • Aluminous cements **[1, 2006.01]**
7/34 • Hydraulic lime cements; Roman cements **[1, 2006.01]**
7/345 • Hydraulic cements not provided for in one of the groups C04B 7/02-C04B 7/34 **[4, 2006.01]**
7/36 • Manufacture of hydraulic cements in general **[1, 2006.01]**
7/38 • • Preparing or treating the raw materials individually or as batches **[1, 4, 2006.01]**
7/40 • • • Dehydrating; Forming, e.g. granulating (granulating apparatus B01J 2/00) **[1, 2006.01]**
7/42 • • • Active ingredients added before, or during, the burning process **[1, 2006.01]**
7/43 • • Heat treatment, e.g. precalcining, burning, melting; Cooling **[4, 2006.01]**
7/44 • • • Burning; Melting **[1, 4, 2006.01]**
7/45 • • • • in fluidised beds **[4, 2006.01]**
7/46 • • • • electric **[1, 4, 2006.01]**
7/47 • • • Cooling **[4, 2006.01]**
7/48 • • Clinker treatment (C04B 7/47 takes precedence) **[1, 4, 2006.01]**
7/51 • • • Hydrating **[4, 2006.01]**
7/52 • • • Grinding **[1, 2006.01]**
7/60 • • Methods for eliminating alkali metals or compounds thereof **[4, 2006.01]**

9/00 Magnesium cements or silimar cements [1, 2006.01]
9/02 • Magnesium cements containing chlorides, e.g. Sorel cement **[1, 2006.01]**
9/04 • Magnesium cements containing sulfates, nitrates, phosphates, or fluorides **[1, 2006.01]**
9/06 • Cements containing metal compounds other than magnesium compounds, e.g. compounds of zinc or lead **[1, 2006.01]**
9/11 • Mixtures thereof with other inorganic cementitious materials **[4, 2006.01]**
9/12 • • with hydraulic cements, e.g. Portland cements **[1, 4, 2006.01]**
9/20 • Manufacture, e.g. preparing the batches (preheating, burning, calcining or cooling lime stone, magnesite or dolomite C04B 2/10) **[1, 2006.01]**

11/00 Calcium sulfate cements [1, 2006.01]
11/02 • Dehydrating gypsum **[1, 2006.01]**
11/024 • • Ingredients added before, or during, the calcining process, e.g. calcination modifiers **[4, 2006.01]**
11/028 • • Devices therefor **[4, 2006.01]**
11/032 • • • for the wet process, e.g. dehydrating in solution or under saturated vapor conditions **[4, 2006.01]**
11/036 • • • for the dry process, e.g. dehydrating in a fluidised bed or in a rotary kiln **[4, 2006.01]**
11/05 • obtaining anhydrite (C04B 11/028 takes precedence) **[4, 2006.01]**
11/06 • starting from anhydrite **[1, 2006.01]**
11/26 • starting from phosphogypsum or from waste, e.g. purification products of smoke (C04B 11/02 takes precedence) **[4, 2006.01]**
11/28 • Mixtures thereof with other inorganic cementitious materials (C04B 7/04, C04B 7/153 take precedence) **[4, 2006.01]**
11/30 • • with hydraulic cements, e.g. Portland cements **[4, 2006.01]**

12/00 Cements not provided for in groups C04B 7/00-C04B 11/00 [4, 2006.01]
12/02 • Phosphate cements **[4, 2006.01]**
12/04 • Alkali metal or ammonium silicate cements **[4, 2006.01]**

Use of materials as fillers for mortars, concrete or artificial stone [4]

14/00 Use of inorganic materials as fillers, e.g. pigments, for mortars, concrete or artificial stone; Treatment of inorganic materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone (reinforcing elements for building E04C 5/00) **[4, 2006.01]**
14/02 • Granular materials **[4, 2006.01]**
14/04 • • Silica-rich materials; Silicates **[4, 2006.01]**
14/06 • • • Quartz; Sand **[4, 2006.01]**
14/08 • • • Diatomaceous earth **[4, 2006.01]**
14/10 • • • Clay **[4, 2006.01]**
14/12 • • • • Expanded clay **[4, 2006.01]**
14/14 • • • Minerals of vulcanic origin **[4, 2006.01]**
14/16 • • • • porous, e.g. pumice **[4, 2006.01]**
14/18 • • • • Perlite **[4, 2006.01]**
14/20 • • • Mica; Vermiculite **[4, 2006.01]**
14/22 • • • Glass **[4, 2006.01]**
14/24 • • • • porous, e.g. foamed glass **[4, 2006.01]**
14/26 • • Carbonates **[4, 2006.01]**
14/28 • • • of calcium **[4, 2006.01]**
14/30 • • Oxides other than silica **[4, 2006.01]**
14/32 • • Carbides; Nitrides; Borides **[4, 2006.01]**
14/34 • • Metals **[4, 2006.01]**
14/36 • • Inorganic materials not provided for in groups C04B 14/04-C04B 14/34 **[4, 2006.01]**
14/38 • Fibrous materials; Whiskers **[4, 2006.01]**
14/40 • • Asbestos **[4, 2006.01]**
14/42 • • Glass **[4, 2006.01]**
14/44 • • • Treatment for enhancing alkali resistance **[4, 2006.01]**
14/46 • • Rock wool **[4, 2006.01]**

14/48 • • Metal **[4, 2006.01]**

16/00 Use of organic materials as fillers, e.g. pigments, for mortars, concrete or artificial stone; Treatment of organic materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone (reinforcing elements for building E04C 5/00) **[4, 2006.01]**

16/02 • Cellulosic materials **[4, 2006.01]**

16/04 • Macromolecular compounds (C04B 16/02 takes precedence) **[4, 2006.01]**

16/06 • • fibrous **[4, 2006.01]**

16/08 • • porous, e.g. expanded polystyrene beads **[4, 2006.01]**

16/10 • • • Treatment for enhancing the mixability with the mortar **[4, 2006.01]**

16/12 • characterised by the shape (fibrous macromolecular compounds C04B 16/06; porous macromolecular compounds C04B 16/08) **[4, 2006.01]**

18/00 Use of agglomerated or waste materials or refuse as fillers for mortars, concrete or artificial stone; Treatment of agglomerated or waste materials or refuse, specially adapted to enhance their filling properties in mortars, concrete or artificial stone (reinforcing elements for building E04C 5/00) **[4, 2006.01]**

18/02 • Agglomerated materials **[4, 2006.01]**

18/04 • Waste materials; Refuse **[4, 2006.01]**

18/06 • • Combustion residues, e.g. purification products of smoke, fumes or exhaust gases **[4, 2006.01]**

18/08 • • • Flue dust **[4, 2006.01]**

18/10 • • • Burned refuse **[4, 2006.01]**

18/12 • • from quarries, mining or the like **[4, 2006.01]**

18/14 • • from metallurgical processes (treatment of molten slag C04B 5/00) **[4, 2006.01]**

18/16 • • from building or ceramic industry **[4, 2006.01]**

18/18 • • organic (C04B 18/10 takes precedence) **[4, 2006.01]**

18/20 • • • from macromolecular compounds **[4, 2006.01]**

18/22 • • • • Rubber **[4, 2006.01]**

18/24 • • • Vegetable refuse, e.g. rice husks, maize-ear refuse; Cellulosic materials, e.g. paper **[4, 2006.01]**

18/26 • • • • Wood, e.g. sawdust, wood shavings **[4, 2006.01]**

18/28 • • • • Mineralising; Compositions therefor **[4, 2006.01]**

18/30 • • Mixed waste; Waste of undefined composition, e.g. municipal waste (C04B 18/10 takes precedence) **[4, 2006.01]**

20/00 Use of materials as fillers for mortars, concrete or artificial stone according to more than one of groups C04B 14/00-C04B 18/00 and characterised by shape or grain distribution; Treatment of materials according to more than one of the groups C04B 14/00-C04B 18/00 specially adapted to enhance their filling properties in mortars, concrete or artificial stone; Expanding or defibrillating materials (reinforcing elements for building E04C 5/00) **[4, 2006.01]**

20/02 • Treatment **[4, 2006.01]**

20/04 • • Heat treatment **[4, 2006.01]**

20/06 • • • Expanding clay, perlite, vermiculite or like granular materials **[4, 2006.01]**

20/08 • • Defibrillating asbestos **[4, 2006.01]**

20/10 • Coating or impregnating **[4, 2006.01]**

20/12 • • Multiple coating or impregnating **[4, 2006.01]**

Use of materials as active ingredients [4]

Note(s) [4, 6]

1. Active ingredients which react with cement compounds for forming new or modified mineralogical phases and are added before the hardening process, as well as cements added as additives to other cements, are classified in groups C04B 7/00-C04B 12/00.
2. In groups C04B 22/00-C04B 24/00, it is desirable to add the indexing codes of group C04B 103/00.

22/00 Use of inorganic materials as active ingredients for mortars, concrete or artificial stone, e.g. accelerators [4, 2006.01]

22/02 • Elements **[4, 2006.01]**

22/04 • • Metals, e.g. aluminium used as blowing agent **[4, 2006.01]**

22/06 • Oxides; Hydroxides **[4, 2006.01]**

22/08 • Acids or salts thereof **[4, 2006.01]**

22/10 • • containing carbon in the anion, e.g. carbonates **[4, 2006.01]**

22/12 • • containing halogen in the anion, e.g. calcium chloride **[4, 2006.01]**

22/14 • • containing sulfur in the anion, e.g. sulfides **[4, 2006.01]**

22/16 • • containing phosphorus in the anion, e.g. phosphates **[4, 2006.01]**

24/00 Use of organic materials as active ingredients for mortars, concrete or artificial stone, e.g. plasticisers [4, 2006.01]

24/02 • Alcohols; Phenols; Ethers **[4, 2006.01]**

24/04 • Carboxylic acids; Salts, anhydrides or esters thereof **[4, 2006.01]**

24/06 • • containing hydroxy groups **[4, 2006.01]**

24/08 • Fats; Fatty oils; Ester type waxes; Higher fatty acids, i.e. having at least seven carbon atoms in an unbroken chain bound to a carboxyl group; Oxidised oils or fats **[4, 2006.01]**

24/10 • Carbohydrates or derivatives thereof **[4, 2006.01]**

24/12 • Nitrogen containing compounds **[4, 2006.01]**

24/14 • • Peptides; Proteins; Derivatives thereof **[4, 2006.01]**

24/16 • Sulfur-containing compounds **[4, 2006.01]**

24/18 • • Lignin sulfonic acid or derivatives thereof, e.g. sulfite lye **[4, 2006.01]**

24/20 • • Sulfonated aromatic compounds **[4, 2006.01]**

24/22 • • • Condensation products thereof **[4, 2006.01]**

24/24 • Macromolecular compounds (C04B 24/14 takes precedence; macromolecular compounds comprising sulfonate or sulfate groups C04B 24/16) **[4, 6, 2006.01]**

24/26 • • obtained by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**

24/28 • • obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**

24/30 • • • Condensation polymers of aldehydes or ketones **[4, 2006.01]**

24/32 • • • Polyethers, e.g. alkylphenol polyglycolether **[4, 2006.01]**

24/34 • • Natural resins, e.g. rosin **[4, 2006.01]**

24/36 • • Bituminous materials, e.g. tar, pitch **[4, 2006.01]**

24/38 • • Polysaccharides or derivatives thereof **[4, 2006.01]**
24/40 • Compounds containing silicon, titanium or zirconium **[4, 2006.01]**
24/42 • • Compounds having one or more carbon-to-silicon linkages **[4, 2006.01]**

Compositions of mortars, concrete or artificial stone [4]

Note(s) [4, 6, 2006.01]

1. Any ingredient of compositions of mortars, concrete or artificial stone, classified in groups C04B 26/00-C04B 32/00 according to the last place rule, and which itself is determined to be novel and non-obvious, must also be classified in the last appropriate place in groups C04B 7/00-C04B 24/00.
2. Any ingredient of compositions of mortars, concrete or artificial stone, which is not identified by the classification in groups C04B 26/00-C04B 32/00 according to the last place rule, and which is considered to represent information of particular interest for search, may also be classified in the last appropriate place in groups C04B 7/00-C04B 24/00. This can for example be the case when it is considered of interest to enable searching of compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information". For example, a well defined Portland cement mortar mixture containing clay as an essential or characterising filler is classified in group C04B 28/04 and may also additionally be classified in group C04B 14/10.
3. In groups C04B 26/00-C04B 32/00, it is desirable to add the indexing codes of group C04B 111/00.

26/00 Compositions of mortars, concrete or artificial stone, containing only organic binders [4, 2006.01]
26/02 • Macromolecular compounds **[4, 2006.01]**
26/04 • • obtained by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
26/06 • • • Acrylates **[4, 2006.01]**
26/08 • • • containing halogen **[4, 2006.01]**
26/10 • • obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds **[4, 2006.01]**
26/12 • • • Condensation polymers of aldehydes or ketones **[4, 2006.01]**
26/14 • • • Polyepoxides **[4, 2006.01]**
26/16 • • • Polyurethanes **[4, 2006.01]**
26/18 • • • Polyesters; Polycarbonates **[4, 2006.01]**
26/20 • • • Polyamides **[4, 2006.01]**
26/22 • • Natural resins, e.g. rosin **[4, 2006.01]**
26/24 • • • Cellulosic waste liquor, e.g. sulfite lye **[4, 2006.01]**
26/26 • • Bituminous materials, e.g. tar, pitch **[4, 2006.01]**
26/28 • • Polysaccharides or derivatives thereof **[4, 2006.01]**
26/30 • Compounds having one or more carbon-to-metal or carbon-to-silicon linkages **[4, 2006.01]**
26/32 • • containing silicon **[4, 2006.01]**

28/00 Compositions of mortars, concrete or artificial stone, containing inorganic binders or the reaction product of an inorganic and an organic binder, e.g. polycarboxylate cements [4, 2006.01]
28/02 • containing hydraulic cements other than calcium sulfates **[4, 2006.01]**
28/04 • • Portland cements **[4, 2006.01]**
28/06 • • Aluminous cements **[4, 2006.01]**
28/08 • • Slag cements **[4, 2006.01]**
28/10 • • Lime cements or magnesium oxide cements **[4, 2006.01]**
28/12 • • • Hydraulic lime **[4, 2006.01]**
28/14 • containing calcium sulfate cements **[4, 2006.01]**
28/16 • • containing anhydrite **[4, 2006.01]**
28/18 • containing mixtures of the silica-lime type **[4, 2006.01]**
28/20 • • Sand-lime **[4, 2006.01]**
28/22 • • Lime and pozzuolanas **[4, 2006.01]**
28/24 • containing alkyl ammonium or alkali metal silicates; containing silica sols **[4, 2006.01]**
28/26 • • Silicates of the alkali metals **[4, 2006.01]**
28/28 • containing organic polyacids, e.g. polycarboxylate cements **[4, 2006.01]**
28/30 • containing magnesium cements (magnesium oxide cements C04B 28/10) **[4, 2006.01]**
28/32 • • Magnesium oxychloride cements, e.g. Sorel cement **[4, 2006.01]**
28/34 • containing cold phosphate binders **[4, 2006.01]**
28/36 • containing sulfur, sulfides or selenium **[4, 2006.01]**

30/00 Compositions for artificial stone, not containing binders (artificial stone from molten slag C04B 5/00) **[4, 2006.01]**
30/02 • containing fibrous materials **[4, 2006.01]**

32/00 Artificial stone not provided for in other groups of this subclass (artificial stone from molten slag C04B 5/00) **[4, 2006.01]**
32/02 • with reinforcements **[4, 2006.01]**

Ceramics

33/00 Clay-wares (monolithic refractories or refractory mortars C04B 35/66; porous products C04B 38/00) **[1, 2, 2006.01]**
33/02 • Preparing or treating the raw materials individually or as batches **[1, 2006.01]**
33/04 • • Clay; Kaolin **[1, 2006.01]**
33/06 • • • Rendering lime harmless **[1, 2006.01]**
33/08 • • • • Preventing efflorescence **[1, 2006.01]**
33/10 • • Eliminating iron or lime **[1, 2006.01]**
33/13 • • Compounding ingredients (C04B 33/36, C04B 35/71 take precedence) **[2, 2006.01]**
33/132 • • • Waste materials; Refuse (C04B 33/16 takes precedence) **[2006.01]**
33/135 • • • • Combustion residues, e.g fly ash, incineration waste **[2006.01]**
33/138 • • • • from metallurgical processes, e.g. slag, furnace dust, galvanic waste **[2006.01]**
33/14 • • • Colouring matters **[1, 2006.01]**
33/16 • • • Lean materials, e.g. grog, quartz **[1, 2006.01]**
33/18 • • • for liquefying the batches **[1, 2006.01]**
33/20 • • for dry-pressing (C04B 33/13 takes precedence) **[1, 2006.01]**
33/22 • Grog products **[1, 2006.01]**
33/24 • Manufacture of porcelain or white ware **[1, 2006.01]**
33/26 • • of porcelain for electrical insulation **[1, 2006.01]**
33/28 • Slip casting **[1, 2006.01]**
33/30 • Drying methods **[1, 2006.01]**
33/32 • Burning methods **[1, 2006.01]**
33/34 • • combined with glazing **[1, 2006.01]**

33/36 • Reinforced clay-wares **[2, 2006.01]**

35/00 Shaped ceramic products characterised by their composition; Ceramic compositions (containing free metal bonded to carbides, diamond, oxides, borides, nitrides, silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides, other than as macroscopic reinforcing agents C22C)**; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products [1, 4, 2006.01]**

Note(s) [3, 6]

1. In this group, in the absence of an indication to the contrary, compositions are classified according to the constituent present in the highest proportion by weight.
2. In this group, magnesium is considered as an alkaline earth metal.
3. In this group, a composite is considered as a sintered mixture of different powdered materials, other than sintering aids, the materials being present as separate phases in the sintered product.
4. In this group, fine ceramics are considered as products having a polycrystalline fine-grained microstructure, e.g. of dimensions below 100 micrometers.
5. The production of ceramic powder is classified in this group in so far as it relates to the preparation of powder with specific characteristics.

35/01 • based on oxides **[6, 2006.01]**
35/03 • • based on magnesium oxide, calcium oxide or oxide mixtures derived from dolomite **[6, 2006.01]**
35/035 • • • Refractories from grain sized mixtures containing non-oxide refractory materials, e.g. carbon **[6, 2006.01]**
35/04 • • • based on magnesium oxide **[1, 6, 2006.01]**
35/043 • • • • Refractories from grain sized mixtures **[6, 2006.01]**
35/047 • • • • • containing chromium oxide or chrome ore **[6, 2006.01]**
35/05 • • • • Refractories by fusion casting **[6, 2006.01]**
35/053 • • • • Fine ceramics **[6, 2006.01]**
35/057 • • • based on calcium oxide **[6, 2006.01]**
35/06 • • • based on oxide mixtures derived from dolomite **[1, 2006.01]**
35/08 • • based on beryllium oxide **[1, 6, 2006.01]**
35/10 • • based on aluminium oxide **[1, 6, 2006.01]**
35/101 • • • Refractories from grain sized mixtures **[6, 2006.01]**
35/103 • • • • containing non-oxide refractory materials, e.g. carbon (C04B 35/106 takes precedence) **[6, 2006.01]**
35/105 • • • • containing chromium oxide or chrome ore **[6, 2006.01]**
35/106 • • • • containing zirconium oxide or zircon ($ZrSiO_4$) **[6, 2006.01]**
35/107 • • • Refractories by fusion casting **[6, 2006.01]**
35/109 • • • • containing zirconium oxide or zircon ($ZrSiO_4$) **[6, 2006.01]**
35/111 • • • Fine ceramics **[6, 2006.01]**
35/113 • • • • based on beta-aluminium oxide **[6, 2006.01]**
35/115 • • • • Translucent or transparent products **[6, 2006.01]**
35/117 • • • • Composites **[6, 2006.01]**
35/119 • • • • • with zirconium oxide **[6, 2006.01]**
35/12 • • based on chromium oxide (C04B 35/047, C04B 35/105 take precedence) **[1, 6, 2006.01]**
35/14 • • based on silica **[1, 6, 2006.01]**
35/16 • • based on silicates other than clay **[1, 6, 2006.01]**
35/18 • • • rich in aluminium oxide **[1, 6, 2006.01]**
35/185 • • • • Mullite **[6, 2006.01]**
35/19 • • • • Alkali metal aluminosilicates, e.g. spodumene **[6, 2006.01]**
35/195 • • • • Alkaline earth aluminosilicates, e.g. cordierite **[6, 2006.01]**
35/20 • • • rich in magnesium oxide **[1, 6, 2006.01]**
35/22 • • • rich in calcium oxide **[1, 6, 2006.01]**
35/26 • • based on ferrites **[1, 2, 6, 2006.01]**
35/28 • • • with nickel oxide as the principal oxide **[1, 2, 6, 2006.01]**
35/30 • • • • with zinc oxide **[1, 2, 6, 2006.01]**
35/32 • • • with cobalt oxide as the principal oxide **[1, 2, 6, 2006.01]**
35/34 • • • • with zinc oxide **[1, 2, 6, 2006.01]**
35/36 • • • with manganese oxide as the principal oxide **[1, 2, 6, 2006.01]**
35/38 • • • • with zinc oxide **[1, 2, 6, 2006.01]**
35/40 • • • with rare earth oxide **[1, 2, 6, 2006.01]**
35/42 • • based on chromites (C04B 35/047, C04B 35/105 take precedence) **[1, 2, 6, 2006.01]**
35/44 • • based on aluminates **[1, 2, 6, 2006.01]**
35/443 • • • Magnesium aluminate spinel **[6, 2006.01]**
35/447 • • based on phosphates **[6, 2006.01]**
35/45 • • based on copper oxide or solid solutions thereof with other oxides **[6, 2006.01]**
35/453 • • based on zinc, tin or bismuth oxides or solid solutions thereof with other oxides, e.g. zincates, stannates or bismuthates **[6, 2006.01]**
35/457 • • • based on tin oxides or stannates **[6, 2006.01]**
35/46 • • based on titanium oxides or titanates (containing also zirconium or hafnium oxides, zirconates or hafnates C04B 35/49) **[1, 6, 2006.01]**
35/462 • • • based on titanates **[6, 2006.01]**
35/465 • • • • based on alkaline earth metal titanates **[6, 2006.01]**
35/468 • • • • • based on barium titanates **[6, 2006.01]**
35/47 • • • • • based on strontium titanates **[6, 2006.01]**
35/472 • • • • based on lead titanates **[6, 2006.01]**
35/475 • • • • based on bismuth titanates **[6, 2006.01]**
35/478 • • • • based on aluminium titanates **[6, 2006.01]**
35/48 • • based on zirconium or hafnium oxides or zirconates or hafnates **[1, 6, 2006.01]**
35/482 • • • Refractories from grain sized mixtures **[6, 2006.01]**
35/484 • • • Refractories by fusion casting **[6, 2006.01]**
35/486 • • • Fine ceramics **[6, 2006.01]**
35/488 • • • • Composites **[6, 2006.01]**
35/49 • • • containing also titanium oxide or titanates **[3, 6, 2006.01]**
35/491 • • • • based on lead zirconates and lead titanates **[6, 2006.01]**
35/493 • • • • • containing also other lead compounds **[6, 2006.01]**
35/495 • • based on vanadium, niobium, tantalum, molybdenum or tungsten oxides or solid solutions thereof with other oxides, e.g. vanadates, niobates, tantalates, molybdates or tungstates **[6, 2006.01]**
35/497 • • • based on solid solutions with lead oxide **[6, 2006.01]**
35/499 • • • • containing also titanates **[6, 2006.01]**
35/50 • based on rare earth compounds **[1, 2006.01]**
35/505 • • based on yttrium oxide **[6, 2006.01]**
35/51 • based on compounds of actinides **[2, 2006.01]**

35/515 • based on non-oxides (C04B 35/50, C04B 35/51 take precedence) **[6, 2006.01]**
35/52 • • based on carbon, e.g. graphite **[1, 6, 2006.01]**
35/524 • • • obtained from polymer precursors, e.g. glass-like carbon material **[6, 2006.01]**
35/528 • • • obtained from carbonaceous particles with or without other non-organic components **[6, 2006.01]**
35/532 • • • • containing a carbonisable binder **[6, 2006.01]**
35/536 • • • based on expanded graphite **[6, 2006.01]**
35/547 • • based on sulfides or selenides **[6, 2006.01]**
35/553 • • based on fluorides **[6, 2006.01]**
35/56 • • based on carbides **[1, 4, 2006.01]**
35/563 • • • based on boron carbide **[6, 2006.01]**
35/565 • • • based on silicon carbide **[6, 2006.01]**
35/567 • • • • Refractories from grain sized mixtures **[6, 2006.01]**
35/569 • • • • Fine ceramics **[6, 2006.01]**
35/571 • • • • • obtained from polymer precursors **[6, 2006.01]**
35/573 • • • • • obtained by reaction sintering **[6, 2006.01]**
35/575 • • • • • obtained by pressure sintering **[6, 2006.01]**
35/576 • • • • • obtained by sintering without pressure **[6, 2006.01]**
35/577 • • • • • Composites **[6, 2006.01]**
35/58 • • based on borides, nitrides or silicides **[1, 4, 6, 2006.01]**
35/581 • • • based on aluminium nitride **[6, 2006.01]**
35/582 • • • • Composites **[6, 2006.01]**
35/583 • • • based on boron nitride **[6, 2006.01]**
35/5831 • • • • based on cubic boron nitride **[6, 2006.01]**
35/5833 • • • • based on hexagonal boron nitride **[6, 2006.01]**
35/5835 • • • • Composites **[6, 2006.01]**
35/584 • • • based on silicon nitride **[6, 2006.01]**
35/586 • • • • Refractories from grain sized mixtures **[6, 2006.01]**
35/587 • • • • Fine ceramics **[6, 2006.01]**
35/589 • • • • • obtained from polymer precursors **[6, 2006.01]**
35/591 • • • • • obtained by reaction sintering **[6, 2006.01]**
35/593 • • • • • obtained by pressure sintering (C04B 35/594 takes precedence) **[6, 2006.01]**
35/594 • • • • • obtained by sintering a reaction-sintered product, with or without pressure **[6, 2006.01]**
35/596 • • • • • Composites **[6, 2006.01]**
35/597 • • • based on silicon oxynitrides **[6, 2006.01]**
35/599 • • • • based on silicon aluminium oxynitrides (SIALONS) **[6, 2006.01]**
35/622 • Forming processes; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products **[6, 2006.01]**
35/624 • • Sol-gel processing **[6, 2006.01]**
35/626 • • Preparing or treating the powders individually or as batches **[6, 2006.01]**
35/628 • • • Coating the powders **[6, 2006.01]**
35/63 • • • using additives specially adapted for forming the products **[6, 2006.01]**
35/632 • • • • Organic additives **[6, 2006.01]**
35/634 • • • • • Polymers (C04B 35/636 takes precedence) **[6, 2006.01]**
35/636 • • • • • Polysaccharides or derivatives thereof **[6, 2006.01]**
35/638 • • • • Removal thereof **[6, 2006.01]**
35/64 • • Burning or sintering processes (C04B 33/32 takes precedence) **[1, 6, 2006.01]**
35/645 • • • Pressure sintering **[6, 2006.01]**
35/65 • • • Reaction sintering of free metal- or free silicon-containing compositions **[3, 2006.01]**
35/653 • • Processes involving a melting step **[6, 2006.01]**
35/657 • • • for manufacturing refractories (C04B 35/05, C04B 35/107, C04B 35/484 take precedence) **[6, 2006.01]**
35/66 • Monolithic refractories or refractory mortars, including those whether or not containing clay **[1, 2006.01]**

Note(s) [2006.01]

Any ingredient of a refractory mortar composition containing a hydraulic cement, e.g. aluminous cement, classified in group C04B 35/66, which is considered to represent information of interest for search, may also be classified in the last appropriate place in groups C04B 7/00-C04B 24/00. This can, for example, be the case when it is considered of interest to enable searching of compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information". For example, such an additional classification in group C04B 24/00 may be given for an organic retarder added to the mortar composition.

35/71 • Ceramic products containing macroscopic reinforcing agents (C04B 35/66 takes precedence) **[3, 4, 2006.01]**
35/74 • • containing shaped metallic materials **[2, 2006.01]**
35/76 • • • Fibres, filaments, whiskers, platelets, or the like **[2, 2006.01]**
35/78 • • containing non-metallic materials **[2, 2006.01]**
35/80 • • • Fibres, filaments, whiskers, platelets, or the like **[2, 2006.01]**
35/81 • • • • Whiskers **[6, 2006.01]**
35/82 • • • • Asbestos; Glass; Fused silica **[2, 2006.01]**
35/83 • • • • Carbon fibres in a carbon matrix **[6, 2006.01]**

Note(s) [6]

The products covered by this group are usually referred to as "carbon-carbon composites".

35/84 • • • Impregnated or coated materials **[2, 2006.01]**

37/00 Joining burned ceramic articles with other burned ceramic articles or other articles by heating [1, 2006.01]

37/02 • with metallic articles **[1, 2006.01]**
37/04 • with articles made from glass **[1, 2006.01]**

38/00 Porous mortars, concrete, artificial stone or ceramic ware; Preparation thereof (treating slag with gases or gas generating material C04B 5/06) **[4, 6, 2006.01]**

Note(s) [4]

Porous mortars, concrete, artificial stone or ceramic ware characterised by the ingredients or compositions are also classified in groups C04B 2/00-C04B 35/00.

38/02 • by adding chemical blowing agents **[4, 2006.01]**
38/04 • by dissolving-out added substances **[4, 2006.01]**

38/06 • by burning-out added substances **[4, 2006.01]**
38/08 • by adding porous substances **[4, 2006.01]**
38/10 • by using foaming agents (C04B 38/02 takes precedence) **[4, 2006.01]**

40/00 Processes, in general, for influencing or modifying the properties of mortars, concrete or artificial stone compositions, e.g. their setting or hardening ability (by selecting active ingredients C04B 22/00-C04B 24/00; hardening of a well-defined composition C04B 26/00-C04B 28/00; making porous, cellular or lightening C04B 38/00) **[4, 6, 2006.01]**

40/02 • Selection of the hardening environment **[4, 2006.01]**
40/04 • Preventing evaporation of the mixing water (permanent coverings C04B 41/00) **[4, 2006.01]**
40/06 • Inhibiting the setting, e.g. mortars of the deferred action type containing water in breakable containers **[4, 2006.01]**

41/00 After-treatment of mortars, concrete, artificial stone or ceramics; Treatment of natural stone (glazes, other than cold glazes, C03C 8/00) **[1, 3, 2006.01]**

Note(s) [4, 6]

1. In this group, the following terms or expressions are used with the meanings indicated:
   - "mortars", "concrete" and "artificial stone" cover materials after primary shaping.
2. Treating, e.g. coating or impregnating, a material with the same material or with a substance which ultimately is transformed into the same material is not considered after-treatment for this group but is classified as preparation of the material, e.g. a carbon body impregnated with a carbonisable substance is classified in C04B 35/52.
3. In groups C04B 41/45-C04B 41/80, 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.

41/45 • Coating or impregnating **[4, 2006.01]**
41/46 • • with organic materials **[4, 2006.01]**
41/47 • • • Oils, fats or waxes **[4, 2006.01]**
41/48 • • • Macromolecular compounds **[4, 2006.01]**
41/49 • • • Compounds having one or more carbon-to-metal or carbon-to-silicon linkages **[4, 2006.01]**
41/50 • • with inorganic materials **[4, 2006.01]**
41/51 • • • Metallising **[4, 2006.01]**
41/52 • • Multiple coating or impregnating **[4, 2006.01]**
41/53 • involving the removal of part of the materials of the treated article **[4, 2006.01]**
41/60 • of only artificial stone **[4, 2006.01]**
41/61 • • Coating or impregnating **[4, 2006.01]**
41/62 • • • with organic materials **[4, 2006.01]**
41/63 • • • • Macromolecular compounds **[4, 2006.01]**
41/64 • • • • Compounds having one or more carbon-to-metal or carbon-to-silicon linkages **[4, 2006.01]**
41/65 • • • with inorganic materials **[4, 2006.01]**
41/66 • • • • Fluorides, e.g. ocratation **[4, 2006.01]**
41/67 • • • • Phosphates **[4, 2006.01]**
41/68 • • • • Silicic acid; Silicates **[4, 2006.01]**
41/69 • • • • Metals **[4, 2006.01]**
41/70 • • • for obtaining at least two superposed coatings having different compositions **[4, 2006.01]**
41/71 • • • • at least one coating being an organic material **[4, 2006.01]**
41/72 • • involving the removal of part of the materials of the treated articles, e.g. etching **[4, 2006.01]**
41/80 • of only ceramics **[4, 2006.01]**
41/81 • • Coating or impregnating **[4, 2006.01]**
41/82 • • • with organic materials **[4, 2006.01]**
41/83 • • • • Macromolecular compounds **[4, 2006.01]**
41/84 • • • • Compounds having one or more carbon-to-metal or carbon-to-silicon linkages **[4, 2006.01]**
41/85 • • • with inorganic materials **[4, 2006.01]**
41/86 • • • • Glazes; Cold glazes **[4, 2006.01]**
41/87 • • • • Ceramics **[4, 2006.01]**
41/88 • • • • Metals **[4, 2006.01]**
41/89 • • • for obtaining at least two superposed coatings having different compositions **[4, 2006.01]**
41/90 • • • • at least one coating being a metal **[4, 2006.01]**
41/91 • • involving the removal of part of the materials of the treated articles, e.g. etching **[4, 2006.01]**

Indexing scheme associated with groups C04B 22/00 and C04B 24/00, relating to the function or property of the active ingredients. [6]

103/00 Function or property of the active ingredients [6, 2006.01]

103/10 • Accelerators **[6, 2006.01]**
103/12 • • Set accelerators **[6, 2006.01]**
103/14 • • Hardening accelerators **[6, 2006.01]**
103/20 • Retarders **[6, 2006.01]**
103/22 • • Set retarders **[6, 2006.01]**
103/24 • • Hardening retarders **[6, 2006.01]**
103/30 • Water reducers, plasticisers, air-entrainers **[6, 2006.01]**
103/32 • • Superplasticisers **[6, 2006.01]**
103/40 • Surface-active agents; Dispersants **[6, 2006.01]**
103/42 • Pore formers **[6, 2006.01]**
103/44 • Thickening, gelling or viscosity increasing agents **[6, 2006.01]**
103/46 • Water-loss reducers, hygroscopic or hydrophilic agents **[6, 2006.01]**
103/48 • Foam stabilisers **[6, 2006.01]**
103/50 • Defoamers; Air detrainers **[6, 2006.01]**
103/52 • Grinding aids **[6, 2006.01]**
103/54 • Pigments; Dyes **[6, 2006.01]**
103/56 • Opacifiers **[6, 2006.01]**
103/60 • Agents for protection against chemical, physical or biological attack **[6, 2006.01]**
103/61 • • Corrosion inhibitors **[6, 2006.01]**
103/63 • • Flame-proofing agents **[6, 2006.01]**
103/65 • • Water proofers or repellants **[6, 2006.01]**
103/67 • • Biocides **[6, 2006.01]**
103/69 • • • Fungicides **[6, 2006.01]**

Indexing scheme associated with groups C04B 26/00-C04B 32/00, relating to the function, property or use of the mortars, concrete or artificial stone. [6]

111/00 Function, property or use of the mortars, concrete or artificial stone [6, 2006.01]

111/10 • Compositions characterised by the absence of a specified material **[6, 2006.01]**
111/12 • • Absence of asbestos, e.g. cement-asbestos substitutes **[6, 2006.01]**
111/20 • Resistance against chemical, physical or biological attack **[6, 2006.01]**
111/21 • • Efflorescence resistance **[6, 2006.01]**
111/22 • • Carbonation resistance **[6, 2006.01]**
111/23 • • Acid resistance **[6, 2006.01]**
111/24 • • Sea water resistance **[6, 2006.01]**
111/25 • • Graffiti resistance **[6, 2006.01]**
111/26 • • Corrosion of reinforcement resistance **[6, 2006.01]**
111/27 • • Water resistance, i.e. waterproof or water repellant materials **[6, 2006.01]**
111/28 • • Fire resistance **[6, 2006.01]**
111/30 • Nailable or sawable materials **[6, 2006.01]**
111/32 • Expansion inhibited materials **[6, 2006.01]**
111/34 • Non-shrinking materials **[6, 2006.01]**
111/40 • Porous or lightweight materials **[6, 2006.01]**
111/42 • • Floating materials **[6, 2006.01]**
111/50 • Flexible or elastic materials **[6, 2006.01]**
111/52 • Sound insulating materials **[6, 2006.01]**
111/54 • Substitutes for natural stone, e.g. artificial marble **[6, 2006.01]**
111/56 • Compositions suited for fabrication of pipes, e.g. by centrifugal casting **[6, 2006.01]**
111/60 • Flooring materials **[6, 2006.01]**
111/62 • • Self-levelling compositions **[6, 2006.01]**
111/70 • Grouts **[6, 2006.01]**
111/72 • Compositions used for repairing existing buildings or building materials **[6, 2006.01]**
111/74 • Underwater applications **[6, 2006.01]**
111/76 • Use at sub-zero temperatures **[6, 2006.01]**
111/80 • Optical properties, e.g. transparency **[6, 2006.01]**
111/82 • • Coloured materials **[6, 2006.01]**
111/90 • Electrical properties **[6, 2006.01]**
111/92 • • Electrically insulating materials **[6, 2006.01]**
111/94 • • Electrically conducting materials **[6, 2006.01]**