

## ECLA EUROPEAN CLASSIFICATION

### C09C

**TREATMENT OF INORGANIC MATERIALS, OTHER THAN FIBROUS FILLERS, TO ENHANCE THEIR PIGMENTING OR FILLING PROPERTIES** (preparation of inorganic compounds or non-metallic elements [C01](#); treatment of materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone [C04B14/00](#), [C04B18/00](#), [C04B20/00](#)); **PREPARATION OF CARBON BLACK**; [N: Preparation of inorganic materials which are no single chemical compounds and which are mainly used as pigments or fillers] [C9410]

[N: **WARNING**

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

[C09C1/68](#) covered by [C09K3/14](#)  
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**Note**

In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place

[N: **Notes**

[C0402]

1. Treatment by polymerisation onto particle is classified in [C08F292/00](#). Only treatment by already polymerised agents is classified in [C09C](#)
2. Whenever in groups [C09C1/00](#) to [C09C1/66](#) the materials consist of a particulate core bearing a coating or any other deposit, classification is done only according to the composition of the core, unless otherwise stated, e.g. [C09C1/00F](#), [C09C1/00G](#)
3. Preparations of those materials which are no single chemical compounds comprise those of many ceramic pigments ([C09C1/00D](#)), consisting of solid solutions or polycrystalline structures, and those defined as composite materials ([C09C1/00H](#))
4. Preparation and treatment steps are not always easy to distinguish from each other, e.g. preparation in the presence of treating agents (by precipitation or calcination), precise reacting conditions, affecting pigmentary effects. It is common practice to include these complex topics in [C09C1/00](#) while avoiding redundancy
5. When classifying in this subclass, the indexing codes of subclass M01P are used to identify structural or physical aspects of solid inorganic compounds

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### C09C1/00

**Treatment of specific inorganic materials other than fibrous fillers (luminescent or tenebrescent materials [C09K](#)); Preparation of carbon black**

#### C09C1/00B

. [N: Compounds of molybdenum ([C09C1/00F](#) takes precedence)] [C9502]

#### C09C1/00C

. [N: containing bismuth and vanadium ([C09C1/00F](#) takes precedence)] [C9502]

#### C09C1/00D

. [N: Pigments for ceramics ([C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]

#### C09C1/00D2

. . [N: containing zirconium and silicon]

- C09C1/00F . [N: Pigments exhibiting interference colours, e.g. transparent platelets of appropriate thickness or flaky substrates, e.g. mica, bearing appropriate thin transparent coatings ([C09C1/00G](#), [C09C1/62](#) take precedence)] [C0908]
- [N: **Notes** [N0908]
1. The optical properties of the interference pigments are depending on the order of the different layers applied on the substrate in view of their refractive indices; A refractive index # 1.8 is considered low, a refractive index >1.8 is considered high; A dye is always an organic, coloured material. An aluminium lake compound would for classification purposes also fall under this definition, as well as any coloured metal chelate or metal complex with organic ligands; An interference pigment can e.g. have a flaky, spherical or ellipsoidal core; A pigment comprising a core consisting of a metal is only considered as an interference pigment if it shows properties typical for interference pigments
2. In groups [C09C1/00F](#) to [C09C1/00F24F](#) it is desirable to add indexing codes relating to the compositional and structural details chosen from groups [M09C200/00](#) to [M09C220/20](#)
- ]
- C09C1/00F2 . . [N: uncoated and unlayered plate-like particles]
- C09C1/00F10 . . [N: comprising a core coated with only one layer having a high or low refractive index] [N0908]
- C09C1/00F20 . . [N: comprising a stack of coating layers with alternating high and low refractive indices, wherein the first coating layer on the core surface has the high refractive index] [N0908]
- C09C1/00F20B . . . [N: One layer consisting of at least one sub-stoichiometric inorganic compound] [N0908]
- C09C1/00F20D . . . [N: comprising at least one light-absorbing layer] [N0908]
- C09C1/00F20D2 . . . . [N: consisting of a metal or an alloy] [N0908]
- C09C1/00F20D4 . . . . [N: consisting of at least one dye] [N0908]
- C09C1/00F20D6 . . . . [N: consisting of at least one coloured inorganic material] [N0908]
- C09C1/00F20D6B . . . . . [N: Sub-stoichiometric inorganic materials] [N0908]
- C09C1/00F20D8 . . . . [N: consisting of a carbonaceous material, e.g. carbon black, graphite, SWNT, MWNT incorporated within an inorganic material] [N0908]
- C09C1/00F20F . . . [N: comprising at least one optically active layer with at least one organic material layer, e.g. liquid crystal polymers] [N0908]
- C09C1/00F24 . . [N: comprising a stack of coating layers with alternating low and high refractive indices, wherein the first coating layer on the core surface has the low refractive index] [N0908]
- C09C1/00F24B . . . [N: one layer consisting of at least one sub-stoichiometric inorganic compound] [N0908]
- C09C1/00F24D . . . [N: comprising at least one light-absorbing layer] [N0908]
- C09C1/00F24D2 . . . . [N: consisting of a metal or an alloy] [N0908]
- C09C1/00F24D4 . . . . [N: consisting of at least one dye] [N0908]
- C09C1/00F24D6 . . . . [N: consisting of at least one coloured inorganic material] [N0908]
- C09C1/00F24D6B . . . . . [N: Sub-stoichiometric inorganic materials] [N0908]
- C09C1/00F24D8 . . . . [N: consisting of a carbonaceous material, e.g. carbon black, graphite, SWNT, MWNT incorporated within an inorganic material] [N0908]
- C09C1/00F24F . . . [N: comprising at least one optically active layer with at least one organic material layer, e.g. liquid crystal polymers] [N0908]
- C09C1/00G . [N: Pigments consisting of flaky, non-metallic substrates, characterised by a

- surface-region containing free metal] [C9502]
- C09C1/00H . [N: Composite particulate pigments or fillers, i.e. containing at least two solid phases, except those consisting of coated particules of one compound ([C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]
  - C09C1/00H2 . . [N: containing titanium dioxide]
  - C09C1/00H2D . . . [N: only containing titanium dioxide and silica or silicate]
  - C09C1/00H5 . . [N: whose phases only contain calcium, magnesium and carbonate ions and may contain hydroxyl ions]
  - C09C1/00H6 . . [N: whose phases only contain calcium ions, carbonate ions and silicate ions or silica]
  - C09C1/00K . [N: Compounds of antimony ([C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]
  - C09C1/02 . Compounds of alkaline earth metals or magnesium [N: ([C09C1/00B](#), [C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#) take precedence; dolomitic solids [C09C1/00H5](#))] [C9502]
  - C09C1/02B . . [N: Calcium carbonates]
  - C09C1/02B6 . . . [N: Treatment with inorganic compounds]
  - C09C1/02B6B . . . . [N: Coating]
  - C09C1/02D . . [N: Calcium sulfates]
  - C09C1/02F . . [N: Barium sulfates]
  - C09C1/02H . . [N: Compounds containing only magnesium as metal]
  - C09C1/04 . Compounds of zinc [N: ([C09C1/00B](#), [C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]
  - C09C1/04B . . [N: Zinc oxide]
  - C09C1/04D . . [N: containing phosphorus]
  - C09C1/06 . . Lithopone
  - C09C1/08 . . Zinc chromate
  - C09C1/10 . Compounds of cadmium [N: ([C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]
  - C09C1/12 . . Cadmium suphosenide
  - C09C1/14 . Compounds of lead [N: ([C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]
  - C09C1/16 . . White lead
  - C09C1/18 . . Red lead
  - C09C1/20 . . Lead chromate
  - C09C1/22 . Compounds of iron [N: ([C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]
  - C09C1/24 . . Oxides of iron
  - C09C1/24P . . . [N: of plate-like shape]
  - C09C1/26 . . Iron blues
  - C09C1/28 . Compounds of silicon [N: ([C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]

- C09C1/30 . . Silicic acid
  - [N: **Notes**[C0807]
  - ]
- C09C1/30D4 . . . [N: Physical treatment, e.g. grinding; treatment with ultrasonic vibrations]
- C09C1/30D4B . . . . [N: Grinding]
- C09C1/30D4D . . . . [N: Drying, calcination]
- C09C1/30D4F . . . . [N: Agglomeration, granulation, pelleting]
- C09C1/30D6 . . . [N: Treatment with inorganic compounds]
- C09C1/30D6B . . . . [N: Coating]
- C09C1/30D8 . . . [N: Treatment with low-molecular organic compounds]
- C09C1/30D10 . . . [N: Treatment with macro-molecular organic compounds]
- C09C1/30D12 . . . [N: Treatment with organo-silicon compounds]
- C09C1/30P . . . [N: Combinations of treatments provided for in groups [C09C1/30D4](#) to [C09C1/30D12](#)]
- C09C1/32 . . Ultramarine
- C09C1/34 . Compounds of chromium [N: ([C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#), [C09C1/08](#), [C09C1/20](#) take precedence)] [C9502]
- C09C1/34B . . [N: containing silicon or associated with silicon containing material, except when silicon only occurs in a thin coating of the particles]
- C09C1/34D . . [N: Chromium oxides]
- C09C1/36 . Compounds of titanium [N: ([C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]
- C09C1/36D . . [N: Titanium dioxide]
  - [N: **Notes**[C0807]
  - ]
- C09C1/36D4 . . . [N: Physical treatment, e.g. grinding, treatment with ultrasonic vibrations]
- C09C1/36D4B . . . . [N: Grinding]
- C09C1/36D4D . . . . [N: Drying, calcination]
- C09C1/36D4F . . . . [N: Agglomeration, granulation, pelleting]
- C09C1/36D4H . . . . [N: Densifying, degassing, packaging]
- C09C1/36D6 . . . [N: Treatment with inorganic compounds]
- C09C1/36D6B . . . . [N: Coating]
- C09C1/36D8 . . . [N: Treatment with low-molecular organic compounds]
- C09C1/36D10 . . . [N: Treatment with macro-molecular organic compounds]
- C09C1/36D12 . . . [N: Treatment with organo-silicon compounds]
- C09C1/36P . . [N: Combinations of treatments provided for in groups [C09C1/36D4](#) to [C09C1/36D12](#)]
- C09C1/38 . Compounds of mercury [N: ([C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#) take precedence)] [C9502]
- C09C1/40 . Compounds of aluminium [N: ([C09C1/00D](#), [C09C1/00F](#), [C09C1/00G](#), [C09C1/32](#) take precedence)] [C9502]

- C09C1/40B . . [N: Satin white, modifications thereof, e.g. carbonated or silicated; Calcium sulfoaluminates; Mixtures thereof, e.g. with calcium carbonate or kaolin]
- C09C1/40D . . [N: containing combined silica, e.g. mica]
- C09C1/40F . . [N: Aluminium oxides or hydroxides]
- C09C1/42 . . Clays (preparatory treatment for clay wares [C04B33/04](#))
  
- C09C1/44 . Carbon
- C09C1/46 . . Graphite ([N: [C09C1/00F](#) takes precedence]; preparation of graphite [C01B31/04](#) [[C9502](#)])
- C09C1/48 . . Carbon black
- C09C1/48M . . . [N: Preparation from used rubber products, e.g. tyres (recovery of plastics or other constituents of waste material containing plastics [B29B17/00](#))] [[C1110](#)]
- C09C1/48P . . . [N: Preparation involving the use of a plasma or of an electric arc]
- C09C1/48S . . . [N: Separation; Recovery (quenching [C09C1/50](#) to [C09C1/54](#))]
- C09C1/50 . . . Furnace black; [N: Preparation thereof (separation or recovery [C09C1/48S](#))]
- C09C1/52 . . . Channel black; [N: Preparation thereof (separation or recovery [C09C1/48S](#))]
- C09C1/54 . . . Acetylene black; Thermal black; [N: Preparation thereof (separation or recovery [C09C1/48S](#))]
- C09C1/56 . . . Treatment of carbon black; [N: Purification]
- C09C1/56B . . . . [N: comprising an oxidative treatment with oxygen, ozone or oxygenated compounds, e.g. when such treatment occurs in a region of the furnace next to the carbon black generating reaction zone]
- C09C1/58 . . . . Agglomerating, pelleting, or the like by wet methods
- C09C1/60 . . . . Agglomerating, pelleting, or the like by dry methods
  
- C09C1/62 . Metallic pigments or fillers ([N: [C09C1/00F](#) takes precedence]; obtaining metal powder, see the relevant class for the method used, e.g. [B22F9/00](#), [C21B15/02](#), [C22B5/20](#), [C25C5/00](#)) [[C9502](#)]
- C09C1/62B . . [N: Comminution, shaping or abrasion of initially uncoated particles, possibly in presence of grinding aids, abrasives or chemical treating or coating agents; Particle solidification from melted or vaporised metal; Classification]
- C09C1/62B2 . . . [N: the particles consisting of zinc or a zinc alloy]
- C09C1/62C . . [N: Copper] [[N9702](#)]
- C09C1/64 . . Aluminium
- C09C1/64D . . . [N: treated with inorganic compounds]
- C09C1/64E . . . [N: treated with organic compounds, e.g. polymers]
- C09C1/64E2 . . . . [N: concomitant with mechanical comminution, shaping or abrasion of the particles]
- C09C1/64F . . . [N: treated with inorganic and organic, e.g. polymeric, compounds]
  
- C09C1/66 . Copper alloys, e.g. bronze
  
- C09C3/00** **Treatment in general of inorganic materials, other than fibrous fillers, to enhance their pigmenting or filling properties (dyeing other macromolecular particles [C08J3/20](#); dyeing macromolecular fibres [D06P](#))**
  
- C09C3/00B . [N: Flushing]

- C09C3/00P . [N: Combinations of treatments provided for in groups [C09C3/04](#) to [C09C3/12](#)]  
 [N: **Notes**[C0807]  
 1. When classifying in this group, it is desirable to classify the individual treatment steps with symbols chosen from groups [C09C3/04](#) to [C09C3/12](#).  
 ]
- C09C3/04 . Physical treatment, e.g. grinding, treatment with ultrasonic vibrations [N: ([C09C3/00P](#) takes precedence)] [C0005]
- C09C3/04B . . [N: Grinding]
- C09C3/04D . . [N: Drying, calcination]
- C09C3/04F . . [N: Agglomeration, granulation, pelleting]
- C09C3/04H . . [N: Densifying, degassing, packaging]
- C09C3/04P . . [N: Treatment with a plasma] [N9412]
- C09C3/06 . Treatment with inorganic compounds [N: ([C09C3/00P](#), [C09C3/04P](#) take precedence)] [C0005]
- C09C3/06B . . [N: Coating]
- C09C3/06G . . [N: Treatment or coating resulting in a free metal containing surface-region ([C09C1/00G](#) takes precedence)]
- C09C3/08 . Treatment with low-molecular-weight [N: non-polymer] organic compounds [N: ([C09C3/00P](#), [C09C3/04P](#) take precedence)] [C0005]
- C09C3/10 . Treatment with macromolecular organic compounds [N: ([C09C3/00P](#) takes precedence)] [C0005]
- C09C3/12 . Treatment with organosilicon compounds [N: ([C09C3/00P](#) takes precedence)] [C0005]