

CPC COOPERATIVE PATENT CLASSIFICATION

C09K MATERIALS FOR MISCELLANEOUS APPLICATIONS, NOT PROVIDED FOR ELSEWHERE

NOTES

1. This subclass covers also the use of specified materials in general or their use for the applications not specially provided for elsewhere.
2. In this subclass, the following term is used with the meaning indicated:
 - "materials" includes compositions.

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:

[C09K 11/78-C09K 11/86](#)

covered by

3/00 Materials not provided for elsewhere

NOTE

When classifying in groups [C09K 3/10](#) - [C09K 3/1028](#) the properties and uses of the material can be further indexed by using indexing codes chosen from [C09K 2003/1034](#) - [C09K 2003/1096](#) and the chemical nature of the materials can be further indexed by using indexing codes chosen from [C09K 2200/00](#) - [C09K 2200/0697](#)

3/10 . {Materials in mouldable or extrudable form} for sealing or packing joints or covers ([filling pastes C09D 5/34](#))

3/1003 . . {Pure inorganic mixtures}

3/1006 . . {characterised by the chemical nature of one of its constituents}

3/1009 . . . {Fluorinated polymers, e.g. PTFE}

3/1012 . . . {Sulfur-containing polymers, e.g. polysulfides}

3/1015 . . . {Polysaccharides or derivatives thereof}

3/1018 . . . {Macromolecular compounds having one or more carbon-to-silicon linkages}

3/1021 . . . {Polyurethanes or derivatives thereof}

3/1025 . . {characterised by non-chemical features of one or more of its constituents}

3/1028 . . . {Fibres}

3/1031 . . {Sealing waxes, e.g. sealing letters, bottles, or the like}

2003/1034 . . {Materials or components characterised by specific properties}

2003/1037 . . . {Intumescent materials}

2003/104 . . . {Water-swellable materials}

2003/1043 . . . {Non water-swellable materials}

2003/1046 . . . {Water-absorbing materials}

2003/105 . . . {Water-soluble materials}

2003/1053 . . . {Elastomeric materials}

2003/1056 . . . {Moisture-curable materials}

2003/1059 . . . {Heat-curable materials}

2003/1062 . . . {UV-curable materials}

2003/1065 . . . {Anaerobically hardenable materials}

2003/1068 . . . {Crosslinkable materials}

2003/1071 . . . {Thixotropic materials}

2003/1075 . . . {Injection-mouldable materials}

2003/1078 . . . {Fire-resistant, heat-resistant materials}

2003/1081 . . . {Water-proofed materials}

2003/1084 . . {Laminates}

2003/1087 . . {Materials or components characterised by specific uses}

2003/109 . . . {Crown caps}

2003/1093 . . . {Cables}

2003/1096 . . . {Cylinder head gaskets}

3/12 . Materials for stopping leaks, e.g. in radiators, in tanks ([filling pastes C09D 5/34](#))

3/14 . Anti-slip materials; Abrasives {(products specifically intended for the fabrication of abrasive tools, blocks or papers, or for operations of the kind of sand-blasting and barrelling [B24B 31/14](#), [B24C 1/00](#); polishing compositions containing abrasive or grinding agents [C09G 1/02](#); polishing of semi-conductors [H01L](#); friction compositions for brakes or clutches [F16D 69/02](#))}

NOTE

In this group, boron and silicon are considered as being metals. Likewise for associations of carbon with metals, e.g. carbides.

3/1409 . . {Abrasive particles *per se* ([preparation of diamond C01B 31/06](#))}

3/1418 . . . {obtained by division of a mass agglomerated by sintering}

3/1427 . . . {obtained by division of a mass agglomerated by melting, at least partially, e.g. with a binder}

3/1436 . . {Composite particles, e.g. coated particles}

3/1445 . . . {the coating consisting exclusively of metals}

3/1454 . . {Abrasive powders, suspensions and pastes for polishing}

3/1463 . . . {Aqueous liquid suspensions}

3/1472 . . . {Non-aqueous liquid suspensions}

3/1481 . . . {Pastes, optionally in the form of blocks or sticks}

3/149 . . {Antislip compositions}

3/16 . Anti-static materials

3/18 . for application to surfaces to minimize adherence of ice, mist or water thereto ([rendering particulate materials free flowing, in general, e.g. making them hydrophobic B01J 2/30](#)); Thawing or antifreeze materials for application to surfaces ([used in liquids for heat-transfer, heat-exchange or heat-storage or for the production of heat or cold other than by combustion, e.g. radiator liquids, C09K 5/00](#))

- 3/185 . . {Thawing materials}
- 3/20 . as substitutes for glycerol in its non-chemical uses, e.g. as a base in toilet creams or ointments
- 3/22 . for dust-laying or dust-absorbing
- 3/24 . for simulating ice or snow
- 3/30 . for aerosols (aerosol containers [B65D 83/14](#))
- 3/32 . for absorbing liquids to remove pollution, e.g. oil, gasoline, fat

5/00 Heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants; Materials for the production of heat or cold by chemical reactions other than by combustion

- 5/02 . Materials undergoing a change of physical state when used ([C09K 5/16](#), [C09K 5/20](#) take precedence)
- 5/04 . . the change of state being from liquid to vapour or vice versa

NOTE

When classifying in groups [C09K 5/042](#), [C09K 5/044](#) and [C09K 5/045](#) the chemical nature of the material can be further indexed by using indexing codes chosen from [C09K 2205/00](#) - [C09K 2205/48](#)

- 5/041 . . . {for compression-type refrigeration systems}
- 5/042 {comprising compounds containing carbon and hydrogen only}
- 5/044 {comprising halogenated compounds}
- 5/045 {containing only fluorine as halogen}
- 5/047 . . . {for absorption-type refrigeration systems}
- 5/048 . . . {Boiling liquids as heat transfer materials}
- 5/06 . . the change of state being from liquid to solid or vice versa
- 5/063 . . . {Materials absorbing or liberating heat during crystallisation; Heat storage materials}
- 5/066 . . . {Cooling mixtures; De-icing compositions}
- 5/08 . Materials not undergoing a change of physical state when used ([C09K 5/16](#), [C09K 5/20](#) take precedence)

WARNING

The subgroups of [C09K 5/08](#) might be incomplete as some of the patent documents classified in [C09K 5/08](#) might need reclassification to one or more of groups [C09K 5/10](#) - [C09K 5/14](#)

- 5/10 . . Liquid materials
- 5/12 . . . Molten materials, i.e. materials solid at room temperature, e.g. metals or salts
- 5/14 . . Solid materials, e.g. powdery or granular
- 5/16 . Materials undergoing chemical reactions when used
- 5/18 . . Non-reversible chemical reactions

WARNING

This group might be incomplete as some of the patent documents classified in [C09K 5/16](#) might need reclassification to [C09K 5/18](#)

- 5/20 . Antifreeze additives therefor, e.g. for radiator liquids (for application to surfaces [C09K 3/18](#); inhibiting corrosion by liquids [C23F 11/00](#))

8/00 Compositions for drilling of boreholes or wells; Compositions for treating boreholes or wells, e.g. for completion or for remedial operations

NOTE

{When classifying in groups [C09K 8/00](#)-[C09K 8/40](#) and [C09K 8/50](#)-[C09K 8/94](#), it is mandatory when appropriate to classify with indexing codes for aspects relating to compositions for drilling or treating boreholes or wells. The indexing codes are chosen from the groups [C09K 2208/00](#)-[C09K 2208/34](#)}

- 8/02 . Well-drilling compositions

NOTE

In groups [C09K 8/02](#)-[C09K 8/38](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.

- 8/03 . . Specific additives for general use in well-drilling compositions
- 8/032 . . . {Inorganic additives}
- 8/035 . . . Organic additives
- 8/04 . . Aqueous well-drilling compositions
- 8/05 . . . containing inorganic compounds only, e.g. mixtures of clay and salt
- 8/06 . . . Clay-free compositions (containing inorganic compounds only [C09K 8/05](#))
- 8/08 containing natural organic compounds, e.g. polysaccharides, or derivatives thereof
- 8/10 Cellulose or derivatives thereof
- 8/12 containing synthetic organic macromolecular compounds or their precursors
- 8/14 . . . Clay-containing compositions (containing inorganic compounds [C09K 8/05](#))
- 8/145 {characterised by the composition of the clay}
- 8/16 characterised by the inorganic compounds other than clay
- 8/18 characterised by the organic compounds
- 8/20 Natural organic compounds or derivatives thereof, e.g. polysaccharides or lignin derivatives
- 8/203 {Wood derivatives, e.g. lignosulfonate, tannin, tall oil, sulfite liquor}
- 8/206 {Derivatives of other natural products, e.g. cellulose, starch, sugars}
- 8/22 Synthetic organic compounds
- 8/24 Polymers
- 8/26 . . . Oil-in-water emulsions
- 8/265 {containing inorganic additives}
- 8/28 containing organic additives
- 8/32 . . Non-aqueous well-drilling compositions, e.g. oil-based
- 8/34 . . . Organic liquids
- 8/36 . . . Water-in-oil emulsions
- 8/38 . . Gaseous or foamed well-drilling compositions
- 8/40 . Spacer compositions, e.g. compositions used to separate well-drilling from cementing masses
- 8/42 . Compositions for cementing, e.g. for cementing casings into boreholes; Compositions for plugging, e.g. for killing wells (compositions for plastering [C09K 8/50](#))

- 8/422 . . {specially adapted for sealing expandable pipes, e.g. of the non-hardening type}
- 8/424 . . {using "spacer" compositions}
- 8/426 . . {for plugging}
- 8/428 . . {for squeeze cementing, e.g. for repairing}
- 8/44 . . containing organic binders only
- 8/46 . . containing inorganic binders, e.g. Portland cement
- 8/467 . . . containing additives for specific purposes
- 8/473 Density reducing additives, e.g. for obtaining foamed cement compositions
- 8/48 Density increasing or weighting additives
- 8/487 Fluid loss control additives; Additives for reducing or preventing circulation loss
- 8/493 Additives for reducing or preventing gas migration
- 8/50 . . Compositions for plastering borehole walls, i.e. compositions for temporary consolidation of borehole walls (compositions for consolidating loose sand or the like around wells [C09K 8/56](#))
- 8/501 . . {using spacer compositions}
- 8/502 . . Oil-based compositions
- 8/504 . . Compositions based on water or polar solvents ([C09K 8/502](#) takes precedence)
- 8/5045 . . . {containing inorganic compounds}
- 8/506 . . . containing organic compounds
- 8/508 macromolecular compounds {([C09K 8/512](#) takes precedence)}
- 8/5083 {obtained by reactions only involving carbon-to-carbon unsaturated bonds}
- 8/5086 {obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds}
- 8/512 containing cross-linking agents
- 8/514 of natural origin, e.g. polysaccharides, cellulose ([C09K 8/512](#) takes precedence)
- 8/516 . . characterised by their form or by the form of their components, e.g. encapsulated material
- 8/518 . . . Foams
- 8/52 . . Compositions for preventing, limiting or eliminating depositions, e.g. for cleaning
- 8/524 . . organic depositions, e.g. paraffins or asphaltenes
- 8/528 . . inorganic depositions, e.g. sulfates or carbonates
- 8/532 . . . Sulfur
- 8/536 . . characterised by their form or by the form of their components, e.g. encapsulated material
- 8/54 . . Compositions for in situ inhibition of corrosion in boreholes or wells
- 8/56 . . Compositions for consolidating loose sand or the like around wells without excessively decreasing the permeability thereof (compositions for plastering borehole walls [C09K 8/50](#); {Soil-conditioning materials or soil-stabilising materials in general [C09K 17/00](#)})
- 8/565 . . Oil-based compositions
- 8/57 . . Compositions based on water or polar solvents ([C09K 8/565](#) takes precedence)
- 8/572 . . . {containing inorganic compounds}
- 8/575 . . . containing organic compounds
- 8/5751 {Macromolecular compounds ([C09K 8/5756](#) takes precedence)}
- 8/5753 {obtained by reactions only involving carbon-to-carbon unsaturated bonds}
- 8/5755 {obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds}
- 8/5756 {containing cross-linking agents}
- 8/5758 {of natural origin, e.g. polysaccharides, cellulose ([C09K 8/5756](#) takes precedence)}
- 8/58 . . Compositions for enhanced recovery methods for obtaining hydrocarbons, i.e. for improving the mobility of the oil, e.g. displacing fluids
- 8/582 . . characterised by the use of bacteria
- 8/584 . . characterised by the use of specific surfactants
- 8/588 . . characterised by the use of specific polymers {(polymeric surfactants [C09K 8/584](#))}
- 8/592 . . Compositions used in combination with generated heat, e.g. by steam injection
- 8/594 . . Compositions used in combination with injected gas {, e.g. CO₂ or carbonated gas} ([C09K 8/592](#) takes precedence)
- 8/60 . . Compositions for stimulating production by acting on the underground formation
- 8/601 . . {using spacer compositions}
- 8/602 . . {containing surfactants}
- 8/604 . . . {Polymeric surfactants}
- 8/605 . . . {containing biocides}
- 8/607 . . . {specially adapted for clay formations}
- 8/608 . . . {Polymer compositions}
- 8/62 . . Compositions for forming crevices or fractures
- 8/64 . . . Oil-based compositions
- 8/66 . . . Compositions based on water or polar solvents ([C09K 8/64](#) takes precedence)
- 8/665 {containing inorganic compounds (proppants [C09K 8/80](#))}
- 8/68 containing organic compounds

NOTE

Documents classified in this group are also classified in groups [C09K 8/88](#) - [C09K 8/905](#) according to the specific compositions

- 8/685 {containing cross-linking agents}
- 8/70 . . . characterised by their form or by the form of their components, e.g. foams
- 8/703 {Foams}
- 8/706 {Encapsulated breakers}
- 8/72 . . . Eroding chemicals, e.g. acids
- 8/725 {Compositions containing polymers}
- 8/74 combined with additives added for specific purposes
- 8/76 for preventing or reducing fluid loss
- 8/78 for preventing sealing
- 8/80 . . Compositions for reinforcing fractures, e.g. compositions of proppants used to keep the fractures open
- 8/805 . . . {Coated proppants}
- 8/82 . . Oil-based compositions ([C09K 8/64](#) takes precedence)
- 8/84 . . Compositions based on water or polar solvents ([C09K 8/66](#), [C09K 8/82](#) take precedence)
- 8/845 . . . {containing inorganic compounds}
- 8/86 . . . containing organic compounds
- 8/88 macromolecular compounds

- 8/882 {obtained by reactions only involving carbon-to-carbon unsaturated bonds}
- 8/885 {obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds}
- 8/887 {containing cross-linking agents}
- 8/90 of natural origin, e.g. polysaccharides, cellulose
- 8/905 {Biopolymers}
- 8/92 . . characterised by their form or by the form of their components, e.g. encapsulated material (C09K 8/70 takes precedence)
- 8/94 . . . Foams

9/00 Tenebrescent materials, i.e. materials for which the range of wavelength for energy absorption is changed as result of excitation by some form of energy ({liquid crystal materials C09K 19/00; photochromic glass C03C 4/06; in thermometers G01K 11/12; in photochromic filters G02B 5/23; in optical modulation devices G02F 1/00} ; photosensitive materials for photographic purposes G03C; in cathodochromic screens H01J 29/14))

NOTE

When classifying in groups C09K 9/02 the chemical nature of the tenebrescent material can be further indexed by using indexing codes chosen from C09K 2211/00 - C09K 2211/188

- 9/02 . Organic tenebrescent materials
- 11/00 Luminescent, e.g. electroluminescent, chemiluminescent materials**
- 11/01 . Recovery of luminescent materials
- 11/02 . Use of particular materials as binders, particle coatings or suspension media therefor
- 11/025 . . {Use of non-luminescent materials other than binders}
- 11/04 . containing natural or artificial radioactive elements or unspecified radioactive elements
- 11/06 . containing organic luminescent materials

NOTE

When classifying in groups C09K 11/06 and C09K 11/07 the chemical nature of the luminescent material can be further indexed by using indexing codes chosen from C09K 2211/00 - C09K 2211/188

- 11/07 . . having chemically interreactive components, e.g. reactive chemiluminescent compositions
- 11/08 . containing inorganic luminescent materials

NOTES

1. In groups C09K 11/08 - C09K 11/897, in the absence of an indication to the contrary, classification of materials is made in the last appropriate place
2. { In this group, magnesium is considered as an alkaline earth metal }

WARNING

Groups C09K 11/0805 - C09K 11/0894, with the exception of C09K 11/0883 for classifying nitrides, are no longer used for classification of new documents. The backlog of this group is being continuously reclassified to subgroups C09K 11/54 - C09K 11/897

- 11/0805 . . {Chalcogenides}
- 11/0811 . . . {with Zn or Cd}
- 11/0816 . . . {with alkaline earth metals}
- 11/0822 . . . {with rare earth metals}
- 11/0827 . . {Halogenides (C09K 11/0805, C09K 11/0838 - C09K 11/0894 take precedence)}
- 11/0833 . . . {with alkali or alkaline earth metals}
- 11/0838 . . {Aluminates; Silicates}
- 11/0844 . . {Germanates}
- 11/085 . . {Vanadates}
- 11/0855 . . {Phosphates}
- 11/0861 . . . {with alkaline earth metals}
- 11/0866 {with halogens}
- 11/0872 . . . {with rare earth metals}
- 11/0877 . . {Borates}
- 11/0883 . . {Arsenides; Nitrides; Phosphides}
- 11/0888 . . {Sulfates}
- 11/0894 . . {Antimonates; Arsenates}
- 11/54 . . containing zinc or cadmium
- 11/55 . . containing beryllium, magnesium, alkali metals or alkaline earth metals
- 11/56 . . containing sulfur
- 11/562 . . . {Chalcogenides}
- 11/565 {with zinc cadmium}
- 11/567 {with alkaline earth metals}
- 11/57 . . containing manganese or rhenium
- 11/572 . . . {Chalcogenides}
- 11/574 {with zinc or cadmium}
- 11/576 {with alkaline earth metals}
- 11/578 . . . {Sulfates}
- 11/58 . . containing copper, silver or gold
- 11/582 . . . {Chalcogenides}
- 11/584 {with zinc or cadmium}
- 11/586 {with alkaline earth metals}
- 11/588 . . . {Sulfates}
- 11/59 . . containing silicon
- 11/592 . . . {Chalcogenides}
- 11/595 {with zinc or cadmium}
- 11/597 . . . {Sulfates}
- 11/60 . . containing iron, cobalt or nickel
- 11/602 . . . {Chalcogenides}
- 11/605 {with zinc or cadmium}
- 11/607 . . . {Silicates}
- 11/61 . . containing fluorine, chlorine, bromine, iodine or unspecified halogen elements
- 11/611 . . . {Chalcogenides}
- 11/612 {with zinc or cadmium}
- 11/613 {with alkali or alkaline earth metals}
- 11/615 . . . {Halogenides (C09K 11/617 and C09K 11/618 take precedence)}
- 11/616 {with alkali or alkaline earth metals}
- 11/617 . . . {Silicates}
- 11/618 . . . {Sulfates}
- 11/62 . . containing gallium, indium or thallium

11/621	. . . {Chalcogenides}	11/705	. . . {Halogenides (C09K 11/701 , C09K 11/706 and C09K 11/708 take precedence)}
11/623	. . . . {with zinc or cadmium}	11/706	. . . {Aluminates; Silicates}
11/625	. . . . {with alkaline earth metals}	11/708	. . . {Borates}
11/626	. . . {Halogenides (C09K 11/621 takes precedence)}	11/71	. . . also containing alkaline earth metals
11/628	. . . . {with alkali or alkaline earth metals}	11/712	. . . . {Halogenides (C09K 11/717 takes precedence)}
11/63	. . containing boron	11/715	. . . . . {with alkali or alkaline earth metals}
11/632	. . . {Halogenides (C09K 11/636 and C09K 11/638 take precedence)}	11/717	. . . . . {Aluminates; Silicates}
11/634	. . . . . {with alkali or alkaline earth metals}	11/72	. . . also containing halogen, e.g. halophosphates
11/636	. . . {Silicates}	11/722	. . . . . {Chalcogenides}
11/638	. . . {Sulfates}	11/725	. . . . . {with alkaline earth metals}
11/64	. . containing aluminium	11/727	. . . . . {Aluminates; Silicates}
11/641	. . . {Chalcogenides}	11/73	. . . . . also containing alkaline earth metals
11/642	. . . . . {with zinc or cadmium}	11/74	. . containing arsenic, antimony or bismuth
11/643	. . . . . {with alkaline earth metals}	11/7407	. . . {Chalcogenides}
11/644	. . . {Halogenides (C09K 11/641 , C09K 11/646 - C09K 11/648 take precedence)}	11/7414	. . . . . {with zinc or cadmium}
11/645	. . . . . {with alkali or alkaline earth metals}	11/7421	. . . . . {with alkaline earth metals}
11/646	. . . {Silicates}	11/7428	. . . {Halogenides (C09K 11/7407 , C09K 11/7442 - C09K 11/7492 take precedence)}
11/647	. . . {Borates}	11/7435	. . . . . {with alkali or alkaline earth metals}
11/648	. . . {Sulfates}	11/7442	. . . {Aluminates; Silicates}
11/65	. . containing carbon (in organic compounds C09K 11/06)	11/745	. . . {Germanates}
11/655	. . . {Aluminates; Silicates}	11/7457	. . . {Vanadates; Chromates; Molybdates; Tungstates}
11/66	. . containing germanium, tin or lead	11/7464	. . . {Phosphates}
11/661	. . . {Chalcogenides}	11/7471	. . . . . {with alkaline earth metals}
11/662	. . . . . {with zinc or cadmium}	11/7478	. . . . . {with halogens}
11/663	. . . . . {with alkaline earth metals}	11/7485	. . . {Borates}
11/664	. . . {Halogenides (C09K 11/661 , C09K 11/666 - C09K 11/668 take precedence)}	11/7492	. . . {Arsenides; Nitrides; Phosphides}
11/665	. . . . . {with alkali or alkaline earth metals}	11/75	. . . containing antimony
11/666	. . . {Aluminates; Silicates}	11/751	. . . . . {Chalcogenides}
11/667	. . . {Borates}	11/752	. . . . . {with zinc or cadmium}
11/668	. . . {Sulfates}	11/753	. . . . . {with alkaline earth metals}
11/67	. . containing refractory metals	11/755	. . . . . {Halogenides (C09K 11/751 , C09K 11/757 and C09K 11/758 take precedence)}
11/671	. . . {Chalcogenides}	11/756	. . . . . {with alkali or alkaline earth metals}
11/672	. . . . . {with zinc or cadmium}	11/757	. . . . . {Aluminates; Silicates}
11/673	. . . . . {with alkaline earth metals}	11/758	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/674	. . . {Halogenides (C09K 11/671 , C09K 11/676 - C09K 11/679 take precedence)}	11/76	. . . . . also containing phosphorus and halogen, e.g. halophosphates
11/675	. . . . . {with alkali or alkaline earth metals}	11/765	. . . . . {Borates}
11/676	. . . {Aluminates; Silicates}	11/77	. . containing rare earth metals
11/677	. . . {Germanates}	11/7701	. . . {Chalcogenides}
11/678	. . . {Borates}	11/7702	. . . . . {with zinc or cadmium}
11/679	. . . {Sulfates}	11/7703	. . . . . {with alkaline earth metals}
11/68	. . . containing chromium, molybdenum or tungsten	11/7704	. . . {Halogenides (C09K 11/7701 , C09K 11/7706 - C09K 11/7714 take precedence)}
11/681	. . . . . {Chalcogenides}	11/7705	. . . . . {with alkali or alkaline earth metals}
11/682	. . . . . {with zinc or cadmium}	11/7706	. . . {Aluminates; Silicates}
11/684	. . . . . {with alkaline earth metals}	11/7707	. . . {Germanates}
11/685	. . . . . {Aluminates; Silicates}	11/7708	. . . {Vanadates; Chromates; Molybdates; Tungstates}
11/687	. . . . . {Borates}	11/7709	. . . {Phosphates}
11/688	. . . . . {Sulfates}	11/771	. . . . . {with alkaline earth metals}
11/69	. . containing vanadium	11/7711	. . . . . {with halogens}
11/691	. . . . . {Chalcogenides}	11/7712	. . . {Borates}
11/693	. . . . . {with zinc or cadmium}	11/7713	. . . {Sulfates}
11/695	. . . . . {with alkaline earth metals}	11/7714	. . . {Antimonates; Arsenates}
11/696	. . . . . {Halogenides}		
11/698	. . . . . {Aluminates; Silicates}		
11/70	. . containing phosphorus		
11/701	. . . {Chalcogenides}		
11/703	. . . . . {with zinc and/or cadmium}		

11/7715	. . . {containing cerium}	11/7766	. . . {containing two or more rare earth metals (containing europium C09K 11/7783)}
11/7716	. . . . {Chalcogenides}	11/7767	. . . . {Chalcogenides}
11/7717	. . . . . {with zinc or cadmium}	11/7768	. . . . . {with alkaline earth metals}
11/7718	. . . . . {with alkaline earth metals}	11/7769	. . . . . {Oxides (C09K 11/7768 takes precedence)}
11/7719	. . . . . {Halogenides (C09K 11/7716 , C09K 11/7721 - C09K 11/7727 take precedence)}	11/777	. . . . . {Oxyhalogenides}
11/772	. . . . . {with alkali or alkaline earth metals}	11/7771	. . . . . {Oxysulfides}
11/7721	. . . . . {Aluminates; Silicates}	11/7772	. . . . . {Halogenides (C09K 11/7767 , C09K 11/7774 - C09K 11/7782 take precedence)}
11/7722	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}	11/7773	. . . . . {with alkali or alkaline earth metal}
11/7723	. . . . . {Phosphates}	11/7774	. . . . . {Aluminates; Silicates}
11/7724	. . . . . {with alkaline earth metals}	11/7775	. . . . . {Germanates}
11/7725	. . . . . . {with halogens}	11/7776	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/7726	. . . . . {Borates}	11/7777	. . . . . {Phosphates}
11/7727	. . . . . {Sulfates}	11/7778	. . . . . {with alkaline earth metals}
11/7728	. . . {comprising europium}	11/7779	. . . . . {with halogens}
11/7729	. . . . . {Chalcogenides}	11/778	. . . . . {Borates}
11/773	. . . . . {with zinc and cadmium}	11/7781	. . . . . {Sulfates}
11/7731	. . . . . {with alkaline earth metals}	11/7782	. . . . . {Antimonates; Arsenates}
11/7732	. . . . . {Halogenides}	11/7783	. . . {containing two or more rare earth metals one of which being europium}
11/7733	. . . . . {with alkali or alkaline earth metals}	11/7784	. . . . . {Chalcogenides}
11/7734	. . . . . {Aluminates; Silicates}	11/7785	. . . . . {with zinc and or cadmium}
11/7735	. . . . . {Germanates}	11/7786	. . . . . {with alkaline earth metals}
11/7736	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}	11/7787	. . . . . {Oxides (C09K 11/7785 , C09K 11/7786 take precedence)}
11/7737	. . . . . {Phosphates}	11/7788	. . . . . {Oxyhalogenides}
11/7738	. . . . . {with alkaline earth metals}	11/7789	. . . . . {Oxysulfides}
11/7739	. . . . . . {with halogens}	11/779	. . . . . {Halogenides (C09K 11/7784 , C09K 11/7792 - C09K 11/7798 take precedence)}
11/774	. . . . . {Borates}	11/7791	. . . . . {with alkali or alkaline earth metals}
11/7741	. . . . . {Sulfates}	11/7792	. . . . . {Aluminates; Silicates}
11/7742	. . . . . {Antimonates; Arsenates}	11/7793	. . . . . {Germanates}
11/7743	. . . {containing terbium}	11/7794	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/7744	. . . . . {Chalcogenides}	11/7795	. . . . . {Phosphates}
11/7745	. . . . . . {with zinc or cadmium}	11/7796	. . . . . {with alkaline earth metals}
11/7746	. . . . . . {with alkaline earth metals}	11/7797	. . . . . {Borates}
11/7747	. . . . . {Halogenides (C09K 11/7744 , C09K 11/7749 - C09K 11/7755 take precedence)}	11/7798	. . . . . {Antimonates; Arsenates}
11/7748	. . . . . . {with alkali or alkaline earth metals}	11/87	. . containing platina group metals
11/7749	. . . . . {Aluminates; Silicates}	11/873	. . . {Chalcogenides}
11/775	. . . . . {Germanates}	11/876	. . . . . {with zinc or cadmium}
11/7751	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}	11/88	. . containing selenium, tellurium or unspecified chalcogen elements
11/7752	. . . . . {Phosphates}	11/881	. . . {Chalcogenides}
11/7753	. . . . . . {with alkaline earth metals}	11/883	. . . . . {with zinc or cadmium}
11/7754	. . . . . . {with halogens}	11/885	. . . . . {with alkaline earth metals}
11/7755	. . . . . {Borates}	11/886	. . . . . {with rare earth metals}
11/7756	. . . {containing neodymium}	11/888	. . . {Borates}
11/7757	. . . . . {Halogenides (C09K 11/7758 takes precedence)}	11/89	. . containing mercury
11/7758	. . . . . {Aluminates; Silicates}	11/892	. . . {Chalcogenides}
11/7759	. . . {containing samarium}	11/895	. . . {Halogenides (C09K 11/892 takes precedence)}
11/776	. . . . . {Chalcogenides}	11/897	. . . . . {with alkali or alkaline metals}
11/7761	. . . . . . {with alkaline earth metals}		
11/7762	. . . . . {Halogenides (C09K 11/776 , C09K 11/7764 and C09K 11/7765 take precedence)}		
11/7763	. . . . . . {with alkali or alkaline earth metals}		
11/7764	. . . . . {Aluminates; Silicates}		
11/7765	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}		

13/00 Etching, surface-brightening or pickling compositions (for glass [C03C 15/00](#), {[C03C 25/66](#); for mortars, concrete, artificial or natural stone or ceramics [C04B 41/5338](#)} ; for metallic material [C23F, C23G 1/00](#), [C25F 1/00](#); { for semi-conductors [H01L](#)})

NOTE

In groups [C09K 13/02](#) - [C09K 13/12](#), in the absence of an indication to the contrary, materials are classified in the last appropriate place.

- 13/02 . containing an alkali metal hydroxide
- 13/04 . containing an inorganic acid
- 13/06 . . with organic material
- 13/08 . . containing a fluorine compound
- 13/10 . . containing a boron compound
- 13/12 . containing heavy metal salts in an amount of at least 50% of the non-solvent components

15/00 Anti-oxidant composition; Compositions inhibiting chemical change ({for use in well-specified applications, see the relevant places, e.g. in etching or pickling compositions [C09K 13/00](#), [C23G](#)} , in foodstuffs [A21D](#), [A23](#), {in association with organic compounds [C07C](#), [C07D](#)} , in macromolecular compositions [C08](#); in liquid fuels or lubricants [C10](#); in fats, fatty substances, fatty oils or waxes [C11B 5/00](#); in detergents [C11D](#); {coating or impregnating carbon or graphite based bodies to protect them from oxidation [C04B 41/45](#)} ; corrosion inhibiting compositions for metallic material [C23F 11/00](#))

NOTE

In groups [C09K 15/02](#) - [C09K 15/34](#), in the absence of an indication to the contrary, a composition is classified in the last appropriate place.

- 15/02 . containing inorganic compounds
- 15/04 . containing organic compounds
- 15/06 . . containing oxygen
- 15/08 . . . containing a phenol or quinone moiety
- 15/10 . . containing sulfur
- 15/12 . . containing sulfur and oxygen
- 15/14 . . . containing a phenol or quinone moiety
- 15/16 . . containing nitrogen
- 15/18 . . . containing an amine or imine moiety
- 15/20 . . containing nitrogen and oxygen
- 15/22 . . . containing an amide or imide moiety
- 15/24 . . . containing a phenol or quinone moiety
- 15/26 . . containing nitrogen and sulfur
- 15/28 . . containing nitrogen, oxygen and sulfur
- 15/30 . . containing heterocyclic ring with at least one nitrogen atom as ring member
- 15/32 . . containing {two or more of} boron, silicon, phosphorus, selenium, tellurium or a metal
- 15/322 . . . {containing only phosphorus}
- 15/324 {containing phosphorus and sulfur}
- 15/326 . . . {containing only metals}
- 15/328 . . . {containing boron, silicon, selenium or tellurium}
- 15/34 . containing plant or animal materials of unknown composition

17/00 Soil-conditioning materials or soil-stabilising materials (specially adapted for boreholes or wells [C09K 8/00](#); fertilisers [C05](#); consolidating by placing solidifying or pore-filling substances in the soil [E02D 3/12](#))

NOTES

1. This group covers mixtures of soil-conditioning or soil-stabilising materials with fertilisers characterised by their soil-conditioning or soil-stabilising activity.
2. This group does not cover mixtures of soil-conditioning or soil-stabilising materials with fertilisers characterised by their fertilising activity which are covered by subclass [C05G](#).
3. For the purpose of classification in this group, the presence of fertilisers in the composition is not taken into account.
4. In groups [C09K 17/02](#) - [C09K 17/50](#), in the absence of an indication to the contrary, materials are classified in the last appropriate place.

- 17/02 . containing inorganic compounds only
- 17/04 . . applied in a physical form other than a solution or a grout, e.g. as granules or gases
- 17/045 . . . {applied as gases}
- 17/06 . . Calcium compounds, e.g. lime
- 17/08 . . Aluminium compounds, e.g. aluminium hydroxide
- 17/10 . . Cements, e.g. Portland cement
- 17/12 . . Water-soluble silicates, e.g. waterglass
- 17/14 . containing organic compounds only
- 17/16 . . applied in a physical form other than a solution or a grout, e.g. as platelets or granules
- 17/18 . . Prepolymers; Macromolecular compounds
- 17/20 . . . Vinyl polymers
- 17/22 Polyacrylates; Polymethacrylates
- 17/24 . . . Condensation polymers of aldehydes or ketones
- 17/26 Phenol-aldehyde condensation polymers
- 17/28 Urea-aldehyde condensation polymers
- 17/30 . . . Polyisocyanates; Polyurethanes
- 17/32 . . . of natural origin, e.g. cellulosic materials
- 17/34 . . . Bituminous materials
- 17/36 . . Compounds having one or more carbon-to-silicon linkages
- 17/38 . . . Siloxanes
- 17/40 . containing mixtures of inorganic and organic compounds
- 17/42 . . Inorganic compounds mixed with organic active ingredients, e.g. accelerators
- 17/44 . . . the inorganic compound being cement
- 17/46 . . . the inorganic compound being a water-soluble silicate
- 17/48 . . Organic compounds mixed with inorganic active ingredients, e.g. polymerisation catalysts
- 17/50 . . . the organic compound being of natural origin, e.g. cellulose derivatives
- 17/52 . Mulches

19/00 Liquid crystal materials

NOTES

1. In groups [C09K 19/02](#) - [C09K 19/60](#), { with the exception of groups [C09K 19/0208](#) - [C09K 19/0283](#) } ,in the absence

C09K

C09K 19/00

(continued)

- of an indication to the contrary, materials are classified in the last appropriate place.
 2. Mixtures containing two or more liquid crystal compounds covered individually by the same one of groups [C09K 19/04](#) - [C09K 19/40](#) are classified only in that group.
 3. If liquid crystal components of the mixtures classified in groups [C09K 19/42](#) - [C09K 19/50](#) are of importance as such, they should also be classified according to the compounds in groups [C09K 19/04](#) - [C09K 19/40](#).
- 19/02 . characterised by optical, electrical or physical properties of the components, in general
- 19/0208 . . {Twisted Nematic (T.N.); Super Twisted Nematic (S.T.N.); Optical Mode Interference (O.M.I.)}
- 19/0216 . . {Super Birefringence Effect (S.B.E.); Electrically Controlled Birefringence (E.C.B.)}
- 19/0225 . . {Ferroelectric}
- 19/0233 . . {Electroclinic}
- 19/0241 . . {Ferrielectric; Ferromagnetic}
- 19/025 . . {Ferronematic; Ferrosmetic}
- 19/0258 . . {Flexoelectric}
- 19/0266 . . {Antiferroelectrics}
- 19/0275 . . {Blue phase}
- 19/0283 . . {Cubic phase}
- 19/0291 . . {anticlinic}
- 19/04 . characterised by the chemical structure of the liquid crystal components, {e.g. by a specific unit}
- 19/0403 . . {the structure containing one or more specific, optionally substituted ring or ring systems}
- 2019/0407 . . . {containing a carbocyclic ring, e.g. dicyano-benzene, chlorofluoro-benzene or cyclohexanone}
- 2019/0411 . . . {containing a chlorofluoro-benzene, e.g. 2-chloro-3-fluoro-phenylene-1,4-diyl}
- 2019/0414 . . . {containing a heterocyclic ring}
- 2019/0418 . . . {containing a dendromer structure; Dendritic liquid crystals}
- 19/0422 . . {Sugars ([polysaccharides C09K 19/3819](#))}
- 2019/0425 . . {characterized by a specific unit that results in a functional effect}
- 2019/0429 . . . {the specific unit being a carbocyclic or heterocyclic discotic unit}
- 2019/0433 . . . {the specific unit being a luminescent or electroluminescent unit}
- 2019/0437 . . . {the specific unit being an optically active chain used as linking group between rings or as end group}
- 2019/044 . . . {the specific unit being a perfluoro chain used as an end group}
- 2019/0444 . . {characterized by a linking chain between rings or ring systems, a bridging chain between extensive mesogenic moieties or an end chain group}
- 2019/0448 . . . {the end chain group being a polymerizable end group, e.g. -Sp-P or acrylate}
- 2019/0451 . . . {the end chain group being a $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_2$ - chain}
- 2019/0455 . . . {the linking chain being a -CF₂CF₂- , -CF₂CF₂CF₂CF₂- or -CH₂CF₂CF₂CH₂- chain}
- 2019/0459 . . . {the linking chain being a -CF=CF- chain, e.g. 1,2-difluoroethen-1,2-diyl}
- 2019/0462 . . . {the linking chain being a -CF₂CF₂O- chain}
- 2019/0466 . . . {the linking chain being a -CF₂O- chain}
- 2019/047 . . . {the linking chain being a -CH₂CF₂O- chain}
- 2019/0474 . . . {the linking chain being a -CHFO- chain}
- 2019/0477 . . {characterized by the positioning of substituents on phenylene}
- 2019/0481 . . . {Phenylene substituted in meta position}
- 2019/0485 . . . {Phenylene substituted in ortho position}
- 2019/0488 . . {characterized by a special bonding}
- 2019/0492 . . . {the special bonding being an hydrogen bond}
- 2019/0496 . . . {the special bonding being a specific pi-conjugated group}
- 19/06 . . Non-steroidal liquid crystal compounds
- 19/061 . . . {Linear compounds without any rings}
- 19/062 . . . {containing one non-condensed benzene ring}
- 19/063 . . . {containing one non-condensed saturated non-aromatic ring, e.g. cyclohexane ring}
- 19/065 . . . {containing one non-condensed unsaturated non-aromatic ring, e.g. cyclohexene ring}
- 19/066 . . . {containing one heterocyclic ring having oxygen as heteroatom}
- 19/067 . . . {containing one heterocyclic ring having nitrogen as heteroatom}
- 19/068 . . . {containing one heterocyclic ring having sulfur as heteroatom}
- 19/08 . . . containing at least two non-condensed rings
- 19/10 containing at least two benzene rings
- 19/12 at least two benzene rings directly linked, e.g. biphenyls
- 2019/121 {Compounds containing phenylene-1,4-diyl (-Ph-)}
- 2019/122 {Ph-Ph}
- 2019/123 {Ph-Ph-Ph}
- 2019/124 {Ph-Ph-Ph-Ph}
- 2019/125 {Ph-Ph-Ph-Ph or more Ph rings}
- 19/126 {Compounds containing at least one asymmetric carbon atom}
- 2019/127 {Compounds containing phenylene-1,3-diyl}
- 2019/128 {Compounds containing phenylene-1,2-diyl}
- 19/14 linked by a carbon chain
- 19/16 the chain containing carbon-to-carbon double bonds, e.g. stilbenes
- 2019/161 {Ph-CH=CH-Ph}
- 2019/163 {Ph-Ph-CH=CH-Ph}
- 2019/165 {Ph-Ph-CH=CH-Ph-Ph}
- 2019/166 {Ph-Ph-Ph-CH=CH-Ph}
- 2019/168 {Ph-CH=CH-Ph-CH=CH-Ph}
- 19/18 the chain containing carbon-to-carbon triple bonds, e.g. tolans
- 2019/181 {Ph-C≡C-Ph (? is a triple bond)}
- 2019/183 {Ph-Ph-C≡C-Ph (? is a triple bond)}
- 2019/185 {Ph-Ph-C≡C-Ph-Ph (? is a triple bond)}
- 2019/186 {Ph-C≡C-C≡C-Ph (? is a triple bond)}
- 2019/188 {Ph-C≡C-Ph-C≡C-Ph (? is a triple bond)}
- 19/20 linked by a chain containing carbon and oxygen atoms as chain links, e.g. esters {or ethers}
- 19/2007 {the chain containing -COO- or -OCO-groups}

19/2014	. . . . .	{ containing additionally a linking group other than -COO- or -OCO-, e.g. -CH ₂ -CH ₂ -, -CH=CH-, -C=C-; containing at least one additional carbon atom in the chain containing -COO- or -OCO- groups, e.g. -(CH ₂) _m -COO-(CH ₂) _n - }
19/2021	. . . . .	{ Compounds containing at least one asymmetric carbon atom }
19/2028	. . . . .	{ containing additionally a linking group other than -COO- or -OCO-, e.g. -CH ₂ -CH ₂ -, -CH=CH-, -C=C-; containing at least one additional carbon atom in the chain containing -COO- or -OCO- groups, e.g. -COO-CH*-CH ₃ }
2019/2035	. . . . .	{ Ph-COO-Ph }
2019/2042	. . . . .	{ Ph-Ph-COO-Ph }
2019/205	. . . . .	{ Ph-Ph-Ph-COO-Ph }
2019/2057	. . . . .	{ Ph-Ph-Ph-Ph-COO-Ph, or more Ph rings }
2019/2064	. . . . .	{ Ph-Ph-COO-Ph-Ph }
2019/2071	. . . . .	{ Ph-Ph-Ph-COO-Ph-Ph, or more Ph rings }
2019/2078	. . . . .	{ Ph-COO-Ph-COO-Ph }
2019/2085	. . . . .	{ Ph-CH=CH-Ph-COO-Ph }
2019/2092	. . . . .	{ Ph-C?C-Ph-COO-Ph (? is a triple bond) }
19/22	. . . . .	linked by a chain containing carbon and nitrogen atoms as chain links, e.g. Schiff bases
19/24	. . . . .	linked by a chain containing nitrogen-to-nitrogen bonds
19/26	. . . . .	Azoxy compounds
19/28	. . . . .	linked by a chain containing carbon and sulfur atoms as chain links, e.g. thioesters
19/30	. . . . .	containing saturated or unsaturated non-aromatic rings, e.g. cyclohexane rings
19/3001	. . . . .	{ Cyclohexane rings }
19/3003	. . . . .	{ Compounds containing at least two rings in which the different rings are directly linked (covalent bond) }
2019/3004	. . . . .	{ Cy-Cy }
2019/3006	. . . . .	{ Cy-Cy-Cy }
2019/3007	. . . . .	{ Cy-Cy-Cy-Cy or more Cy rings }
2019/3009	. . . . .	{ Cy-Ph }
2019/301	. . . . .	{ Cy-Cy-Ph }
2019/3012	. . . . .	{ Cy-Cy-Cy-Ph, or more Cy rings }
2019/3013	. . . . .	{ Cy-Ph-Cy }
2019/3015	. . . . .	{ Cy-Cy-Ph-Cy }
2019/3016	. . . . .	{ Cy-Ph-Ph }
2019/3018	. . . . .	{ Ph-Cy-Ph }
2019/3019	. . . . .	{ Cy-Cy-Ph-Ph }
2019/3021	. . . . .	{ Cy-Ph-Ph-Cy }
2019/3022	. . . . .	{ Cy-Ph-Cy-Ph }
2019/3024	. . . . .	{ Ph-Cy-Cy-Ph }
2019/3025	. . . . .	{ Cy-Ph-Ph-Ph }
2019/3027	. . . . .	{ Compounds comprising 1,4-cyclohexylene and 2,3-difluoro-1,4-phenylene }
19/3028	. . . . .	{ in which at least two rings are linked by a carbon chain containing carbon to carbon single bonds }
2019/303	. . . . .	{ Cy-C ₂ H ₄ -Cy }
2019/3031	. . . . .	{ Cy-Cy-C ₂ H ₄ -Cy }
2019/3033	. . . . .	{ Cy-Cy-Cy-C ₂ H ₄ -Cy }
2019/3034	. . . . .	{ Cy-Cy-C ₂ H ₄ -Cy-Cy }
2019/3036	. . . . .	{ Cy-C ₂ H ₄ -Ph }
2019/3037	. . . . .	{ Cy-Cy-C ₂ H ₄ -Ph }
2019/3039	. . . . .	{ Cy-Cy-Cy-C ₂ H ₄ -Ph }
2019/304	. . . . .	{ Cy-C ₂ H ₄ -Ph-Ph }
2019/3042	. . . . .	{ Cy-Cy-C ₂ H ₄ -Ph-Ph }
2019/3043	. . . . .	{ Cy-Cy-C ₂ H ₄ -Ph-Cy }
2019/3045	. . . . .	{ Cy-Ph-C ₂ H ₄ -Ph-Cy }
2019/3046	. . . . .	{ Cy-C ₂ H ₄ -Ph-C ₂ H ₄ -Cy }
19/3048	. . . . .	{ in which at least two rings are linked by a carbon chain containing carbon to carbon double bonds }
2019/305	. . . . .	{ Cy-CH=CH-Cy }
2019/3051	. . . . .	{ Cy-CH=CH-Cy-Ph }
2019/3053	. . . . .	{ Cy-CH=CH-Ph }
2019/3054	. . . . .	{ Cy-Cy-CH=CH-Ph }
2019/3056	. . . . .	{ Cy-Ph-CH=CH-Ph }
2019/3057	. . . . .	{ Cy-Ph-Ph-CH=CH-Ph }
19/3059	. . . . .	{ in which at least two rings are linked by a carbon chain containing carbon to carbon triple bonds }
2019/306	. . . . .	{ Cy-C?C-Cy (? is a triple bond) }
2019/3062	. . . . .	{ Cy-C?C-Ph (? is a triple bond) }
2019/3063	. . . . .	{ Cy-Ph-C?C-Ph (? is a triple bond) }
2019/3065	. . . . .	{ Cy-Ph-Ph-C?C-Ph (? is a triple bond) }
19/3066	. . . . .	{ in which the rings are linked by a chain containing carbon and oxygen atoms, e.g. esters or ethers }
19/3068	. . . . .	{ chain containing -COO- or -OCO-groups }
2019/3069	. . . . .	{ Cy-COO-Cy }
2019/3071	. . . . .	{ Cy-Cy-COO-Cy }
2019/3072	. . . . .	{ Cy-Cy-Cy-COO-Cy, or more Cy rings }
2019/3074	. . . . .	{ Cy-Cy-COO-Cy-Cy, or more Cy rings }
2019/3075	. . . . .	{ Cy-COO-Ph }
2019/3077	. . . . .	{ Cy-Cy-COO-Ph }
2019/3078	. . . . .	{ Cy-Cy-COO-Ph-Cy }
2019/308	. . . . .	{ Cy-Cy-COO-Ph-Ph }
2019/3081	. . . . .	{ Cy-Ph-COO-Cy }
2019/3083	. . . . .	{ Cy-Ph-COO-Ph }
2019/3084	. . . . .	{ Cy-Ph-COO-Ph-Cy }
19/3086	. . . . .	{ in which at least two rings are linked by a chain containing nitrogen atoms }
19/3087	. . . . .	{ in which at least two rings are linked by a chain containing sulfur atoms }
2019/3089	. . . . .	{ Cy-S-Cy }
2019/309	. . . . .	{ Cy-S-Ph }
2019/3092	. . . . .	{ Cy-S-Ph-Ph }
2019/3093	. . . . .	{ Cy-Ph-S-Ph }
2019/3095	. . . . .	{ in which the end group is the monoterpene menthyl }
2019/3096	. . . . .	{ Cyclobutane rings }
19/3098	. . . . .	{ Unsaturated non-aromatic rings, e.g. cyclohexene rings }
19/32	. . . . .	containing condensed ring systems, i.e. fused, bridged or spiro ring systems

19/321	. . . . {Compounds containing a bicyclo [2,2,2] octane ring}	19/3469	. . . . . {Pyrimidine with a specific end-group other than alkyl, alkoxy or -C*-}
19/322	. . . . {Compounds containing a naphthalene ring or a completely or partially hydrogenated naphthalene ring}	19/3472	. . . . . {Pyrimidine condensed or bridged with another ring system}
2019/323	. . . . . {containing a binaphthyl}	19/3475	. . . . . {the heterocyclic ring being a six-membered aromatic ring containing at least three nitrogen atoms}
2019/324	. . . . . {containing a dihydronaphthalene}	19/3477	. . . . . {the heterocyclic ring being a five-membered aromatic ring containing at least one nitrogen atom}
2019/325	. . . . . {containing a tetrahydronaphthalene, e.g. -2,6-diyl (tetralin)}	19/348	. . . . . {containing at least two nitrogen atoms}
2019/326	. . . . . {containing a decahydronaphthalene, e.g. -2,6-diyl (decalin)}	19/3483	. . . . . {the heterocyclic ring being a non-aromatic ring}
2019/327	. . . . . {containing a spiro ring system}	19/3486	. . . . . {the heterocyclic ring containing nitrogen and oxygen atoms}
2019/328	. . . . . {containing a triphenylene ring system}	19/3488	. . . . . {the heterocyclic ring having more than 6 members, e.g. macrocycles, phthalocyanines}
19/34	. . . containing at least one heterocyclic ring	19/3491	. . . . . {having sulfur as hetero atom}
19/3402	. . . . {having oxygen as hetero atom (sugars C09K 19/0422)}	19/3494	. . . . . {the heterocyclic ring containing sulfur and oxygen atoms}
19/3405	. . . . . {the heterocyclic ring being a five-membered ring}	19/3497	. . . . . {the heterocyclic ring containing sulfur and nitrogen atoms}
2019/3408	. . . . . {Five-membered ring with oxygen(s) in fused, bridged or spiro ring systems}	19/36	. . Steroidal liquid crystal compounds
19/3411	. . . . . {the heterocyclic ring being a three-membered ring}	19/38	. . Polymers
2019/3413	. . . . . {Three-membered member ring with oxygen(s), e.g. oxirane in fused, bridged or spiro ring systems}	19/3804	. . . {with mesogenic groups in the main chain}
2019/3416	. . . . . {the heterocyclic ring being a four-membered ring, e.g. oxetane}	19/3809	. . . . {Polyesters; Polyester derivatives, e.g. polyamides}
2019/3419	. . . . . {Four-membered ring with oxygen(s), e.g. oxetane, in fused, bridged or spiro ring systems}	19/3814	. . . . {Polyethers}
2019/3422	. . . . . {the heterocyclic ring being a six-membered ring}	19/3819	. . . . {Polysaccharides or derivatives thereof}
2019/3425	. . . . . {Six-membered ring with oxygen(s) in fused, bridged or spiro ring systems}	19/3823	. . . . {containing heterocycles having at least one nitrogen as ring hetero atom}
2019/3427	. . . . . {Six-membered ring with 3 or more oxygen atoms}	19/3828	. . . . . {containing triazine rings}
2019/343	. . . . . {the heterocyclic ring being a seven-membered ring}	19/3833	. . . {with mesogenic groups in the side chain}
2019/3433	. . . . . {Seven-membered ring with oxygen(s) in fused, bridged or spiro ring systems}	19/3838	. . . . {Polyesters; Polyester derivatives}
2019/3436	. . . . . {Seven-membered ring with 3 or more oxygen atoms}	19/3842	. . . . {Polyvinyl derivatives}
2019/3438	. . . . . {Crown ethers}	19/3847	. . . . . {Polyvinylethers}
19/3441	. . . . {having nitrogen as hetero atom}	19/3852	. . . . . {Poly(meth)acrylate derivatives}
19/3444	. . . . . {the heterocyclic ring being a six-membered aromatic ring containing one nitrogen atom, e.g. pyridine}	19/3857	. . . . . {containing at least one asymmetric carbon atom}
19/3447	. . . . . {Pyridine condensed or bridged with another ring system, e.g. quinoline or acridine}	19/3861	. . . . . {containing condensed ring systems}
19/345	. . . . . {the heterocyclic ring being a six-membered aromatic ring containing two nitrogen atoms}	19/3866	. . . . . {containing steroid groups}
19/3452	. . . . . {Pyrazine}	19/3871	. . . . . {containing amino acid derivatives}
19/3455	. . . . . {Pyridazine}	19/3876	. . . . {Polyoxyalkylene polymers}
19/3458	. . . . . {Uncondensed pyrimidines}	19/388	. . . . . {Polyepoxides}
19/3461	. . . . . {Pyrimidine-tolane}	19/3885	. . . . {Polyurethanes}
19/3463	. . . . . {Pyrimidine with a carbon chain containing at least one asymmetric carbon atom, i.e. optically active pyrimidines}	19/389	. . . . {Polypeptides}
19/3466	. . . . . {Pyrimidine with at least another heterocycle in the chain}	19/3895	. . . . {containing two or more mesogenic groups per monomer unit, e.g. polyitaconates, polymaleates}
		19/40	. . containing elements other than carbon, hydrogen, halogen, oxygen, nitrogen or sulfur, e.g. silicon, metals
		19/402	. . . {containing deuterium}
		19/404	. . . {containing boron or phosphorus}
		19/406	. . . {containing silicon}
		19/408	. . . . {Polysiloxanes}
		19/42	. . Mixtures of liquid crystal compounds covered by two or more of the preceding groups C09K 19/06 - C09K 19/40
		19/44	. . . containing compounds with benzene rings directly linked
		19/46	. . . containing esters

19/48	. . . containing Schiff bases	2200/0208	. . . Carbon
19/50	. . . containing steroidal liquid crystal compounds	2200/0213	. . . Metals
19/52	. characterised by components which are not liquid crystals, e.g. additives {with special physical aspect: solvents, solid particles}	2200/0217	. . Salts
2019/521	. . {Inorganic solid particles}	2200/0221	. . . Halogen-containing compounds
2019/523	. . {Organic solid particles}	2200/0226	. . . Nitrogen-containing compounds
2019/525	. . {Solvents}	2200/023	. . . Sulfur-containing compounds
2019/526	. . {Gelling agents}	2200/0234	. . . Phosphorous-containing compounds
2019/528	. . {Surfactants}	2200/0239	. . Oxides, hydroxides, carbonates
19/54	. . Additives having no specific mesophase {characterised by their chemical composition}	2200/0243	. . Silica-rich compounds, e.g. silicates, cement, glass
19/542	. . . {Macromolecular compounds}	2200/0247	. . . Silica
19/544	. . . . {as dispersing or encapsulating medium around the liquid crystal}	2200/0252	. . . Clays
2019/546	. . . . {creating a polymeric network}	2200/0256	. . . . Bentonite
2019/548	. . . . {stabilizing the alignment; Polymer stabilized alignment}	2200/026	. . . . Kaolin
19/56	. . . Aligning agents	2200/0265	. . . Mica
19/58	. . Dopants or charge transfer agents	2200/0269	. . Ceramics
19/582	. . . {Electrically active dopants, e.g. charge transfer agents}	2200/0273	. . Boron-containing compounds
19/584	. . . . {having a condensed ring system; macrocyclic compounds}	2200/0278	. . Fibres
19/586	. . . {Optically active dopants; chiral dopants}	2200/0282	. . . Carbon fibres
19/588	. . . . {Heterocyclic compounds}	2200/0286	. . . Asbestos
19/60	. . Pleochroic dyes	2200/0291	. . . Glass fibres
19/601	. . . {Azoic}	2200/0295	. . . Ceramic fibres
19/603	. . . {Anthroquinonic}	2200/04	. Non-macromolecular organic compounds
19/605	. . . {Azomethine dyes}	2200/0405	. . Hydrocarbons
19/606	. . . {Perylene dyes}	2200/0411	. . Halogen-containing compounds
19/608	. . . {Quinoxaline dyes}	2200/0417	. . Phosphorus-containing compounds
21/00	Fireproofing materials (for use in a particular application, see the relevant places, e.g. fireproofing of wood B27K, of polymers C08, of textiles D06M, of paper D21H; fireproof paints C09D 5/18)	2200/0423	. . Boron-containing compounds
	NOTE	2200/0429	. . Alcohols, phenols, ethers
	In groups C09K 21/02 - C09K 21/14, in the absence of an indication to the contrary, materials are classified in the last appropriate place.	2200/0435	. . Aldehydes, ketones
21/02	. Inorganic materials	2200/0441	. . Carboxylic acids, salts, anhydrides or esters thereof
21/04	. . containing phosphorus	2200/0447	. . Fats, fatty oils, higher fatty acids or derivatives thereof
21/06	. Organic materials	2200/0452	. . Carbohydrates or derivatives thereof
21/08	. . containing halogen	2200/0458	. . Nitrogen-containing compounds
21/10	. . containing nitrogen	2200/0464	. . . Isocyanates
21/12	. . containing phosphorus	2200/047	. . . Amides, imides, imines, N-oxides
21/14	. Macromolecular materials	2200/0476	. . . Heterocyclic nitrogen compounds, e.g. melamine
2101/00	Agricultural use	2200/0482	. . . Peptides, proteins or derivatives thereof
2103/00	Civil engineering use	2200/0488	. . Sulfur-containing compounds
2105/00	Erosion prevention	2200/0494	. . Silicon-containing compounds
2107/00	Impermeabilisation	2200/06	. Macromolecular organic compounds, e.g. prepolymers
2109/00	pH regulation	2200/0602	. . Polysaccharides or derivatives thereof
2200/00	Chemical nature of materials in mouldable or extrudable form for sealing or packing joints or covers	2200/0605	. . Lignin-containing compounds
2200/02	. Inorganic compounds	2200/0607	. . Rubber or rubber derivatives
2200/0204	. . Elements	2200/061	. . . Butyl rubber
		2200/0612	. . . Butadiene-acrylonitrile rubber
		2200/0615	. . obtained by reactions only involving carbon-to-carbon unsaturated bonds
		2200/0617	. . . Polyalkenes
		2200/062	. . . . Polyethylene
		2200/0622	. . . Polyvinylalcohols, polyvinylacetates
		2200/0625	. . . Polyacrylic esters or derivatives thereof
		2200/0627	. . . . Nitrogen-containing polymers, e.g. polyacrylamide
		2200/063	. . . Polyacrylonitriles
		2200/0632	. . . Polystyrenes
		2200/0635	. . . Halogen-containing polymers, e.g. PVC
		2200/0637	. . . . Fluoro-containing polymers, e.g. PTFE
		2200/064	. . . Coumarone polymers

- 2200/0642 . . Copolymers containing at least three different monomers
- 2200/0645 . . obtained otherwise than by reactions involving carbon-to-carbon unsaturated bonds
- 2200/0647 . . . Polyepoxides
- 2200/065 . . . Polyurethanes
- 2200/0652 . . . Polyisocyanates
- 2200/0655 . . . Polyesters
- 2200/0657 . . . Polyethers
- 2200/066 Polyester-polyethers
- 2200/0662 Polyether-polyol
- 2200/0665 . . . Polyurea
- 2200/0667 . . . Polyamides, polyimides
- 2200/067 . . . Condensation polymers of aldehydes or ketones
- 2200/0672 Phenol-aldehyde condensation polymers
- 2200/0675 Melamine-formaldehyde condensation polymers
- 2200/0677 Urea-formaldehyde condensation polymers
- 2200/068 . . Containing also other elements than carbon, oxygen or nitrogen in the polymer main chain
- 2200/0682 . . . Containing sulfur
- 2200/0685 . . . Containing silicon
- 2200/0687 . . Natural resins, e.g. rosin
- 2200/069 . . Bituminous materials, e.g. tar, pitch
- 2200/0692 . . Fibres
- 2200/0695 . . . Polyamide fibres
- 2200/0697 . . . Cellulose fibres

2205/00 Aspects relating to compounds used in compression type refrigeration systems

- 2205/10 . Components
- 2205/102 . . Alcohols
- 2205/104 . . Carboxylic acid esters
- 2205/106 . . Carbon dioxide
- 2205/108 . . Aldehydes or ketones
- 2205/11 . . Ethers
- 2205/112 . . . Halogenated ethers
- 2205/114 . . . Cyclic ethers
- 2205/116 . . . Halogenated cyclic ethers
- 2205/12 . . Hydrocarbons
- 2205/122 . . . Halogenated hydrocarbons
- 2205/124 . . . Fluorinated cyclic hydrocarbons
- 2205/126 . . . Unsaturated fluorinated hydrocarbons
- 2205/128 . . . Perfluorinated hydrocarbons ([C09K 2205/124](#), [C09K 2205/126](#) take precedence)
- 2205/13 . . Inert gases
- 2205/132 . . containing nitrogen
- 2205/134 . . containing sulfur
- 2205/22 . All components of a mixture being fluoro compounds
- 2205/24 . Only one single fluoro component present
- 2205/32 . The mixture being azeotropic
- 2205/34 . The mixture being non-azeotropic
- 2205/40 . Replacement mixtures
- 2205/41 . . Type R11
- 2205/42 . . Type R12
- 2205/43 . . Type R22
- 2205/44 . . Type R13B1
- 2205/45 . . Type R500
- 2205/46 . . Type R501
- 2205/47 . . Type R502
- 2205/48 . . Type R503

2208/00 Aspects relating to compositions of drilling or well treatment fluids

- 2208/02 . Spotting, i.e. using additives for releasing a stuck drill
- 2208/04 . Hulls, shells or bark containing well drilling or treatment fluids
- 2208/06 . Structured surfactants, i.e. well drilling or treating fluids with a lamellar or spherulitic phase
- 2208/08 . Fiber-containing well treatment fluids
- 2208/10 . Nanoparticle-containing well treatment fluids
- 2208/12 . Swell inhibition, i.e. using additives to drilling or well treatment fluids for inhibiting clay or shale swelling or disintegrating
- 2208/14 . Double emulsions, i.e. oil-in-water-in-oil emulsions or water-in-oil-in-water emulsions
- 2208/18 . Bridging agents, i.e. particles for temporarily filling the pores of a formation; Graded salts
- 2208/20 . Hydrogen sulfide elimination
- 2208/22 . Hydrates inhibition by using well treatment fluids containing inhibitors of hydrate formers
- 2208/24 . Bacteria or enzyme containing gel breakers
- 2208/26 . Gel breakers other than bacteria or enzymes
- 2208/28 . Friction or drag reducing additives
- 2208/30 . Viscoelastic surfactants [VES]
- 2208/32 . Anticorrosion additives
- 2208/34 . Lubricant additives

2211/00 Chemical nature of organic luminescent or tenebrescent compounds

- 2211/10 . Non-macromolecular compounds
- 2211/1003 . . Carbocyclic compounds
- 2211/1007 . . . Non-condensed systems
- 2211/1011 . . . Condensed systems
- 2211/1014 . . . bridged by heteroatoms, e.g. N, P, Si or B
- 2211/1018 . . Heterocyclic compounds
- 2211/1022 . . . bridged by heteroatoms, e.g. N, P, Si or B
- 2211/1025 . . . characterised by ligands

NOTE

In groups
[C09K 2211/1025](#) - [C09K 2211/1074](#)
 indexing is made in the last appropriate place

- 2211/1029 containing one nitrogen atom as the heteroatom
- 2211/1033 with oxygen
- 2211/1037 with sulfur
- 2211/104 with other heteroatoms
- 2211/1044 containing two nitrogen atoms as heteroatoms
- 2211/1048 with oxygen
- 2211/1051 with sulfur
- 2211/1055 with other heteroatoms
- 2211/1059 containing three nitrogen atoms as heteroatoms
- 2211/1062 with oxygen
- 2211/1066 with sulfur
- 2211/107 with other heteroatoms
- 2211/1074 containing more than three nitrogen atoms as heteroatoms
- 2211/1077 with oxygen
- 2211/1081 with sulfur
- 2211/1085 with other heteroatoms

- 2211/1088 containing oxygen as the only heteroatom
- 2211/1092 containing sulfur as the only heteroatom
- 2211/1096 containing other heteroatoms
- 2211/14 . . Macromolecular compounds
- 2211/1408 . . Carbocyclic compounds
- 2211/1416 . . . Condensed systems
- 2211/1425 . . . Non-condensed systems
- 2211/1433 . . . bridged by heteroatoms, e.g. N, P, Si or B
- 2211/1441 . . Heterocyclic

NOTE

In groups [C09K 2211/1441](#) - [C09K 2211/1483](#)
indexing is made in the last appropriate place

- 2211/145 . . . containing oxygen as the only heteroatom
- 2211/1458 . . . containing sulfur as the only heteroatom
- 2211/1466 . . . containing nitrogen as the only heteroatom
- 2211/1475 . . . containing nitrogen and oxygen as heteroatoms
- 2211/1483 . . . containing nitrogen and sulfur as heteroatoms
- 2211/1491 . . . containing other combinations of heteroatoms
- 2211/18 . . Metal complexes
- 2211/181 . . of the alkali metals and alkaline earth metals
- 2211/182 . . of the rare earth metals, i.e. Sc, Y or lanthanide
- 2211/183 . . of the refractory metals, i.e. Ti, V, Cr, Zr, Nb, Mo, Hf, Ta or W
- 2211/185 . . of the platinum group, i.e. Os, Ir, Pt, Ru, Rh or Pd
- 2211/186 . . of the light metals other than alkali metals and alkaline earth metals, i.e. Be, Al or Mg
- 2211/187 . . of the iron group metals, i.e. Fe, Co or Ni
- 2211/188 . . of other metals not provided for in one of the previous groups

2219/00 Aspects relating to the form of the liquid chrystal [LC] material, or by the technical area in which LC material are used

- 2219/01 . . in the form of fibres, e.g. fibres after polymerisation of LC precursor
- 2219/03 . . in the form of films, e.g. films after polymerisation of LC precursor
- 2219/11 . . used in the High Frequency technical field
- 2219/13 . . used in the technical field of thermotropic switches
- 2219/15 . . used as a medium, in which chemical reactions take place
- 2219/17 . . used as a medium, in which detection of chemical compounds takes place