

CPC COOPERATIVE PATENT CLASSIFICATION

C CHEMISTRY; METALLURGY

(NOTES omitted)

CHEMISTRY

C09 DYES; PAINTS; POLISHES; NATURAL RESINS; ADHESIVES; MISCELLANEOUS COMPOSITIONS; MISCELLANEOUS APPLICATIONS OF MATERIALS

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.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
[C09K 11/78-C09K 11/86](#) covered by
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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)	2003/1046	. . . {Water-absorbing materials}
3/1003	. . {Pure inorganic mixtures}	2003/105	. . . {Water-soluble materials}
3/1006	. . {characterised by the chemical nature of one of its constituents}	2003/1053	. . . {Elastomeric materials}
3/1009	. . . {Fluorinated polymers, e.g. PTFE}	2003/1056	. . . {Moisture-curable materials}
3/1012	. . . {Sulfur-containing polymers, e.g. polysulfides}	2003/1059	. . . {Heat-curable materials}
3/1015	. . . {Polysaccharides or derivatives thereof}	2003/1062	. . . {UV-curable materials}
3/1018	. . . {Macromolecular compounds having one or more carbon-to-silicon linkages}	2003/1065	. . . {Anaerobically hardenable materials}
3/1021	. . . {Polyurethanes or derivatives thereof}	2003/1068	. . . {Crosslinkable materials}
3/1025	. . {characterised by non-chemical features of one or more of its constituents}	2003/1071	. . . {Thixotropic materials}
3/1028	. . . {Fibres}	2003/1075	. . . {Injection-mouldable materials}
3/1031	. . {Sealing waxes, e.g. sealing letters, bottles, or the like}	2003/1078	. . . {Fire-resistant, heat-resistant materials}
2003/1034	. . {Materials or components characterised by specific properties}	2003/1081	. . . {Water-proofed materials}
2003/1037	. . . {Intumescent materials}	2003/1084	. . {Laminates}
2003/104	. . . {Water-swellaable materials}	2003/1087	. . {Materials or components characterised by specific uses}
2003/1043	. . . {Non water-swellaable materials}	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 32/25](#))}
- 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

C09K 8/68
(continued)

[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 wavelengths 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}

C09K

11/59	. . containing silicon	11/677	. . . {Germanates}
11/592	. . . {Chalcogenides}	11/678	. . . {Borates}
11/595	. . . . {with zinc or cadmium}	11/679	. . . {Sulfates}
11/597	. . . {Sulfates}	11/68	. . . containing chromium, molybdenum or tungsten
11/60	. . containing iron, cobalt or nickel	11/681	. . . . {Chalcogenides}
11/602	. . . {Chalcogenides}	11/682	. . . . . {with zinc or cadmium}
11/605	. . . . {with zinc or cadmium}	11/684	. . . . . {with alkaline earth metals}
11/607	. . . {Silicates}	11/685	. . . . {Aluminates; Silicates}
11/61	. . containing fluorine, chlorine, bromine, iodine or unspecified halogen elements	11/687	. . . . {Borates}
11/611	. . . {Chalcogenides}	11/688	. . . . {Sulfates}
11/612	. . . . {with zinc or cadmium}	11/69	. . . containing vanadium
11/613	. . . . {with alkali or alkaline earth metals}	11/691	. . . . {Chalcogenides}
11/615	. . . {Halogenides (C09K 11/617 and C09K 11/618 take precedence)}	11/693	. . . . . {with zinc or cadmium}
11/616	. . . . {with alkali or alkaline earth metals}	11/695	. . . . . {with alkaline earth metals}
11/617	. . . {Silicates}	11/696	. . . . {Halogenides}
11/618	. . . {Sulfates}	11/698	. . . . {Aluminates; Silicates}
11/62	. . containing gallium, indium or thallium	11/70	. . containing phosphorus
11/621	. . . {Chalcogenides}	11/701	. . . {Chalcogenides}
11/623	. . . . {with zinc or cadmium}	11/703	. . . . {with zinc and/or cadmium}
11/625	. . . . {with alkaline earth metals}	11/705	. . . {Halogenides (C09K 11/701 , C09K 11/706 and C09K 11/708 take precedence)}
11/626	. . . {Halogenides (C09K 11/621 takes precedence)}	11/706	. . . {Aluminates; Silicates}
11/628	. . . . {with alkali or alkaline earth metals}	11/708	. . . {Borates}
11/63	. . containing boron	11/71	. . . also containing alkaline earth metals
11/632	. . . {Halogenides (C09K 11/636 and C09K 11/638 take precedence)}	11/712	. . . . {Halogenides (C09K 11/717 takes precedence)}
11/634	. . . . {with alkali or alkaline earth metals}	11/715	. . . . . {with alkali or alkaline earth metals}
11/636	. . . {Silicates}	11/717	. . . . . {Aluminates; Silicates}
11/638	. . . {Sulfates}	11/72	. . . also containing halogen, e.g. halophosphates
11/64	. . containing aluminium	11/722	. . . . {Chalcogenides}
11/641	. . . {Chalcogenides}	11/725	. . . . . {with alkaline earth metals}
11/642	. . . . {with zinc or cadmium}	11/727	. . . . {Aluminates; Silicates}
11/643	. . . . {with alkaline earth metals}	11/73	. . . . also containing alkaline earth metals
11/644	. . . {Halogenides (C09K 11/641 , C09K 11/646 - C09K 11/648 take precedence)}	11/74	. . containing arsenic, antimony or bismuth
11/645	. . . . {with alkali or alkaline earth metals}	11/7407	. . . {Chalcogenides}
11/646	. . . {Silicates}	11/7414	. . . . {with zinc or cadmium}
11/647	. . . {Borates}	11/7421	. . . . {with alkaline earth metals}
11/648	. . . {Sulfates}	11/7428	. . . {Halogenides (C09K 11/7407 , C09K 11/7442 - C09K 11/7492 take precedence)}
11/65	. . containing carbon (in organic compounds C09K 11/06)	11/7435	. . . . {with alkali or alkaline earth metals}
11/655	. . . {Aluminates; Silicates}	11/7442	. . . {Aluminates; Silicates}
11/66	. . containing germanium, tin or lead	11/745	. . . {Germanates}
11/661	. . . {Chalcogenides}	11/7457	. . . {Vanadates; Chromates; Molybdates; Tungstates}
11/662	. . . . {with zinc or cadmium}	11/7464	. . . {Phosphates}
11/663	. . . . {with alkaline earth metals}	11/7471	. . . . {with alkaline earth metals}
11/664	. . . {Halogenides (C09K 11/661 , C09K 11/666 - C09K 11/668 take precedence)}	11/7478	. . . . . {with halogens}
11/665	. . . . {with alkali or alkaline earth metals}	11/7485	. . . {Borates}
11/666	. . . {Aluminates; Silicates}	11/7492	. . . {Arsenides; Nitrides; Phosphides}
11/667	. . . {Borates}	11/75	. . . containing antimony
11/668	. . . {Sulfates}	11/751	. . . . {Chalcogenides}
11/67	. . containing refractory metals	11/752	. . . . . {with zinc or cadmium}
11/671	. . . {Chalcogenides}	11/753	. . . . . {with alkaline earth metals}
11/672	. . . . {with zinc or cadmium}	11/755	. . . . {Halogenides (C09K 11/751 , C09K 11/757 and C09K 11/758 take precedence)}
11/673	. . . . {with alkaline earth metals}	11/756	. . . . . {with alkali or alkaline earth metals}
11/674	. . . {Halogenides (C09K 11/671 , C09K 11/676 - C09K 11/679 take precedence)}	11/757	. . . . {Aluminates; Silicates}
11/675	. . . . {with alkali or alkaline earth metals}	11/758	. . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/676	. . . {Aluminates; Silicates}	11/76	. . . . also containing phosphorus and halogen, e.g. halophosphates

11/765	. . . . . {Borates}	11/7751	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/77	. . containing rare earth metals	11/7752	. . . . . {Phosphates}
11/7701	. . . {Chalogenides}	11/7753	. . . . . {with alkaline earth metals}
11/7702	. . . . . {with zinc or cadmium}	11/7754	. . . . . {with halogens}
11/7703	. . . . . {with alkaline earth metals}	11/7755	. . . . . {Borates}
11/7704	. . . {Halogenides (C09K 11/7701 , C09K 11/7706 - C09K 11/7714 take precedence)}	11/7756	. . . {containing neodymium}
11/7705	. . . . . {with alkali or alkaline earth metals}	11/7757	. . . . . {Halogenides (C09K 11/7758 takes precedence)}
11/7706	. . . {Aluminates; Silicates}	11/7758	. . . . . {Aluminates; Silicates}
11/7707	. . . {Germanates}	11/7759	. . . {containing samarium}
11/7708	. . . {Vanadates; Chromates; Molybdates; Tungstates}	11/776	. . . . . {Chalogenides}
11/7709	. . . {Phosphates}	11/7761	. . . . . {with alkaline earth metals}
11/771	. . . . . {with alkaline earth metals}	11/7762	. . . . . {Halogenides (C09K 11/776 , C09K 11/7764 and C09K 11/7765 take precedence)}
11/7711	. . . . . {with halogens}	11/7763	. . . . . {with alkali or alkaline earth metals}
11/7712	. . . {Borates}	11/7764	. . . . . {Aluminates; Silicates}
11/7713	. . . {Sulfates}	11/7765	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/7714	. . . {Antimonates; Arsenates}	11/7766	. . . {containing two or more rare earth metals (containing europium C09K 11/7783)}
11/7715	. . . {containing cerium}	11/7767	. . . . . {Chalogenides}
11/7716	. . . . . {Chalogenides}	11/7768	. . . . . {with alkaline earth metals}
11/7717	. . . . . {with zinc or cadmium}	11/7769	. . . . . {Oxides (C09K 11/7768 takes precedence)}
11/7718	. . . . . {with alkaline earth metals}	11/777	. . . . . {Oxyhalogenides}
11/7719	. . . . . {Halogenides (C09K 11/7716 , C09K 11/7721 - C09K 11/7727 take precedence)}	11/7771	. . . . . {Oxysulfides}
11/772	. . . . . {with alkali or alkaline earth metals}	11/7772	. . . . . {Halogenides (C09K 11/7767 , C09K 11/7774 - C09K 11/7782 take precedence)}
11/7721	. . . . . {Aluminates; Silicates}	11/7773	. . . . . {with alkali or alkaline earth metal}
11/7722	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}	11/7774	. . . . . {Aluminates; Silicates}
11/7723	. . . . . {Phosphates}	11/7775	. . . . . {Germanates}
11/7724	. . . . . {with alkaline earth metals}	11/7776	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/7725	. . . . . {with halogens}	11/7777	. . . . . {Phosphates}
11/7726	. . . . . {Borates}	11/7778	. . . . . {with alkaline earth metals}
11/7727	. . . . . {Sulfates}	11/7779	. . . . . {with halogens}
11/7728	. . . {comprising europium}	11/778	. . . . . {Borates}
11/7729	. . . . . {Chalogenides}	11/7781	. . . . . {Sulfates}
11/773	. . . . . {with zinc and cadmium}	11/7782	. . . . . {Antimonates; Arsenates}
11/7731	. . . . . {with alkaline earth metals}	11/7783	. . . {containing two or more rare earth metals one of which being europium}
11/7732	. . . . . {Halogenides}	11/7784	. . . . . {Chalogenides}
11/7733	. . . . . {with alkali or alkaline earth metals}	11/7785	. . . . . {with zinc and or cadmium}
11/7734	. . . . . {Aluminates; Silicates}	11/7786	. . . . . {with alkaline earth metals}
11/7735	. . . . . {Germanates}	11/7787	. . . . . {Oxides (C09K 11/7785 , C09K 11/7786 take precedence)}
11/7736	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}	11/7788	. . . . . {Oxyhalogenides}
11/7737	. . . . . {Phosphates}	11/7789	. . . . . {Oxysulfides}
11/7738	. . . . . {with alkaline earth metals}	11/779	. . . . . {Halogenides (C09K 11/7784 , C09K 11/7792 - C09K 11/7798 take precedence)}
11/7739	. . . . . {with halogens}	11/7791	. . . . . {with alkali or alkaline earth metals}
11/774	. . . . . {Borates}	11/7792	. . . . . {Aluminates; Silicates}
11/7741	. . . . . {Sulfates}	11/7793	. . . . . {Germanates}
11/7742	. . . . . {Antimonates; Arsenates}	11/7794	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/7743	. . . {containing terbium}	11/7795	. . . . . {Phosphates}
11/7744	. . . . . {Chalogenides}	11/7796	. . . . . {with alkaline earth metals}
11/7745	. . . . . {with zinc or cadmium}	11/7797	. . . . . {Borates}
11/7746	. . . . . {with alkaline earth metals}	11/7798	. . . . . {Antimonates; Arsenates}
11/7747	. . . . . {Halogenides (C09K 11/7744 , C09K 11/7749 - C09K 11/7755 take precedence)}		
11/7748	. . . . . {with alkali or alkaline earth metals}		
11/7749	. . . . . {Aluminates; Silicates}		
11/775	. . . . . {Germanates}		

- 11/87 . . containing platina group metals
- 11/873 . . . {Chalcogenides}
- 11/876 {with zinc or cadmium}
- 11/88 . . containing selenium, tellurium or unspecified chalcogen elements
- 11/881 . . . {Chalcogenides}
- 11/883 {with zinc or cadmium}
- 11/885 {with alkaline earth metals}
- 11/886 {with rare earth metals}
- 11/888 . . . {Borates}
- 11/89 . . containing mercury
- 11/892 . . . {Chalcogenides}
- 11/895 . . . {Halogenides (C09K 11/892 takes precedence)}
- 11/897 {with alkali or alkaline metals}

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 compositions; 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	2019/0437	. . . {the specific unit being an optically active chain used as linking group between rings or as end group}
17/44	. . . the inorganic compound being cement	2019/044	. . . {the specific unit being a perfluoro chain used as an end group}
17/46	. . . the inorganic compound being a water-soluble silicate	2019/0444	. . {characterized by a linking chain between rings or ring systems, a bridging chain between extensive mesogenic moieties or an end chain group}
17/48	. . Organic compounds mixed with inorganic active ingredients, e.g. polymerisation catalysts	2019/0448	. . . {the end chain group being a polymerizable end group, e.g. -Sp-P or acrylate}
17/50	. . . the organic compound being of natural origin, e.g. cellulose derivatives	2019/0451	. . . {the end chain group being a CH ₃ CH=CHCH ₂ CH ₂ - chain}
17/52	. Mulches	2019/0455	. . . {the linking chain being a -CF ₂ CF ₂ -, -CF ₂ CF ₂ CF ₂ CF ₂ - or -CH ₂ CF ₂ CF ₂ CH ₂ - chain}
19/00	Liquid crystal materials	2019/0459	. . . {the linking chain being a -CF=CF- chain, e.g. 1,2-difluoroethen-1,2-diyl}
	NOTES	2019/0462	. . . {the linking chain being a -CF ₂ CF ₂ O- chain}
	1. In groups C09K 19/02 - C09K 19/60 , { with the exception of groups C09K 19/0208 - C09K 19/0283 }, in the absence of an indication to the contrary, materials are classified in the last appropriate place.	2019/0466	. . . {the linking chain being a -CF ₂ O- chain}
	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.	2019/047	. . . {the linking chain being a -CH ₂ CF ₂ O- chain}
	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 .	2019/0474	. . . {the linking chain being a -CHFO- chain}
		2019/0477	. . {characterized by the positioning of substituents on phenylene}
19/02	. characterised by optical, electrical or physical properties of the components, in general	2019/0481	. . . {Phenylene substituted in meta position}
19/0208	. . {Twisted Nematic (T.N.); Super Twisted Nematic (S.T.N.); Optical Mode Interference (O.M.I.)}	2019/0485	. . . {Phenylene substituted in ortho position}
19/0216	. . {Super Birefringence Effect (S.B.E.); Electrically Controlled Birefringence (E.C.B.)}	2019/0488	. . . {characterized by a special bonding}
19/0225	. . {Ferroelectric}	2019/0492	. . . {the special bonding being an hydrogen bond}
19/0233	. . {Electroclinic}	2019/0496	. . . {the special bonding being a specific pi-conjugated group}
19/0241	. . {Ferrielectric; Ferromagnetic}	19/06	. . Non-steroidal liquid crystal compounds
19/025	. . {Ferroelectric; Ferromagnetic}	19/061	. . . {Linear compounds without any rings}
19/0258	. . {Flexoelectric}	19/062	. . . {containing one non-condensed benzene ring}
19/0266	. . {Antiferroelectrics}	19/063	. . . {containing one non-condensed saturated non-aromatic ring, e.g. cyclohexane ring}
19/0275	. . {Blue phase}	19/065	. . . {containing one non-condensed unsaturated non-aromatic ring, e.g. cyclohexene ring}
19/0283	. . {Cubic phase}	19/066	. . . {containing one heterocyclic ring having oxygen as heteroatom}
19/0291	. . {anticlinic}	19/067	. . . {containing one heterocyclic ring having nitrogen as heteroatom}
19/04	. characterised by the chemical structure of the liquid crystal components {, e.g. by a specific unit}	19/068	. . . {containing one heterocyclic ring having sulfur as heteroatom}
19/0403	. . {the structure containing one or more specific, optionally substituted ring or ring systems}	19/08	. . . containing at least two non-condensed rings
2019/0407	. . . {containing a carbocyclic ring, e.g. dicyano-benzene, chlorofluoro-benzene or cyclohexanone}	19/10	. . . . containing at least two benzene rings
2019/0411	. . . {containing a chlorofluoro-benzene, e.g. 2-chloro-3-fluoro-phenylene-1,4-diyl}	19/12	. . . . . at least two benzene rings directly linked, e.g. biphenyls
2019/0414	. . . {containing a heterocyclic ring}	2019/121	. . . . . {Compounds containing phenylene-1,4-diyl (-Ph-)}
2019/0418	. . . {containing a dendromer structure; Dendritic liquid crystals}	2019/122	. . . . . {Ph-Ph}
19/0422	. . {Sugars (polysaccharides C09K 19/3819)}	2019/123	. . . . . {Ph-Ph-Ph}
2019/0425	. . {characterized by a specific unit that results in a functional effect}	2019/124	. . . . . {Ph-Ph-Ph-Ph}
2019/0429	. . . {the specific unit being a carbocyclic or heterocyclic discotic unit}	2019/125	. . . . . {Ph-Ph-Ph-Ph-Ph or more Ph rings}
2019/0433	. . . {the specific unit being a luminescent or electroluminescent unit}	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}	2019/3015	. . . . .	{Cy-Cy-Ph-Cy}
2019/166	. . . . .	{Ph-Ph-Ph-CH=CH-Ph}	2019/3016	. . . . .	{Cy-Ph-Ph}
2019/168	. . . . .	{Ph-CH=CH-Ph-CH=CH-Ph}	2019/3018	. . . . .	{Ph-Cy-Ph}
19/18	. . . . .	the chain containing carbon-to-carbon triple bonds, e.g. tolans	2019/3019	. . . . .	{Cy-Cy-Ph-Ph}
2019/181	. . . . .	{Ph-C≡C-Ph}	2019/3021	. . . . .	{Cy-Ph-Ph-Cy}
2019/183	. . . . .	{Ph-Ph-C≡C-Ph}	2019/3022	. . . . .	{Cy-Ph-Cy-Ph}
2019/185	. . . . .	{Ph-Ph-C≡C-Ph-Ph}	2019/3024	. . . . .	{Ph-Cy-Cy-Ph}
2019/186	. . . . .	{Ph-C≡C-C≡C-Ph}	2019/3025	. . . . .	{Cy-Ph-Ph-Ph}
2019/188	. . . . .	{Ph-C≡C-Ph-C≡C-Ph}	2019/3027	. . . . .	{Compounds comprising 1,4-cyclohexylene and 2,3-difluoro-1,4-phenylene}
19/20	. . . . .	linked by a chain containing carbon and oxygen atoms as chain links, e.g. esters {or ethers}	19/3028	. . . . .	{in which at least two rings are linked by a carbon chain containing carbon to carbon single bonds}
19/2007	. . . . .	{the chain containing -COO- or -OCO- groups}	2019/303	. . . . .	{Cy-C ₂ H ₄ -Cy}
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 -}	2019/3031	. . . . .	{Cy-Cy-C ₂ H ₄ -Cy}
19/2021	. . . . .	{Compounds containing at least one asymmetric carbon atom}	2019/3033	. . . . .	{Cy-Cy-Cy-C ₂ H ₄ -Cy}
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 }	2019/3034	. . . . .	{Cy-Cy-C ₂ H ₄ -Cy-Cy}
2019/2035	. . . . .	{Ph-COO-Ph}	2019/3036	. . . . .	{Cy-C ₂ H ₄ -Ph}
2019/2042	. . . . .	{Ph-Ph-COO-Ph}	2019/3037	. . . . .	{Cy-Cy-C ₂ H ₄ -Ph}
2019/205	. . . . .	{Ph-Ph-Ph-COO-Ph}	2019/3039	. . . . .	{Cy-Cy-Cy-C ₂ H ₄ -Ph}
2019/2057	. . . . .	{Ph-Ph-Ph-Ph-COO-Ph, or more Ph rings}	2019/304	. . . . .	{Cy-C ₂ H ₄ -Ph-Ph}
2019/2064	. . . . .	{Ph-Ph-COO-Ph-Ph}	2019/3042	. . . . .	{Cy-Cy-C ₂ H ₄ -Ph-Ph}
2019/2071	. . . . .	{Ph-Ph-Ph-COO-Ph-Ph, or more Ph rings}	2019/3043	. . . . .	{Cy-Cy-C ₂ H ₄ -Ph-Cy}
2019/2078	. . . . .	{Ph-COO-Ph-COO-Ph}	2019/3045	. . . . .	{Cy-Ph-C ₂ H ₄ -Ph-Cy}
2019/2085	. . . . .	{Ph-CH=CH-Ph-COO-Ph}	2019/3046	. . . . .	{Cy-C ₂ H ₄ -Ph-C ₂ H ₄ -Cy}
2019/2092	. . . . .	{Ph-C≡C-Ph-COO-Ph}	19/3048	. . . . .	{in which at least two rings are linked by a carbon chain containing carbon to carbon double bonds}
19/22	. . . . .	linked by a chain containing carbon and nitrogen atoms as chain links, e.g. Schiff bases	2019/305	. . . . .	{Cy-CH=CH-Cy}
19/24	. . . . .	linked by a chain containing nitrogen-to-nitrogen bonds	2019/3051	. . . . .	{Cy-CH=CH-Cy-Ph}
19/26	. . . . .	Azoxy compounds	2019/3053	. . . . .	{Cy-CH=CH-Ph}
19/28	. . . . .	linked by a chain containing carbon and sulfur atoms as chain links, e.g. thioesters	2019/3054	. . . . .	{Cy-Cy-CH=CH-Ph}
19/30	. . . . .	containing saturated or unsaturated non-aromatic rings, e.g. cyclohexane rings	2019/3056	. . . . .	{Cy-Ph-CH=CH-Ph}
19/3001	. . . . .	{Cyclohexane rings}	2019/3057	. . . . .	{Cy-Ph-Ph-CH=CH-Ph}
19/3003	. . . . .	{Compounds containing at least two rings in which the different rings are directly linked (covalent bond)}	19/3059	. . . . .	{in which at least two rings are linked by a carbon chain containing carbon to carbon triple bonds}
2019/3004	. . . . .	{Cy-Cy}	2019/306	. . . . .	{Cy-C≡C-Cy}
2019/3006	. . . . .	{Cy-Cy-Cy}	2019/3062	. . . . .	{Cy-C≡C-Ph}
2019/3007	. . . . .	{Cy-Cy-Cy-Cy or more Cy rings}	2019/3063	. . . . .	{Cy-Ph-C≡C-Ph}
2019/3009	. . . . .	{Cy-Ph}	2019/3065	. . . . .	{Cy-Ph-Ph-C≡C-Ph}
2019/301	. . . . .	{Cy-Cy-Ph}	19/3066	. . . . .	{in which the rings are linked by a chain containing carbon and oxygen atoms, e.g. esters or ethers}
2019/3012	. . . . .	{Cy-Cy-Cy-Ph, or more Cy rings}	19/3068	. . . . .	{chain containing -COO- or -OCO- groups}
2019/3013	. . . . .	{Cy-Ph-Cy}	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}
- 19/322 {Compounds containing a naphthalene ring or a completely or partially hydrogenated naphthalene ring}
- 2019/323 {containing a binaphthyl}
- 2019/324 {containing a dihydronaphthalene}
- 2019/325 {containing a tetrahydronaphthalene, e.g. -2,6-diyl (tetralin)}
- 2019/326 {containing a decahydronaphthalene, e.g. -2,6-diyl (decalin)}
- 2019/327 {containing a spiro ring system}
- 2019/328 {containing a triphenylene ring system}
- 19/34 containing at least one heterocyclic ring
- 19/3402 {having oxygen as hetero atom (sugars [C09K 19/0422](#))}
- 19/3405 {the heterocyclic ring being a five-membered ring}
- 2019/3408 {Five-membered ring with oxygen(s) in fused, bridged or spiro ring systems}
- 19/3411 {the heterocyclic ring being a three-membered ring}
- 2019/3413 {Three-membered member ring with oxygen(s), e.g. oxirane in fused, bridged or spiro ring systems}
- 2019/3416 {the heterocyclic ring being a four-membered ring, e.g. oxetane}
- 2019/3419 {Four-membered ring with oxygen(s), e.g. oxetane, in fused, bridged or spiro ring systems}
- 2019/3422 {the heterocyclic ring being a six-membered ring}
- 2019/3425 {Six-membered ring with oxygen(s) in fused, bridged or spiro ring systems}
- 2019/3427 {Six-membered ring with 3 or more oxygen atoms}
- 2019/343 {the heterocyclic ring being a seven-membered ring}
- 2019/3433 {Seven-membered ring with oxygen(s) in fused, bridged or spiro ring systems}
- 2019/3436 {Seven-membered ring with 3 or more oxygen atoms}
- 2019/3438 {Crown ethers}
- 19/3441 {having nitrogen as hetero atom}
- 19/3444 {the heterocyclic ring being a six-membered aromatic ring containing one nitrogen atom, e.g. pyridine}
- 19/3447 {Pyridine condensed or bridged with another ring system, e.g. quinoline or acridine}
- 19/345 {the heterocyclic ring being a six-membered aromatic ring containing two nitrogen atoms}
- 19/3452 {Pyrazine}
- 19/3455 {Pyridazine}
- 19/3458 {Uncondensed pyrimidines}
- 19/3461 {Pyrimidine-tolane}
- 19/3463 {Pyrimidine with a carbon chain containing at least one asymmetric carbon atom, i.e. optically active pyrimidines}
- 19/3466 {Pyrimidine with at least another heterocycle in the chain}
- 19/3469 {Pyrimidine with a specific end-group other than alkyl, alkoxy or -C*-}
- 19/3472 {Pyrimidine condensed or bridged with another ring system}
- 19/3475 {the heterocyclic ring being a six-membered aromatic ring containing at least three nitrogen atoms}
- 19/3477 {the heterocyclic ring being a five-membered aromatic ring containing at least one nitrogen atom}
- 19/348 {containing at least two nitrogen atoms}
- 19/3483 {the heterocyclic ring being a non-aromatic ring}
- 19/3486 {the heterocyclic ring containing nitrogen and oxygen atoms}
- 19/3488 {the heterocyclic ring having more than 6 members, e.g. macrocycles, phthalocyanines}
- 19/3491 {having sulfur as hetero atom}
- 19/3494 {the heterocyclic ring containing sulfur and oxygen atoms}
- 19/3497 {the heterocyclic ring containing sulfur and nitrogen atoms}
- 19/36 . . . Steroidal liquid crystal compounds
- 19/38 . . . Polymers
- 19/3804 . . . {with mesogenic groups in the main chain}
- 19/3809 {Polyesters; Polyester derivatives, e.g. polyamides}
- 19/3814 {Polyethers}
- 19/3819 {Polysaccharides or derivatives thereof}
- 19/3823 {containing heterocycles having at least one nitrogen as ring hetero atom}
- 19/3828 {containing triazine rings}
- 19/3833 {with mesogenic groups in the side chain}
- 19/3838 {Polyesters; Polyester derivatives}
- 19/3842 {Polyvinyl derivatives}
- 19/3847 {Polyvinylethers}
- 19/3852 {Poly(meth)acrylate derivatives}
- 19/3857 {containing at least one asymmetric carbon atom}
- 19/3861 {containing condensed ring systems}
- 19/3866 {containing steroid groups}
- 19/3871 {containing amino acid derivatives}
- 19/3876 {Polyoxyalkylene polymers}
- 19/388 {Polyepoxides}
- 19/3885 {Polyurethanes}
- 19/389 {Polypeptides}
- 19/3895 {containing two or more mesogenic groups per monomer unit, e.g. polyitaconates, polymaleates}

C09K

- 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
- 19/50 . . . containing steroidal liquid crystal compounds
- 19/52 . characterised by components which are not liquid crystals, e.g. additives {with special physical aspect: solvents, solid particles}
- 2019/521 . . {Inorganic solid particles}
- 2019/523 . . {Organic solid particles}
- 2019/525 . . {Solvents}
- 2019/526 . . {Gelling agents}
- 2019/528 . . {Surfactants}
- 19/54 . . Additives having no specific mesophase {characterised by their chemical composition}
- 19/542 . . . {Macromolecular compounds}
- 19/544 {as dispersing or encapsulating medium around the liquid crystal}
- 2019/546 {creating a polymeric network}
- 2019/548 {stabilizing the alignment; Polymer stabilized alignment}
- 19/56 . . . Aligning agents
- 19/58 . . Dopants or charge transfer agents
- 19/582 . . . {Electrically active dopants, e.g. charge transfer agents}
- 19/584 {having a condensed ring system; macrocyclic compounds}
- 19/586 . . . {Optically active dopants; chiral dopants}
- 19/588 {Heterocyclic compounds}
- 19/60 . . Pleochroic dyes
- 19/601 . . . {Azoic}
- 19/603 . . . {Anthroquinonic}
- 19/605 . . . {Azomethine dyes}
- 19/606 . . . {Perylene dyes}
- 19/608 . . . {Quinoxaline dyes}
- 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](#))**
- NOTE**
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.
- 21/02 . Inorganic materials
- 21/04 . . containing phosphorus
- 21/06 . Organic materials
- 21/08 . . containing halogen
- 21/10 . . containing nitrogen
- 21/12 . . containing phosphorus
- 21/14 . Macromolecular materials

- 2101/00 Agricultural use**
- 2103/00 Civil engineering use**
- 2105/00 Erosion prevention**
- 2107/00 Impermeabilisation**
- 2109/00 pH regulation**
- 2200/00 Chemical nature of materials in mouldable or extrudable form for sealing or packing joints or covers**
- 2200/02 . Inorganic compounds
- 2200/0204 . . Elements
- 2200/0208 . . . Carbon
- 2200/0213 . . . Metals
- 2200/0217 . . Salts
- 2200/0221 . . . Halogen-containing compounds
- 2200/0226 . . . Nitrogen-containing compounds
- 2200/023 . . . Sulfur-containing compounds
- 2200/0234 . . . Phosphorous-containing compounds
- 2200/0239 . . Oxides, hydroxides, carbonates
- 2200/0243 . . Silica-rich compounds, e.g. silicates, cement, glass
- 2200/0247 . . . Silica
- 2200/0252 . . . Clays
- 2200/0256 Bentonite
- 2200/026 Kaolin
- 2200/0265 Mica
- 2200/0269 . . . Ceramics
- 2200/0273 . . Boron-containing compounds
- 2200/0278 . . Fibres
- 2200/0282 . . . Carbon fibres
- 2200/0286 . . . Asbestos
- 2200/0291 . . . Glass fibres
- 2200/0295 . . . Ceramic fibres
- 2200/04 . Non-macromolecular organic compounds
- 2200/0405 . . Hydrocarbons
- 2200/0411 . . Halogen-containing compounds
- 2200/0417 . . Phosphorus-containing compounds
- 2200/0423 . . Boron-containing compounds
- 2200/0429 . . Alcohols, phenols, ethers
- 2200/0435 . . Aldehydes, ketones
- 2200/0441 . . Carboxylic acids, salts, anhydrides or esters thereof
- 2200/0447 . . Fats, fatty oils, higher fatty acids or derivatives thereof
- 2200/0452 . . Carbohydrates or derivatives thereof
- 2200/0458 . . Nitrogen-containing compounds
- 2200/0464 . . . Isocyanates
- 2200/047 . . . Amides, imides, imines, N-oxides
- 2200/0476 . . . Heterocyclic nitrogen compounds, e.g. melamine
- 2200/0482 . . . Peptides, proteins or derivatives thereof
- 2200/0488 . . Sulfur-containing compounds
- 2200/0494 . . Silicon-containing compounds
- 2200/06 . Macromolecular organic compounds, e.g. prepolymers
- 2200/0602 . . Polysaccharides or derivatives thereof
- 2200/0605 . . Lignin-containing compounds
- 2200/0607 . . Rubber or rubber derivatives
- 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

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- 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 crystal [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