

CPC COOPERATIVE PATENT CLASSIFICATION

C CHEMISTRY; METALLURGY

(NOTES omitted)

CHEMISTRY

C09 DYES; PAINTS; POLISHES; NATURAL RESINS; ADHESIVES; COMPOSITIONS NOT OTHERWISE PROVIDED FOR; APPLICATIONS OF MATERIALS NOT OTHERWISE PROVIDED FOR

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 [C09K 11/77 - C09K 11/7798](#), [C09K 11/87](#), [C09K 11/88](#), [C09K 11/89](#)
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](#)

		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)
3/10	. {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}		

- 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 toiletry 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)
- 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
- 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

[C09K 2211/00](#) - [C09K 2211/188](#) relating to the chemical nature of the luminescent material

- 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

- 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](#)

9/00 Tenebrescent materials, i.e. materials for which the range of wavelengths for energy absorption is changed as a result of excitation by some form of energy

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 . . {non-luminescent particle coatings or suspension media}
- 11/04 . . containing natural or artificial radioactive elements or unspecified radioactive elements
- 11/06 . . containing organic luminescent materials

NOTE

{When classifying in this group it is desirable to add the indexing codes of groups

- 11/0805 . . {Chalcogenides}
- 11/0811 . . . {with zinc or cadmium}
- 11/0816 . . . {with alkaline earth metals}
- 11/0822 . . . {with rare earth metals}
- 11/0827 . . {Halogenides ([C09K 11/0805](#) takes 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}	11/687	. . . . {Borates}
11/607	. . . {Silicates}	11/688	. . . . {Sulfates}
11/61	. . containing fluorine, chlorine, bromine, iodine or unspecified halogen elements	11/69	. . . containing vanadium
11/611	. . . {Chalcogenides}	11/691	. . . . {Chalcogenides}
11/612	. . . . {with zinc or cadmium}	11/693	. . . . . {with zinc or cadmium}
11/613	. . . . {with alkali or alkaline earth metals}	11/695	. . . . . {with alkaline earth metals}
11/615	. . . {Halogenides}	11/696	. . . . {Halogenides}
11/616	. . . . {with alkali or alkaline earth metals}	11/698	. . . . {Aluminates; Silicates}
11/617	. . . {Silicates}	11/70	. . containing phosphorus
11/618	. . . {Sulfates}	11/701	. . . {Chalcogenides}
11/62	. . containing gallium, indium or thallium	11/703	. . . . {with zinc or cadmium}
11/621	. . . {Chalcogenides}	11/705	. . . {Halogenides (C09K 11/701 takes 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}
11/63	. . containing boron	11/715	. . . . . {with alkali or alkaline earth metals}
11/632	. . . {Halogenides}	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 takes 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 takes 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 takes 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 takes 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 takes 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 takes precedence)}
11/681	. . . . {Chalcogenides}	11/7705	. . . . {with alkali or alkaline earth metals}
11/682	. . . . . {with zinc or cadmium}	11/7706	. . . {Aluminates}
11/684	. . . . . {with alkaline earth metals}	11/77062	. . . {Silicates}
11/685	. . . . {Aluminates; Silicates}		

11/77064 . . . {Aluminosilicates}	11/7745 {with zinc or cadmium}
11/77066 . . . {Aluminium Nitrides or Aluminium Oxynitrides}	11/7746 {with alkaline earth metals}
11/77067 . . . {Silicon Nitrides or Silicon Oxynitrides}	11/7747 {Halogenides (C09K 11/7744 takes precedence)}
11/77068 . . . {Silicon Aluminium Nitrides or Silicon Aluminium Oxynitrides}	11/7748 {with alkali or alkaline earth metals}
11/7707 . . . {Germanates}	11/7749 {Aluminates}
11/7708 . . . {Vanadates; Chromates; Molybdates; Tungstates}	11/77492 {Silicates}
11/7709 . . . {Phosphates}	11/77494 {Aluminosilicates}
11/771 {with alkaline earth metals}	11/77496 {Aluminium Nitrides or Aluminium Oxynitrides}
11/7711 {with halogens}	11/77497 {Silicon Nitrides or Silicon Oxynitrides}
11/7712 . . . {Borates}	11/77498 {Silicon Aluminium Nitrides or Silicon Aluminium Oxynitrides}
11/7713 . . . {Sulfates}	11/775 {Germanates}
11/7714 . . . {Antimonates; Arsenates}	11/7751 {Vanadates; Chromates; Molybdates; Tungstates}
11/7715 . . . {containing cerium}	11/7752 {Phosphates}
11/7716 {Chalcogenides}	11/7753 {with alkaline earth metals}
11/7717 {with zinc or cadmium}	11/7754 {with halogens}
11/7718 {with alkaline earth metals}	11/7755 {Borates}
11/7719 {Halogenides (C09K 11/7716 takes precedence)}	11/7756 . . . {containing neodymium}
11/772 {with alkali or alkaline earth metals}	11/7757 {Halogenides}
11/7721 {Aluminates}	11/7758 {Aluminates; Silicates}
11/77212 {Silicates}	11/7759 . . . {containing samarium}
11/77214 {Aluminosilicates}	11/776 {Chalcogenides}
11/77216 {Aluminium Nitrides or Aluminium Oxynitrides}	11/7761 {with alkaline earth metals}
11/77217 {Silicon Nitrides or Silicon Oxynitrides}	11/7762 {Halogenides (C09K 11/776 takes precedence)}
11/77218 {Silicon Aluminium Nitrides or Silicon Aluminium Oxynitrides}	11/7763 {with alkali or alkaline earth metals}
11/7722 {Vanadates; Chromates; Molybdates; Tungstates}	11/7764 {Aluminates; Silicates}
11/7723 {Phosphates}	11/7765 {Vanadates; Chromates; Molybdates; Tungstates}
11/7724 {with alkaline earth metals}	11/7766 . . . {containing two or more rare earth metals}
11/7725 {with halogens}	11/7767 {Chalcogenides}
11/7726 {Borates}	11/7768 {with alkaline earth metals}
11/7727 {Sulfates}	11/7769 {Oxides (C09K 11/7768 takes precedence)}
11/7728 . . . {containing europium}	11/777 {Oxyhalogenides}
11/7729 {Chalcogenides}	11/7771 {Oxysulfides}
11/773 {with zinc or cadmium}	11/7772 {Halogenides (C09K 11/7767 takes precedence)}
11/7731 {with alkaline earth metals}	11/7773 {with alkali or alkaline earth metal}
11/7732 {Halogenides}	11/7774 {Aluminates}
11/7733 {with alkali or alkaline earth metals}	11/77742 {Silicates}
11/7734 {Aluminates}	11/77744 {Aluminosilicates}
11/77342 {Silicates}	11/77746 {Aluminium Nitrides or Aluminium Oxynitrides}
11/77344 {Aluminosilicates}	11/77747 {Silicon Nitrides or Silicon Oxynitrides}
11/77346 {Aluminium Nitrides or Aluminium Oxynitrides}	11/77748 {Silicon Aluminium Nitrides or Silicon Aluminium Oxynitrides}
11/77347 {Silicon Nitrides or Silicon Oxynitrides}	11/7775 {Germanates}
11/77348 {Silicon Aluminium Nitrides or Silicon Aluminium Oxynitrides}	11/7776 {Vanadates; Chromates; Molybdates; Tungstates}
11/7735 {Germanates}	11/7777 {Phosphates}
11/7736 {Vanadates; Chromates; Molybdates; Tungstates}	11/7778 {with alkaline earth metals}
11/7737 {Phosphates}	11/7779 {with halogens}
11/7738 {with alkaline earth metals}	11/778 {Borates}
11/7739 {with halogens}	11/7781 {Sulfates}
11/774 {Borates}	11/7782 {Antimonates; Arsenates}
11/7741 {Sulfates}	11/7783 . . . {containing two or more rare earth metals one of which being europium}
11/7742 {Antimonates; Arsenates}	11/7784 {Chalcogenides}
11/7743 . . . {containing terbium}	
11/7744 {Chalcogenides}	

- 11/7785 {with zinc or cadmium}
 11/7786 {with alkaline earth metals}
 11/7787 {Oxides ([C09K 11/7785](#) takes precedence)}
 11/7788 {Oxyhalogenides}
 11/7789 {Oxysulfides}
 11/779 {Halogenides ([C09K 11/7784](#) takes precedence)}
 11/7791 {with alkali or alkaline earth metals}
 11/7792 {Aluminates}
 11/77922 {Silicates}
 11/77924 {Aluminosilicates}
 11/77926 {Aluminium Nitrides or Aluminium Oxynitrides}
 11/77927 {Silicon Nitrides or Silicon Oxynitrides}
 11/77928 {Silicon Aluminium Nitrides or Silicon Aluminium Oxynitrides}
 11/7793 {Germanates}
 11/7794 {Vanadates; Chromates; Molybdates; Tungstates}
 11/7795 {Phosphates}
 11/7796 {with alkaline earth metals}
 11/7797 {Borates}
 11/7798 {Antimonates; Arsenates}
 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.

C09K

C09K 17/00

(continued)

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 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 . . {Ferroelectric; Ferrosmetic}
 - 19/0258 . . {Flexoelectric}
 - 19/0266 . . {Antiferroelectrics}
 - 19/0275 . . {Blue phase}
 - 19/0283 . . {Cubic phase}
 - 19/0291 . . {antclinic}
 - 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 CH₃CH=CHCH₂CH₂- 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}	2019/2057	. . . . . {Ph-Ph-Ph-Ph-COO-Ph, or more Ph rings}
19/066	. . . {containing one heterocyclic ring having oxygen as heteroatom}	2019/2064	. . . . . {Ph-Ph-COO-Ph-Ph}
19/067	. . . {containing one heterocyclic ring having nitrogen as heteroatom}	2019/2071	. . . . . {Ph-Ph-Ph-COO-Ph-Ph, or more Ph rings}
19/068	. . . {containing one heterocyclic ring having sulfur as heteroatom}	2019/2078	. . . . . {Ph-COO-Ph-COO-Ph}
19/08	. . . containing at least two non-condensed rings	2019/2085	. . . . . {Ph-CH=CH-Ph-COO-Ph}
19/10	. . . . containing at least two benzene rings	2019/2092	. . . . . {Ph-C≡C-Ph-COO-Ph}
19/12	. . . . . at least two benzene rings directly linked, e.g. biphenyls	19/22	. . . . . linked by a chain containing carbon and nitrogen atoms as chain links, e.g. Schiff bases
2019/121	. . . . . {Compounds containing phenylene-1,4-diyl (-Ph-)}	19/24	. . . . . linked by a chain containing nitrogen-to-nitrogen bonds
2019/122	. . . . . {Ph-Ph}	19/26	. . . . . Azoxy compounds
2019/123	. . . . . {Ph-Ph-Ph}	19/28	. . . . . linked by a chain containing carbon and sulfur atoms as chain links, e.g. thioesters
2019/124	. . . . . {Ph-Ph-Ph-Ph}	19/30	. . . . . containing saturated or unsaturated non-aromatic rings, e.g. cyclohexane rings
2019/125	. . . . . {Ph-Ph-Ph-Ph-Ph or more Ph rings}	19/3001	. . . . . {Cyclohexane rings}
19/126	. . . . . {Compounds containing at least one asymmetric carbon atom}	19/3003	. . . . . {Compounds containing at least two rings in which the different rings are directly linked (covalent bond)}
2019/127	. . . . . {Compounds containing phenylene-1,3-diyl}	2019/3004	. . . . . {Cy-Cy}
2019/128	. . . . . {Compounds containing phenylene-1,2-diyl}	2019/3006	. . . . . {Cy-Cy-Cy}
19/14	. . . . . linked by a carbon chain	2019/3007	. . . . . {Cy-Cy-Cy-Cy or more Cy rings}
19/16	. . . . . the chain containing carbon-to-carbon double bonds, e.g. stilbenes	2019/3009	. . . . . {Cy-Ph}
2019/161	. . . . . {Ph-CH=CH-Ph}	2019/301	. . . . . {Cy-Cy-Ph}
2019/163	. . . . . {Ph-Ph-CH=CH-Ph}	2019/3012	. . . . . {Cy-Cy-Cy-Ph, or more Cy rings}
2019/165	. . . . . {Ph-Ph-CH=CH-Ph-Ph}	2019/3013	. . . . . {Cy-Ph-Cy}
2019/166	. . . . . {Ph-Ph-Ph-CH=CH-Ph}	2019/3015	. . . . . {Cy-Cy-Ph-Cy}
2019/168	. . . . . {Ph-CH=CH-Ph-CH=CH-Ph}	2019/3016	. . . . . {Cy-Ph-Ph}
19/18	. . . . . the chain containing carbon-to-carbon triple bonds, e.g. tolans	2019/3018	. . . . . {Ph-Cy-Ph}
2019/181	. . . . . {Ph-C≡C-Ph}	2019/3019	. . . . . {Cy-Cy-Ph-Ph}
2019/183	. . . . . {Ph-Ph-C≡C-Ph}	2019/3021	. . . . . {Cy-Ph-Ph-Cy}
2019/185	. . . . . {Ph-Ph-C≡C-Ph-Ph}	2019/3022	. . . . . {Cy-Ph-Cy-Ph}
2019/186	. . . . . {Ph-C≡C-C≡C-Ph}	2019/3024	. . . . . {Ph-Cy-Cy-Ph}
2019/188	. . . . . {Ph-C≡C-Ph-C≡C-Ph}	2019/3025	. . . . . {Cy-Ph-Ph-Ph}
19/20	. . . . . linked by a chain containing carbon and oxygen atoms as chain links, e.g. esters {or ethers}	2019/3027	. . . . . {Compounds comprising 1,4-cyclohexylene and 2,3-difluoro-1,4-phenylene}
19/2007	. . . . . {the chain containing -COO- or -OCO- groups}	19/3028	. . . . . {in which at least two rings are linked by a carbon chain containing carbon to carbon single bonds}
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 -}	2019/303	. . . . . {Cy-C ₂ H ₄ -Cy}
19/2021	. . . . . {Compounds containing at least one asymmetric carbon atom}	2019/3031	. . . . . {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 }	2019/3033	. . . . . {Cy-Cy-Cy-C ₂ H ₄ -Cy}
2019/2035	. . . . . {Ph-COO-Ph}	2019/3034	. . . . . {Cy-Cy-C ₂ H ₄ -Cy-Cy}
2019/2042	. . . . . {Ph-Ph-COO-Ph}	2019/3036	. . . . . {Cy-C ₂ H ₄ -Ph}
2019/205	. . . . . {Ph-Ph-Ph-COO-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}	2019/3413	. . . . .	{Three-membered member ring with oxygen(s), e.g. oxirane in fused, bridged or spiro ring systems}
19/3059	. . . . .	{in which at least two rings are linked by a carbon chain containing carbon to carbon triple bonds}	2019/3416	. . . . .	{the heterocyclic ring being a four-membered ring, e.g. oxetane}
2019/306	. . . . .	{Cy-C≡C-Cy}	2019/3419	. . . . .	{Four-membered ring with oxygen(s), e.g. oxetane, in fused, bridged or spiro ring systems}
2019/3062	. . . . .	{Cy-C≡C-Ph}	2019/3422	. . . . .	{the heterocyclic ring being a six-membered ring}
2019/3063	. . . . .	{Cy-Ph-C≡C-Ph}	2019/3425	. . . . .	{Six-membered ring with oxygen(s) in fused, bridged or spiro ring systems}
2019/3065	. . . . .	{Cy-Ph-Ph-C≡C-Ph}	2019/3427	. . . . .	{Six-membered ring with 3 or more oxygen atoms}
19/3066	. . . . .	{in which the rings are linked by a chain containing carbon and oxygen atoms, e.g. esters or ethers}	2019/343	. . . . .	{the heterocyclic ring being a seven-membered ring}
19/3068	. . . . .	{chain containing -COO- or -OCO-groups}	2019/3433	. . . . .	{Seven-membered ring with oxygen(s) in fused, bridged or spiro ring systems}
2019/3069	. . . . .	{Cy-COO-Cy}	2019/3436	. . . . .	{Seven-membered ring with 3 or more oxygen atoms}
2019/3071	. . . . .	{Cy-Cy-COO-Cy}	2019/3438	. . . . .	{Crown ethers}
2019/3072	. . . . .	{Cy-Cy-Cy-COO-Cy, or more Cy rings}	19/3441	. . . . .	{having nitrogen as hetero atom}
2019/3074	. . . . .	{Cy-Cy-COO-Cy-Cy, or more Cy rings}	19/3444	. . . . .	{the heterocyclic ring being a six-membered aromatic ring containing one nitrogen atom, e.g. pyridine}
2019/3075	. . . . .	{Cy-COO-Ph}	19/3447	. . . . .	{Pyridine condensed or bridged with another ring system, e.g. quinoline or acridine}
2019/3077	. . . . .	{Cy-Cy-COO-Ph}	19/345	. . . . .	{the heterocyclic ring being a six-membered aromatic ring containing two nitrogen atoms}
2019/3078	. . . . .	{Cy-Cy-COO-Ph-Cy}	19/3452	. . . . .	{Pyrazine}
2019/308	. . . . .	{Cy-Cy-COO-Ph-Ph}	19/3455	. . . . .	{Pyridazine}
2019/3081	. . . . .	{Cy-Ph-COO-Cy}	19/3458	. . . . .	{Uncondensed pyrimidines}
2019/3083	. . . . .	{Cy-Ph-COO-Ph}	19/3461	. . . . .	{Pyrimidine-tolane}
2019/3084	. . . . .	{Cy-Ph-COO-Ph-Cy}	19/3463	. . . . .	{Pyrimidine with a carbon chain containing at least one asymmetric carbon atom, i.e. optically active pyrimidines}
19/3086	. . . . .	{in which at least two rings are linked by a chain containing nitrogen atoms}	19/3466	. . . . .	{Pyrimidine with at least another heterocycle in the chain}
19/3087	. . . . .	{in which at least two rings are linked by a chain containing sulfur atoms}	19/3469	. . . . .	{Pyrimidine with a specific end-group other than alkyl, alkoxy or -C*-}
2019/3089	. . . . .	{Cy-S-Cy}	19/3472	. . . . .	{Pyrimidine condensed or bridged with another ring system}
2019/309	. . . . .	{Cy-S-Ph}	19/3475	. . . . .	{the heterocyclic ring being a six-membered aromatic ring containing at least three nitrogen atoms}
2019/3092	. . . . .	{Cy-S-Ph-Ph}	19/3477	. . . . .	{the heterocyclic ring being a five-membered aromatic ring containing at least one nitrogen atom}
2019/3093	. . . . .	{Cy-Ph-S-Ph}	19/348	. . . . .	{containing at least two nitrogen atoms}
2019/3095	. . . . .	{in which the end group is the monoterpene menthyl}	19/3483	. . . . .	{the heterocyclic ring being a non-aromatic ring}
2019/3096	. . . . .	{Cyclobutane rings}	19/3486	. . . . .	{the heterocyclic ring containing nitrogen and oxygen atoms}
19/3098	. . . . .	{Unsaturated non-aromatic rings, e.g. cyclohexene rings}	19/3488	. . . . .	{the heterocyclic ring having more than 6 members, e.g. macrocycles, phthalocyanines}
19/32	. . . . .	containing condensed ring systems, i.e. fused, bridged or spiro ring systems	19/3491	. . . . .	{having sulfur as hetero atom}
19/321	. . . . .	{Compounds containing a bicyclo [2,2,2] octane ring}	19/3494	. . . . .	{the heterocyclic ring containing sulfur and oxygen atoms}
19/322	. . . . .	{Compounds containing a naphthalene ring or a completely or partially hydrogenated naphthalene ring}	19/3497	. . . . .	{the heterocyclic ring containing sulfur and nitrogen atoms}
2019/323	. . . . .	{containing a binaphthyl}			
2019/324	. . . . .	{containing a dihydronaphthalene}			
2019/325	. . . . .	{containing a tetrahydronaphthalene, e.g. -2,6-diyl (tetalin)}			
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}			

19/36	. . Steroidal liquid crystal compounds	19/584	. . . . {having a condensed ring system; macrocyclic compounds}
19/38	. . Polymers	19/586	. . . {Optically active dopants; chiral dopants}
19/3804	. . . {with mesogenic groups in the main chain}	19/588	. . . . {Heterocyclic compounds}
19/3809	. . . . {Polyesters; Polyester derivatives, e.g. polyamides}	19/60	. . Pleochroic dyes
19/3814	. . . . {Polyethers}	19/601	. . . {Azoic}
19/3819	. . . . {Polysaccharides or derivatives thereof}	19/603	. . . {Anthroquinonic}
19/3823	. . . . {containing heterocycles having at least one nitrogen as ring hetero atom}	19/605	. . . {Azomethine dyes}
19/3828	. . . . . {containing triazine rings}	19/606	. . . {Perylene dyes}
19/3833	. . . {with mesogenic groups in the side chain}	19/608	. . . {Quinoxaline dyes}
19/3838	. . . . {Polyesters; Polyester derivatives}	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)
19/3842	. . . . {Polyvinyl derivatives}	NOTE	
19/3847	. . . . . {Polyvinylethers}		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.
19/3852	. . . . . {Poly(meth)acrylate derivatives}		
19/3857	. . . . . {containing at least one asymmetric carbon atom}		
19/3861	. . . . . {containing condensed ring systems}	21/02	. Inorganic materials
19/3866	. . . . . {containing steroid groups}	21/04	. . containing phosphorus
19/3871	. . . . . {containing amino acid derivatives}	21/06	. Organic materials
19/3876	. . . . {Polyoxyalkylene polymers}	21/08	. . containing halogen
19/388	. . . . . {Polyepoxides}	21/10	. . containing nitrogen
19/3885	. . . . {Polyurethanes}	21/12	. . containing phosphorus
19/389	. . . . {Polypeptides}	21/14	. Macromolecular materials
19/3895	. . . . {containing two or more mesogenic groups per monomer unit, e.g. polyitaconates, polymaleates}	23/00	Use of substances as emulsifying, wetting, dispersing, or foam-producing agents
19/40	. . containing elements other than carbon, hydrogen, halogen, oxygen, nitrogen or sulfur, e.g. silicon, metals	23/002	. {Inorganic compounds}
19/402	. . . {containing deuterium}	23/003	. {Organic compounds containing only carbon and hydrogen}
19/404	. . . {containing boron or phosphorus}	23/005	. {Organic compounds containing selenium or tellurium}
19/406	. . . {containing silicon}	23/007	. {Organic compounds containing halogen}
19/408	. . . . {Polysiloxanes}	23/017	. {Mixtures of compounds}
19/42	. . Mixtures of liquid crystal compounds covered by two or more of the preceding groups C09K 19/06 - C09K 19/40	23/018	. . {Mixtures of two or more different organic oxygen-containing compounds}
19/44	. . . containing compounds with benzene rings directly linked	23/02	. Alkyl sulfonates or sulfuric acid ester salts derived from monohydric alcohols
19/46	. . . containing esters	23/04	. Sulfonates or sulfuric acid ester salts derived from polyhydric alcohols or amino alcohols or derivatives thereof (sulfated or sulfonated fatty oils C09K 23/08)
19/48	. . . containing Schiff bases	23/06	. Esters of higher fatty acids with hydroxyalkylated sulfonic acids or salts thereof
19/50	. . . containing steroidal liquid crystal compounds	23/08	. Sulfation or sulfonation products of fats, oils, waxes, or higher fatty acids or esters thereof with monovalent alcohols
19/52	. characterised by components which are not liquid crystals, e.g. additives {with special physical aspect: solvents, solid particles}	23/10	. Derivatives of low-molecular-weight sulfocarboxylic acids or sulfopolycarboxylic acids
2019/521	. . {Inorganic solid particles}	23/12	. Sulfonates of aromatic or alkylated aromatic compounds
2019/523	. . {Organic solid particles}	23/14	. Derivatives of phosphoric acid
2019/525	. . {Solvents}	23/16	. Amines or polyamines
2019/526	. . {Gelling agents}	23/18	. Quaternary ammonium compounds
2019/528	. . {Surfactants}	23/20	. Phosphonium and sulfonium compounds
19/54	. . Additives having no specific mesophase {characterised by their chemical composition}	23/22	. Amides or hydrazides
19/542	. . . {Macromolecular compounds}	23/24	. . Amides of higher fatty acids with aminoalkylated sulfonic acids
19/544	. . . . {as dispersing or encapsulating medium around the liquid crystal}	23/26	. Sulfonamides
2019/546	. . . . {creating a polymeric network}	23/28	. Aminocarboxylic acids (proteins and protein hydrolysates C09K 23/30)
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}		

- 23/30 . Proteins; Protein hydrolysates
- 23/32 . Heterocyclic compounds
- 23/34 . Higher-molecular-weight carboxylic acid esters
(esters of higher fatty acids with hydroxyalkylated sulfonic acids or salts thereof C09K 23/06)
- 23/36 . . Esters of polycarboxylic acids
- 23/38 . Alcohols, e.g. oxidation products of paraffins
- 23/40 . Phenols
- 23/42 . Ethers, e.g. polyglycol ethers of alcohols or phenols
- 23/44 . . Ether carboxylic acids
- 23/46 . . Ethers of aminoalcohols
- 23/48 . . Cellulose ethers
- 23/50 . Derivatives of lignin
- 23/52 . Natural or synthetic resins or their salts
- 23/54 . Silicon compounds
- 23/56 . Glucosides; Mucilage; Saponins
- 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

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- 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
- 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
- 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

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- 2219/17 . used as a medium, in which detection of chemical compounds takes place
- 2323/00 Functional layers of liquid crystal optical display excluding electroactive liquid crystal layer characterised by chemical composition**
- 2323/02 . Alignment layer characterised by chemical composition
- 2323/021 . . Inorganic, e.g. glass or silicon oxide
- 2323/023 . . Organic silicon compound, e.g. organosilicon
- 2323/025 . . Polyamide
- 2323/027 . . Polyimide
- 2323/0271 . . . Polyimidfluoride
- 2323/0273 . . . Polyimidmetalo
- 2323/03 . Viewing layer characterised by chemical composition
- 2323/031 . . Polarizer or dye
- 2323/033 . . Silicon compound, e.g. glass or organosilicon
- 2323/035 . . Ester polymer, e.g. polycarbonate, polyacrylate or polyester
- 2323/04 . Charge transferring layer characterised by chemical composition, i.e. conductive
- 2323/05 . Bonding or intermediate layer characterised by chemical composition, e.g. sealant or spacer
- 2323/051 . . Inorganic, e.g. glass or silicon oxide
- 2323/053 . . Organic silicon compound, e.g. organosilicon
- 2323/055 . . Epoxy
- 2323/057 . . Ester polymer, e.g. polycarbonate, polyacrylate or polyester
- 2323/059 . . Unsaturated aliphatic polymer, e.g. vinyl
- 2323/06 . Substrate layer characterised by chemical composition
- 2323/061 . . Inorganic, e.g. ceramic, metallic or glass