

# 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](#)

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

- 3/1003 . . {Pure inorganic mixtures}

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

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

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

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

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

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

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

- 3/1028 . . . {Fibres}

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

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

- 2003/1037 . . . {Intumescent materials}

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

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

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

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

- 2003/1053 . . . {Elastomeric materials}

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

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

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

- 2003/1065 . . . {Anaerobically hardenable materials}

- 2003/1068 . . . {Crosslinkable materials}

- 2003/1071 . . . {Thixotropic materials}

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

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

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

- 2003/1084 . . {Laminates}

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

- 2003/109 . . . {Crown caps}

- 2003/1093 . . . {Cables}

- 2003/1096 . . . {Cylinder head gaskets}

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

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

**NOTE**

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

- 3/1409 . . {Abrasive particles *per se* (preparation of diamond [C01B 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. CO<sub>2</sub> or carbonated gas} ([C09K 8/592 takes precedence](#))
- 8/60 . Compositions for stimulating production by acting on the underground formation
- 8/601 . . {using spacer compositions}
- 8/602 . . {containing surfactants}
- 8/604 . . . {Polymeric surfactants}
- 8/605 . . {containing biocides}
- 8/607 . . {specially adapted for clay formations}
- 8/608 . . . {Polymer compositions}
- 8/62 . . Compositions for forming crevices or fractures

- 8/64 . . . Oil-based compositions
- 8/66 . . . Compositions based on water or polar solvents  
(C09K 8/64 takes precedence)
- 8/665 . . . . {containing inorganic compounds (proppants  
C09K 8/80)}
- 8/68 . . . . containing organic compounds

**NOTE**

Documents classified in this group are also classified in groups C09K 8/88 - C09K 8/905 according to the specific compositions

- 8/685 . . . . . {containing cross-linking agents}
- 8/70 . . . characterised by their form or by the form of their components, e.g. foams
- 8/703 . . . . {Foams}
- 8/706 . . . . {Encapsulated breakers}
- 8/72 . . . Eroding chemicals, e.g. acids
- 8/725 . . . . {Compositions containing polymers}
- 8/74 . . . . combined with additives added for specific purposes
- 8/76 . . . . . for preventing or reducing fluid loss
- 8/78 . . . . . for preventing sealing
- 8/80 . . Compositions for reinforcing fractures, e.g. compositions of proppants used to keep the fractures open
- 8/805 . . . {Coated proppants}
- 8/82 . . Oil-based compositions (C09K 8/64 takes precedence)
- 8/84 . . Compositions based on water or polar solvents (C09K 8/66, C09K 8/82 take precedence)
- 8/845 . . . {containing inorganic compounds}
- 8/86 . . . containing organic compounds
- 8/88 . . . . macromolecular compounds
- 8/882 . . . . . {obtained by reactions only involving carbon-to-carbon unsaturated bonds}
- 8/885 . . . . . {obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds}
- 8/887 . . . . . {containing cross-linking agents}
- 8/90 . . . . . of natural origin, e.g. polysaccharides, cellulose
- 8/905 . . . . . {Biopolymers}
- 8/92 . . characterised by their form or by the form of their components, e.g. encapsulated material (C09K 8/70 takes precedence)
- 8/94 . . . Foams

- 9/00 Tenebrescent materials, i.e. materials for which the range of 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	11/667	. . . {Borates}
11/572	. . . {Chalcogenides}	11/668	. . . {Sulfates}
11/574	. . . . {with zinc or cadmium}	11/67	. . containing refractory metals
11/576	. . . . {with alkaline earth metals}	11/671	. . . {Chalcogenides}
11/578	. . . {Sulfates}	11/672	. . . . {with zinc or cadmium}
11/58	. . containing copper, silver or gold	11/673	. . . . {with alkaline earth metals}
11/582	. . . {Chalcogenides}	11/674	. . . {Halogenides ( <a href="#">C09K 11/671</a> , <a href="#">C09K 11/676</a> - <a href="#">C09K 11/679</a> take precedence)}
11/584	. . . . {with zinc or cadmium}	11/675	. . . . {with alkali or alkaline earth metals}
11/586	. . . . {with alkaline earth metals}	11/676	. . . {Aluminates; Silicates}
11/588	. . . {Sulfates}	11/677	. . . {Germanates}
11/59	. . containing silicon	11/678	. . . {Borates}
11/592	. . . {Chalcogenides}	11/679	. . . {Sulfates}
11/595	. . . . {with zinc or cadmium}	11/68	. . . containing chromium, molybdenum or tungsten
11/597	. . . {Sulfates}	11/681	. . . . {Chalcogenides}
11/60	. . containing iron, cobalt or nickel	11/682	. . . . . {with zinc or cadmium}
11/602	. . . {Chalcogenides}	11/684	. . . . . {with alkaline earth metals}
11/605	. . . . {with zinc or cadmium}	11/685	. . . . {Aluminates; Silicates}
11/607	. . . {Silicates}	11/687	. . . . {Borates}
11/61	. . containing fluorine, chlorine, bromine, iodine or unspecified halogen elements	11/688	. . . . {Sulfates}
11/611	. . . {Chalcogenides}	11/69	. . . containing vanadium
11/612	. . . . {with zinc or cadmium}	11/691	. . . . {Chalcogenides}
11/613	. . . . {with alkali or alkaline earth metals}	11/693	. . . . . {with zinc or cadmium}
11/615	. . . {Halogenides ( <a href="#">C09K 11/617</a> and <a href="#">C09K 11/618</a> take precedence)}	11/695	. . . . . {with alkaline earth metals}
11/616	. . . . {with alkali or alkaline earth metals}	11/696	. . . . {Halogenides}
11/617	. . . {Silicates}	11/698	. . . . {Aluminates; Silicates}
11/618	. . . {Sulfates}	11/70	. . containing phosphorus
11/62	. . containing gallium, indium or thallium	11/701	. . . {Chalcogenides}
11/621	. . . {Chalcogenides}	11/703	. . . . {with zinc and/or cadmium}
11/623	. . . . {with zinc or cadmium}	11/705	. . . {Halogenides ( <a href="#">C09K 11/701</a> , <a href="#">C09K 11/706</a> and <a href="#">C09K 11/708</a> take precedence)}
11/625	. . . . {with alkaline earth metals}	11/706	. . . {Aluminates; Silicates}
11/626	. . . {Halogenides ( <a href="#">C09K 11/621</a> takes precedence)}	11/708	. . . {Borates}
11/628	. . . . {with alkali or alkaline earth metals}	11/71	. . . also containing alkaline earth metals
11/63	. . containing boron	11/712	. . . . {Halogenides ( <a href="#">C09K 11/717</a> takes precedence)}
11/632	. . . {Halogenides ( <a href="#">C09K 11/636</a> and <a href="#">C09K 11/638</a> take precedence)}	11/715	. . . . . {with alkali or alkaline earth metals}
11/634	. . . . {with alkali or alkaline earth metals}	11/717	. . . . {Aluminates; Silicates}
11/636	. . . {Silicates}	11/72	. . . also containing halogen, e.g. halophosphates
11/638	. . . {Sulfates}	11/722	. . . . {Chalcogenides}
11/64	. . containing aluminium	11/725	. . . . . {with alkaline earth metals}
11/641	. . . {Chalcogenides}	11/727	. . . . {Aluminates; Silicates}
11/642	. . . . {with zinc or cadmium}	11/73	. . . . also containing alkaline earth metals
11/643	. . . . {with alkaline earth metals}	11/74	. . containing arsenic, antimony or bismuth
11/644	. . . {Halogenides ( <a href="#">C09K 11/641</a> , <a href="#">C09K 11/646</a> - <a href="#">C09K 11/648</a> take precedence)}	11/7407	. . . {Chalcogenides}
11/645	. . . . {with alkali or alkaline earth metals}	11/7414	. . . . {with zinc or cadmium}
11/646	. . . {Silicates}	11/7421	. . . . {with alkaline earth metals}
11/647	. . . {Borates}	11/7428	. . . {Halogenides ( <a href="#">C09K 11/7407</a> , <a href="#">C09K 11/7442</a> - <a href="#">C09K 11/7492</a> take precedence)}
11/648	. . . {Sulfates}	11/7435	. . . . {with alkali or alkaline earth metals}
11/65	. . containing carbon ( <a href="#">in organic compounds</a> <a href="#">C09K 11/06</a> )	11/7442	. . . {Aluminates; Silicates}
11/655	. . . {Aluminates; Silicates}	11/745	. . . {Germanates}
11/66	. . containing germanium, tin or lead	11/7457	. . . {Vanadates; Chromates; Molybdates; Tungstates}
11/661	. . . {Chalcogenides}	11/7464	. . . {Phosphates}
11/662	. . . . {with zinc or cadmium}	11/7471	. . . . {with alkaline earth metals}
11/663	. . . . {with alkaline earth metals}	11/7478	. . . . . {with halogens}
11/664	. . . {Halogenides ( <a href="#">C09K 11/661</a> , <a href="#">C09K 11/666</a> - <a href="#">C09K 11/668</a> take precedence)}	11/7485	. . . {Borates}
11/665	. . . . {with alkali or alkaline earth metals}	11/7492	. . . {Arsenides; Nitrides; Phosphides}
11/666	. . . {Aluminates; Silicates}	11/75	. . . containing antimony
		11/751	. . . . {Chalcogenides}



11/752	. . . . . {with zinc or cadmium}	11/7744	. . . . . {Chalcogenides}
11/753	. . . . . {with alkaline earth metals}	11/7745	. . . . . {with zinc or cadmium}
11/755	. . . . . {Halogenides ( <a href="#">C09K 11/751</a> , <a href="#">C09K 11/757</a> and <a href="#">C09K 11/758</a> take precedence)}	11/7746	. . . . . {with alkaline earth metals}
11/756	. . . . . {with alkali or alkaline earth metals}	11/7747	. . . . . {Halogenides ( <a href="#">C09K 11/7744</a> , <a href="#">C09K 11/7749</a> - <a href="#">C09K 11/7755</a> take precedence)}
11/757	. . . . . {Aluminates; Silicates}	11/7748	. . . . . {with alkali or alkaline earth metals}
11/758	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}	11/7749	. . . . . {Aluminates; Silicates}
11/76	. . . . . also containing phosphorus and halogen, e.g. halophosphates	11/775	. . . . . {Germanates}
11/765	. . . . . {Borates}	11/7751	. . . . . {Vanadates; Chromates; Molybdates; Tungstates}
11/77	. . containing rare earth metals	11/7752	. . . . . {Phosphates}
11/7701	. . . {Chalcogenides}	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 ( <a href="#">C09K 11/7701</a> , <a href="#">C09K 11/7706</a> - <a href="#">C09K 11/7714</a> take precedence)}	11/7756	. . . {containing neodymium}
11/7705	. . . . . {with alkali or alkaline earth metals}	11/7757	. . . . . {Halogenides ( <a href="#">C09K 11/7758</a> 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	. . . . . {Chalcogenides}
11/7709	. . . {Phosphates}	11/7761	. . . . . {with alkaline earth metals}
11/771	. . . . . {with alkaline earth metals}	11/7762	. . . . . {Halogenides ( <a href="#">C09K 11/776</a> , <a href="#">C09K 11/7764</a> and <a href="#">C09K 11/7765</a> 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 <a href="#">C09K 11/7783</a> )}
11/7715	. . . {containing cerium}	11/7767	. . . . . {Chalcogenides}
11/7716	. . . . . {Chalcogenides}	11/7768	. . . . . {with alkaline earth metals}
11/7717	. . . . . {with zinc or cadmium}	11/7769	. . . . . {Oxides ( <a href="#">C09K 11/7768</a> takes precedence)}
11/7718	. . . . . {with alkaline earth metals}	11/777	. . . . . {Oxyhalogenides}
11/7719	. . . . . {Halogenides ( <a href="#">C09K 11/7716</a> , <a href="#">C09K 11/7721</a> - <a href="#">C09K 11/7727</a> take precedence)}	11/7771	. . . . . {Oxysulfides}
11/772	. . . . . {with alkali or alkaline earth metals}	11/7772	. . . . . {Halogenides ( <a href="#">C09K 11/7767</a> , <a href="#">C09K 11/7774</a> - <a href="#">C09K 11/7782</a> 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	. . . . . {Chalcogenides}	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	. . . . . {Chalcogenides}
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 ( <a href="#">C09K 11/7785</a> , <a href="#">C09K 11/7786</a> 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 ( <a href="#">C09K 11/7784</a> , <a href="#">C09K 11/7792</a> - <a href="#">C09K 11/7798</a> take precedence)}
11/7739	. . . . . {with halogens}	11/7791	. . . . . {with alkali or alkaline earth metals}
11/774	. . . . . {Borates}		
11/7741	. . . . . {Sulfates}		
11/7742	. . . . . {Antimonates; Arsenates}		
11/7743	. . . {containing terbium}		

- 11/7792 . . . . {Aluminates; Silicates}
- 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.
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	2019/0425	. . . {characterized by a specific unit that results in a functional effect}
17/34	. . . Bituminous materials	2019/0429	. . . {the specific unit being a carbocyclic or heterocyclic discotic unit}
17/36	. . Compounds having one or more carbon-to-silicon linkages	2019/0433	. . . {the specific unit being a luminescent or electroluminescent unit}
17/38	. . . Siloxanes	2019/0437	. . . {the specific unit being an optically active chain used as linking group between rings or as end group}
17/40	. containing mixtures of inorganic and organic compounds	2019/044	. . . {the specific unit being a perfluoro chain used as an end group}
17/42	. . Inorganic compounds mixed with organic active ingredients, e.g. accelerators	2019/0444	. . {characterized by a linking chain between rings or ring systems, a bridging chain between extensive mesogenic moieties or an end chain group}
17/44	. . . the inorganic compound being cement	2019/0448	. . . {the end chain group being a polymerizable end group, e.g. -Sp-P or acrylate}
17/46	. . . the inorganic compound being a water-soluble silicate	2019/0451	. . . {the end chain group being a $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_2$ - chain}
17/48	. . Organic compounds mixed with inorganic active ingredients, e.g. polymerisation catalysts	2019/0455	. . . {the linking chain being a $-\text{CF}_2\text{CF}_2-$ , $-\text{CF}_2\text{CF}_2\text{CF}_2\text{CF}_2-$ or $-\text{CH}_2\text{CF}_2\text{CF}_2\text{CH}_2-$ chain}
17/50	. . . the organic compound being of natural origin, e.g. cellulose derivatives	2019/0459	. . . {the linking chain being a $-\text{CF}=\text{CF}-$ chain, e.g. 1,2-difluoroethen-1,2-diyl}
17/52	. Mulches	2019/0462	. . . {the linking chain being a $-\text{CF}_2\text{CF}_2\text{O}-$ chain}
<b>19/00</b>	<b>Liquid crystal materials</b>	2019/0466	. . . {the linking chain being a $-\text{CF}_2\text{O}-$ chain}
	<b>NOTES</b>	2019/047	. . . {the linking chain being a $-\text{CH}_2\text{CF}_2\text{O}-$ chain}
	1. In groups <a href="#">C09K 19/02</a> - <a href="#">C09K 19/60</a> , { with the exception of groups <a href="#">C09K 19/0208</a> - <a href="#">C09K 19/0283</a> }, in the absence of an indication to the contrary, materials are classified in the last appropriate place.	2019/0474	. . . {the linking chain being a $-\text{CHFO}-$ chain}
	2. Mixtures containing two or more liquid crystal compounds covered individually by the same one of groups <a href="#">C09K 19/04</a> - <a href="#">C09K 19/40</a> are classified only in that group.	2019/0477	. . {characterized by the positioning of substituents on phenylene}
	3. If liquid crystal components of the mixtures classified in groups <a href="#">C09K 19/42</a> - <a href="#">C09K 19/50</a> are of importance as such, they should also be classified according to the compounds in groups <a href="#">C09K 19/04</a> - <a href="#">C09K 19/40</a> .	2019/0481	. . . {Phenylene substituted in meta position}
19/02	. characterised by optical, electrical or physical properties of the components, in general	2019/0485	. . . {Phenylene substituted in ortho position}
19/0208	. . {Twisted Nematic (T.N.); Super Twisted Nematic (S.T.N.); Optical Mode Interference (O.M.I.)}	2019/0488	. . {characterized by a special bonding}
19/0216	. . {Super Birefringence Effect (S.B.E.); Electrically Controlled Birefringence (E.C.B.)}	2019/0492	. . . {the special bonding being an hydrogen bond}
19/0225	. . {Ferroelectric}	2019/0496	. . . {the special bonding being a specific pi-conjugated group}
19/0233	. . {Electroclinic}	19/06	. . Non-steroidal liquid crystal compounds
19/0241	. . {Ferrielectric; Ferromagnetic}	19/061	. . . {Linear compounds without any rings}
19/025	. . {Ferronematic; Ferrosmetic}	19/062	. . . {containing one non-condensed benzene ring}
19/0258	. . {Flexoelectric}	19/063	. . . {containing one non-condensed saturated non-aromatic ring, e.g. cyclohexane ring}
19/0266	. . {Antiferroelectrics}	19/065	. . . {containing one non-condensed unsaturated non-aromatic ring, e.g. cyclohexene ring}
19/0275	. . {Blue phase}	19/066	. . . {containing one heterocyclic ring having oxygen as heteroatom}
19/0283	. . {Cubic phase}	19/067	. . . {containing one heterocyclic ring having nitrogen as heteroatom}
19/0291	. . {anticlinic}	19/068	. . . {containing one heterocyclic ring having sulfur as heteroatom}
19/04	. characterised by the chemical structure of the liquid crystal components {, e.g. by a specific unit}	19/08	. . . containing at least two non-condensed rings
19/0403	. . {the structure containing one or more specific, optionally substituted ring or ring systems}	19/10	. . . . containing at least two benzene rings
2019/0407	. . . {containing a carbocyclic ring, e.g. dicyano-benzene, chlorofluoro-benzene or cyclohexanone}	19/12	. . . . . at least two benzene rings directly linked, e.g. biphenyls
2019/0411	. . . {containing a chlorofluoro-benzene, e.g. 2-chloro-3-fluoro-phenylene-1,4-diyl}	2019/121	. . . . . {Compounds containing phenylene-1,4-diyl (-Ph-)}
2019/0414	. . . {containing a heterocyclic ring}	2019/122	. . . . . {Ph-Ph}
2019/0418	. . . {containing a dendromer structure; Dendritic liquid crystals}	2019/123	. . . . . {Ph-Ph-Ph}
19/0422	. . {Sugars (polysaccharides <a href="#">C09K 19/3819</a> )}	2019/124	. . . . . {Ph-Ph-Ph-Ph}
		2019/125	. . . . . {Ph-Ph-Ph-Ph-Ph or more Ph rings}
		19/126	. . . . . {Compounds containing at least one asymmetric carbon atom}
		2019/127	. . . . . {Compounds containing phenylene-1,3-diyl}



2019/128	. . . . .	{Compounds containing phenylene-1,2-diyl}	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 <sub>2</sub> -CH <sub>2</sub> -, -CH=CH-, -C=C-; containing at least one additional carbon atom in the chain containing -COO- or -OCO- groups, e.g. -(CH <sub>2</sub> ) <sub>m</sub> -COO-(CH <sub>2</sub> ) <sub>n</sub> -}	2019/303	. . . . .	{Cy-C <sub>2</sub> H <sub>4</sub> -Cy}
19/2021	. . . . .	{Compounds containing at least one asymmetric carbon atom}	2019/3031	. . . . .	{Cy-Cy-C <sub>2</sub> H <sub>4</sub> -Cy}
19/2028	. . . . .	{containing additionally a linking group other than -COO- or -OCO-, e.g. -CH <sub>2</sub> -CH <sub>2</sub> -, -CH=CH-, -C=C-; containing at least one additional carbon atom in the chain containing -COO- or -OCO- groups, e.g. -COO-CH*-CH <sub>3</sub> }	2019/3033	. . . . .	{Cy-Cy-Cy-C <sub>2</sub> H <sub>4</sub> -Cy}
2019/2035	. . . . .	{Ph-COO-Ph}	2019/3034	. . . . .	{Cy-Cy-C <sub>2</sub> H <sub>4</sub> -Cy-Cy}
2019/2042	. . . . .	{Ph-Ph-COO-Ph}	2019/3036	. . . . .	{Cy-C <sub>2</sub> H <sub>4</sub> -Ph}
2019/205	. . . . .	{Ph-Ph-Ph-COO-Ph}	2019/3037	. . . . .	{Cy-Cy-C <sub>2</sub> H <sub>4</sub> -Ph}
2019/2057	. . . . .	{Ph-Ph-Ph-Ph-COO-Ph, or more Ph rings}	2019/3039	. . . . .	{Cy-Cy-Cy-C <sub>2</sub> H <sub>4</sub> -Ph}
2019/2064	. . . . .	{Ph-Ph-COO-Ph-Ph}	2019/304	. . . . .	{Cy-C <sub>2</sub> H <sub>4</sub> -Ph-Ph}
2019/2071	. . . . .	{Ph-Ph-Ph-COO-Ph-Ph, or more Ph rings}	2019/3042	. . . . .	{Cy-Cy-C <sub>2</sub> H <sub>4</sub> -Ph-Ph}
2019/2078	. . . . .	{Ph-COO-Ph-COO-Ph}	2019/3043	. . . . .	{Cy-Cy-C <sub>2</sub> H <sub>4</sub> -Ph-Cy}
2019/2085	. . . . .	{Ph-CH=CH-Ph-COO-Ph}	2019/3045	. . . . .	{Cy-Ph-C <sub>2</sub> H <sub>4</sub> -Ph-Cy}
2019/2092	. . . . .	{Ph-C≡C-Ph-COO-Ph}	2019/3046	. . . . .	{Cy-C <sub>2</sub> H <sub>4</sub> -Ph-C <sub>2</sub> H <sub>4</sub> -Cy}
19/22	. . . . .	linked by a chain containing carbon and nitrogen atoms as chain links, e.g. Schiff bases	19/3048	. . . . .	{in which at least two rings are linked by a carbon chain containing carbon to carbon double bonds}
19/24	. . . . .	linked by a chain containing nitrogen-to-nitrogen bonds	2019/305	. . . . .	{Cy-CH=CH-Cy}
19/26	. . . . .	Azoxy compounds	2019/3051	. . . . .	{Cy-CH=CH-Cy-Ph}
19/28	. . . . .	linked by a chain containing carbon and sulfur atoms as chain links, e.g. thioesters	2019/3053	. . . . .	{Cy-CH=CH-Ph}
19/30	. . . . .	containing saturated or unsaturated non-aromatic rings, e.g. cyclohexane rings	2019/3054	. . . . .	{Cy-Cy-CH=CH-Ph}
19/3001	. . . . .	{Cyclohexane rings}	2019/3056	. . . . .	{Cy-Ph-CH=CH-Ph}
19/3003	. . . . .	{Compounds containing at least two rings in which the different rings are directly linked (covalent bond)}	2019/3057	. . . . .	{Cy-Ph-Ph-CH=CH-Ph}
2019/3004	. . . . .	{Cy-Cy}	19/3059	. . . . .	{in which at least two rings are linked by a carbon chain containing carbon to carbon triple bonds}
			2019/306	. . . . .	{Cy-C≡C-Cy}
			2019/3062	. . . . .	{Cy-C≡C-Ph}
			2019/3063	. . . . .	{Cy-Ph-C≡C-Ph}
			2019/3065	. . . . .	{Cy-Ph-Ph-C≡C-Ph}
			19/3066	. . . . .	{in which the rings are linked by a chain containing carbon and oxygen atoms, e.g. esters or ethers}
			19/3068	. . . . .	{chain containing -COO- or -OCO- groups}
			2019/3069	. . . . .	{Cy-COO-Cy}
			2019/3071	. . . . .	{Cy-Cy-COO-Cy}
			2019/3072	. . . . .	{Cy-Cy-Cy-COO-Cy, or more Cy rings}
			2019/3074	. . . . .	{Cy-Cy-COO-Cy-Cy, or more Cy rings}
			2019/3075	. . . . .	{Cy-COO-Ph}
			2019/3077	. . . . .	{Cy-Cy-COO-Ph}
			2019/3078	. . . . .	{Cy-Cy-COO-Ph-Cy}

2019/308	. . . . .	{Cy-Cy-COO-Ph-Ph}	19/3444	. . . . .	{the heterocyclic ring being a six-membered aromatic ring containing one nitrogen atom, e.g. pyridine}
2019/3081	. . . . .	{Cy-Ph-COO-Cy}	19/3447	. . . . .	{Pyridine condensed or bridged with another ring system, e.g. quinoline or acridine}
2019/3083	. . . . .	{Cy-Ph-COO-Ph}	19/345	. . . . .	{the heterocyclic ring being a six-membered aromatic ring containing two nitrogen atoms}
2019/3084	. . . . .	{Cy-Ph-COO-Ph-Cy}	19/3452	. . . . .	{Pyrazine}
19/3086	. . . . .	{in which at least two rings are linked by a chain containing nitrogen atoms}	19/3455	. . . . .	{Pyridazine}
19/3087	. . . . .	{in which at least two rings are linked by a chain containing sulfur atoms}	19/3458	. . . . .	{Uncondensed pyrimidines}
2019/3089	. . . . .	{Cy-S-Cy}	19/3461	. . . . .	{Pyrimidine-tolane}
2019/309	. . . . .	{Cy-S-Ph}	19/3463	. . . . .	{Pyrimidine with a carbon chain containing at least one asymmetric carbon atom, i.e. optically active pyrimidines}
2019/3092	. . . . .	{Cy-S-Ph-Ph}	19/3466	. . . . .	{Pyrimidine with at least another heterocycle in the chain}
2019/3093	. . . . .	{Cy-Ph-S-Ph}	19/3469	. . . . .	{Pyrimidine with a specific end-group other than alkyl, alkoxy or -C*-}
2019/3095	. . . . .	{in which the end group is the monoterpene menthyl}	19/3472	. . . . .	{Pyrimidine condensed or bridged with another ring system}
2019/3096	. . . . .	{Cyclobutane rings}	19/3475	. . . . .	{the heterocyclic ring being a six-membered aromatic ring containing at least three nitrogen atoms}
19/3098	. . . . .	{Unsaturated non-aromatic rings, e.g. cyclohexene rings}	19/3477	. . . . .	{the heterocyclic ring being a five-membered aromatic ring containing at least one nitrogen atom}
19/32	. . .	containing condensed ring systems, i.e. fused, bridged or spiro ring systems	19/348	. . . . .	{containing at least two nitrogen atoms}
19/321	. . . . .	{Compounds containing a bicyclo [2,2,2] octane ring}	19/3483	. . . . .	{the heterocyclic ring being a non-aromatic ring}
19/322	. . . . .	{Compounds containing a naphthalene ring or a completely or partially hydrogenated naphthalene ring}	19/3486	. . . . .	{the heterocyclic ring containing nitrogen and oxygen atoms}
2019/323	. . . . .	{containing a binaphthyl}	19/3488	. . . . .	{the heterocyclic ring having more than 6 members, e.g. macrocycles, phthalocyanines}
2019/324	. . . . .	{containing a dihydronaphthalene}	19/3491	. . . . .	{having sulfur as hetero atom}
2019/325	. . . . .	{containing a tetrahydronaphthalene, e.g. -2,6-diyl (tetralin)}	19/3494	. . . . .	{the heterocyclic ring containing sulfur and oxygen atoms}
2019/326	. . . . .	{containing a decahydronaphthalene, e.g. -2,6-diyl (decalin)}	19/3497	. . . . .	{the heterocyclic ring containing sulfur and nitrogen atoms}
2019/327	. . . . .	{containing a spiro ring system}	19/36	. .	Steroidal liquid crystal compounds
2019/328	. . . . .	{containing a triphenylene ring system}	19/38	. .	Polymers
19/34	. . .	containing at least one heterocyclic ring	19/3804	. . .	{with mesogenic groups in the main chain}
19/3402	. . . . .	{having oxygen as hetero atom (sugars C09K 19/0422)}	19/3809	. . . . .	{Polyesters; Polyester derivatives, e.g. polyamides}
19/3405	. . . . .	{the heterocyclic ring being a five-membered ring}	19/3814	. . . . .	{Polyethers}
2019/3408	. . . . .	{Five-membered ring with oxygen(s) in fused, bridged or spiro ring systems}	19/3819	. . . . .	{Polysaccharides or derivatives thereof}
19/3411	. . . . .	{the heterocyclic ring being a three-membered ring}	19/3823	. . . . .	{containing heterocycles having at least one nitrogen as ring hetero atom}
2019/3413	. . . . .	{Three-membered member ring with oxygen(s), e.g. oxirane in fused, bridged or spiro ring systems}	19/3828	. . . . .	{containing triazine rings}
2019/3416	. . . . .	{the heterocyclic ring being a four-membered ring, e.g. oxetane}	19/3833	. . .	{with mesogenic groups in the side chain}
2019/3419	. . . . .	{Four-membered ring with oxygen(s), e.g. oxetane, in fused, bridged or spiro ring systems}	19/3838	. . . . .	{Polyesters; Polyester derivatives}
2019/3422	. . . . .	{the heterocyclic ring being a six-membered ring}	19/3842	. . . . .	{Polyvinyl derivatives}
2019/3425	. . . . .	{Six-membered ring with oxygen(s) in fused, bridged or spiro ring systems}	19/3847	. . . . .	{Polyvinylethers}
2019/3427	. . . . .	{Six-membered ring with 3 or more oxygen atoms}	19/3852	. . . . .	{Poly(meth)acrylate derivatives}
2019/343	. . . . .	{the heterocyclic ring being a seven-membered ring}	19/3857	. . . . .	{containing at least one asymmetric carbon atom}
2019/3433	. . . . .	{Seven-membered ring with oxygen(s) in fused, bridged or spiro ring systems}	19/3861	. . . . .	{containing condensed ring systems}
2019/3436	. . . . .	{Seven-membered ring with 3 or more oxygen atoms}	19/3866	. . . . .	{containing steroid groups}
2019/3438	. . . . .	{Crown ethers}	19/3871	. . . . .	{containing amino acid derivatives}
19/3441	. . . . .	{having nitrogen as hetero atom}	19/3876	. . . . .	{Polyoxyalkylene polymers}

19/388	. . . . . {Polyepoxides}	21/06	. Organic materials
19/3885	. . . . . {Polyurethanes}	21/08	. . containing halogen
19/389	. . . . . {Polypeptides}	21/10	. . containing nitrogen
19/3895	. . . . . {containing two or more mesogenic groups per monomer unit, e.g. polyitaconates, polymaleates}	21/12	. . containing phosphorus
19/40	. . containing elements other than carbon, hydrogen, halogen, oxygen, nitrogen or sulfur, e.g. silicon, metals	21/14	. Macromolecular materials
19/402	. . . {containing deuterium}	<b>2101/00</b>	<b>Agricultural use</b>
19/404	. . . {containing boron or phosphorus}	<b>2103/00</b>	<b>Civil engineering use</b>
19/406	. . . {containing silicon}	<b>2105/00</b>	<b>Erosion prevention</b>
19/408	. . . . {Polysiloxanes}	<b>2107/00</b>	<b>Impermeabilisation</b>
19/42	. . Mixtures of liquid crystal compounds covered by two or more of the preceding groups <a href="#">C09K 19/06</a> - <a href="#">C09K 19/40</a>	<b>2109/00</b>	<b>pH regulation</b>
19/44	. . . containing compounds with benzene rings directly linked	<b>2200/00</b>	<b>Chemical nature of materials in mouldable or extrudable form for sealing or packing joints or covers</b>
19/46	. . . containing esters	2200/02	. Inorganic compounds
19/48	. . . containing Schiff bases	2200/0204	. . Elements
19/50	. . . containing steroidal liquid crystal compounds	2200/0208	. . . Carbon
19/52	. characterised by components which are not liquid crystals, e.g. additives {with special physical aspect: solvents, solid particles}	2200/0213	. . . Metals
2019/521	. . {Inorganic solid particles}	2200/0217	. . Salts
2019/523	. . {Organic solid particles}	2200/0221	. . . Halogen-containing compounds
2019/525	. . {Solvents}	2200/0226	. . . Nitrogen-containing compounds
2019/526	. . {Gelling agents}	2200/023	. . . Sulfur-containing compounds
2019/528	. . {Surfactants}	2200/0234	. . . Phosphorous-containing compounds
19/54	. . Additives having no specific mesophase {characterised by their chemical composition}	2200/0239	. . Oxides, hydroxides, carbonates
19/542	. . . {Macromolecular compounds}	2200/0243	. . Silica-rich compounds, e.g. silicates, cement, glass
19/544	. . . . {as dispersing or encapsulating medium around the liquid crystal}	2200/0247	. . . Silica
2019/546	. . . . {creating a polymeric network}	2200/0252	. . . Clays
2019/548	. . . . {stabilizing the alignment; Polymer stabilized alignment}	2200/0256	. . . . Bentonite
19/56	. . . Aligning agents	2200/026	. . . . Kaolin
19/58	. . Dopants or charge transfer agents	2200/0265	. . . Mica
19/582	. . . {Electrically active dopants, e.g. charge transfer agents}	2200/0269	. . Ceramics
19/584	. . . . {having a condensed ring system; macrocyclic compounds}	2200/0273	. . Boron-containing compounds
19/586	. . . {Optically active dopants; chiral dopants}	2200/0278	. . Fibres
19/588	. . . . {Heterocyclic compounds}	2200/0282	. . . Carbon fibres
19/60	. . Pleochroic dyes	2200/0286	. . . Asbestos
19/601	. . . {Azoic}	2200/0291	. . . Glass fibres
19/603	. . . {Anthroquinonic}	2200/0295	. . . Ceramic fibres
19/605	. . . {Azomethine dyes}	2200/04	. Non-macromolecular organic compounds
19/606	. . . {Perylene dyes}	2200/0405	. . Hydrocarbons
19/608	. . . {Quinoxaline dyes}	2200/0411	. . Halogen-containing compounds
<b>21/00</b>	<b>Fireproofing materials (for use in a particular application, see the relevant places, e.g. fireproofing of wood <a href="#">B27K</a>, of polymers <a href="#">C08</a>, of textiles <a href="#">D06M</a>, of paper <a href="#">D21H</a>; fireproof paints <a href="#">C09D 5/18</a>)</b>	2200/0417	. . Phosphorus-containing compounds
	<b>NOTE</b>	2200/0423	. . Boron-containing compounds
	In groups <a href="#">C09K 21/02</a> - <a href="#">C09K 21/14</a> , in the absence of an indication to the contrary, materials are classified in the last appropriate place.	2200/0429	. . Alcohols, phenols, ethers
21/02	. Inorganic materials	2200/0435	. . Aldehydes, ketones
21/04	. . containing phosphorus	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	2205/128	. . . Perfluorinated hydrocarbons ( <a href="#">C09K 2205/124</a> , <a href="#">C09K 2205/126</a> take precedence)
2200/0605	. . . Lignin-containing compounds	2205/13	. . . Inert gases
2200/0607	. . . Rubber or rubber derivatives	2205/132	. . . containing nitrogen
2200/061	. . . Butyl rubber	2205/134	. . . containing sulfur
2200/0612	. . . Butadiene-acrylonitrile rubber	2205/22	. All components of a mixture being fluoro compounds
2200/0615	. . . obtained by reactions only involving carbon-to-carbon unsaturated bonds	2205/24	. Only one single fluoro component present
2200/0617	. . . Polyalkenes	2205/32	. The mixture being azeotropic
2200/062	. . . Polyethylene	2205/34	. The mixture being non-azeotropic
2200/0622	. . . Polyvinylalcohols, polyvinylacetates	2205/40	. Replacement mixtures
2200/0625	. . . Polyacrylic esters or derivatives thereof	2205/41	. . . Type R11
2200/0627	. . . Nitrogen-containing polymers, e.g. polyacrylamide	2205/42	. . . Type R12
2200/063	. . . Polyacrylonitriles	2205/43	. . . Type R22
2200/0632	. . . Polystyrenes	2205/44	. . . Type R13B1
2200/0635	. . . Halogen-containing polymers, e.g. PVC	2205/45	. . . Type R500
2200/0637	. . . Fluoro-containing polymers, e.g. PTFE	2205/46	. . . Type R501
2200/064	. . . Coumarone polymers	2205/47	. . . Type R502
2200/0642	. . . Copolymers containing at least three different monomers	2205/48	. . . Type R503
2200/0645	. . . obtained otherwise than by reactions involving carbon-to-carbon unsaturated bonds	<b>2208/00</b>	<b>Aspects relating to compositions of drilling or well treatment fluids</b>
2200/0647	. . . Polyepoxides	2208/02	. Spotting, i.e. using additives for releasing a stuck drill
2200/065	. . . Polyurethanes	2208/04	. Hulls, shells or bark containing well drilling or treatment fluids
2200/0652	. . . Polyisocyanates	2208/06	. Structured surfactants, i.e. well drilling or treating fluids with a lamellar or spherulitic phase
2200/0655	. . . Polyesters	2208/08	. Fiber-containing well treatment fluids
2200/0657	. . . Polyethers	2208/10	. Nanoparticle-containing well treatment fluids
2200/066	. . . Polyester-polyethers	2208/12	. Swell inhibition, i.e. using additives to drilling or well treatment fluids for inhibiting clay or shale swelling or disintegrating
2200/0662	. . . Polyether-polyol	2208/14	. Double emulsions, i.e. oil-in-water-in-oil emulsions or water-in-oil-in-water emulsions
2200/0665	. . . Polyurea	2208/18	. Bridging agents, i.e. particles for temporarily filling the pores of a formation; Graded salts
2200/0667	. . . Polyamides, polyimides	2208/20	. Hydrogen sulfide elimination
2200/067	. . . Condensation polymers of aldehydes or ketones	2208/22	. Hydrates inhibition by using well treatment fluids containing inhibitors of hydrate formers
2200/0672	. . . Phenol-aldehyde condensation polymers	2208/24	. Bacteria or enzyme containing gel breakers
2200/0675	. . . Melamine-formaldehyde condensation polymers	2208/26	. Gel breakers other than bacteria or enzymes
2200/0677	. . . Urea-formaldehyde condensation polymers	2208/28	. Friction or drag reducing additives
2200/068	. . . Containing also other elements than carbon, oxygen or nitrogen in the polymer main chain	2208/30	. Viscoelastic surfactants [VES]
2200/0682	. . . Containing sulfur	2208/32	. Anticorrosion additives
2200/0685	. . . Containing silicon	2208/34	. Lubricant additives
2200/0687	. . . Natural resins, e.g. rosin	<b>2211/00</b>	<b>Chemical nature of organic luminescent or tenebrescent compounds</b>
2200/069	. . . Bituminous materials, e.g. tar, pitch	2211/10	. Non-macromolecular compounds
2200/0692	. . . Fibres	2211/1003	. . . Carbocyclic compounds
2200/0695	. . . Polyamide fibres	2211/1007	. . . Non-condensed systems
2200/0697	. . . Cellulose fibres	2211/1011	. . . Condensed systems
<b>2205/00</b>	<b>Aspects relating to compounds used in compression type refrigeration systems</b>	2211/1014	. . . bridged by heteroatoms, e.g. N, P, Si or B
2205/10	. Components	2211/1018	. . . Heterocyclic compounds
2205/102	. . Alcohols	2211/1022	. . . bridged by heteroatoms, e.g. N, P, Si or B
2205/104	. . Carboxylic acid esters	2211/1025	. . . characterised by ligands
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		

**NOTE**

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



- 2211/1029 . . . . containing one nitrogen atom as the heteroatom
- 2211/1033 . . . . . with oxygen
- 2211/1037 . . . . . with sulfur
- 2211/104 . . . . . with other heteroatoms
- 2211/1044 . . . . containing two nitrogen atoms as heteroatoms
- 2211/1048 . . . . . with oxygen
- 2211/1051 . . . . . with sulfur
- 2211/1055 . . . . . with other heteroatoms
- 2211/1059 . . . . containing three nitrogen atoms as heteroatoms
- 2211/1062 . . . . . with oxygen
- 2211/1066 . . . . . with sulfur
- 2211/107 . . . . . with other heteroatoms
- 2211/1074 . . . . containing more than three nitrogen atoms as heteroatoms
- 2211/1077 . . . . . with oxygen
- 2211/1081 . . . . . with sulfur
- 2211/1085 . . . . . with other heteroatoms
- 2211/1088 . . . . containing oxygen as the only heteroatom
- 2211/1092 . . . . containing sulfur as the only heteroatom
- 2211/1096 . . . . containing other heteroatoms
- 2211/14 . . Macromolecular compounds
- 2211/1408 . . Carbocyclic compounds
- 2211/1416 . . . Condensed systems
- 2211/1425 . . . Non-condensed systems
- 2211/1433 . . . bridged by heteroatoms, e.g. N, P, Si or B
- 2211/1441 . . Heterocyclic

**NOTE**

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

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

**2219/00 Aspects relating to the form of the liquid 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