CPC COOPERATIVE PATENT CLASSIFICATION

C CHEMISTRY; METALLURGY
(NOTES omitted)

CHEMISTRY

C07 ORGANIC CHEMISTRY
(NOTES omitted)

C07F ACYCLIC, CARBOCYCLIC OR HETEROCYCLIC COMPOUNDS CONTAINING ELEMENTS OTHER THAN CARBON, HYDROGEN, HALOGEN, OXYGEN, NITROGEN, SULFUR, SELENIUM OR TELLURIUM (metal-containing porphyrins C07D 487/22)

NOTES

1. Attention is drawn to Note (3) C07, which defines the last place priority rule applied in the range of subclasses C07C-C07K and within these subclasses.
2. Attention is drawn to Note (6) following the title of class C07.
3. Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers.
4. In this subclass , organic acid salts, alcoholates, phenates, chelates or mercaptides are classified as the parent compounds.
5. Compounds containing Se or Te are classified with their sulfur homologues
6. A hydrocarbon chain is considered to be terminated by a heteroatom or by a carbon atom having three bonds to heteroatoms with at the most one to halogen
7. When groups, e.g. aromatic or aliphatic groups, are mentioned without further indications, it means that the group concerned can be further substituted. Otherwise it will be indicated, e.g. C07F 9/11 with hydroxyalkyl compounds without further substituents on alkyl.

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:
   C07F 9/6593 covered by C07F 9/65815
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.

1/00 Compounds containing elements of Groups 1 or 11 of the Periodic System

1/005 . {without C-Metal linkages}
1/02 . Lithium compounds
1/04 . Sodium compounds
1/06 . Potassium compounds
1/08 . Copper compounds
1/10 . Silver compounds
1/12 . Gold compounds

3/00 Compounds containing elements of Groups 2 or 12 of the Periodic System

3/003 . {without C-Metal linkages}
3/006 . {Beryllium compounds}
3/02 . Magnesium compounds
3/04 . Calcium compounds
3/06 . Zinc compounds
3/08 . Cadmium compounds
3/10 . Mercury compounds
3/103 . . {without C-Mercury linkages}
3/12 . . Aromatic substances containing mercury
3/14 . . Heterocyclic substances containing mercury

5/00 Compounds containing elements of Groups 3 or 13 of the Periodic System

5/003 . {without C-Metal linkages}
5/02 . Boron compounds
5/022 . . {without C-boron linkages}
5/025 . . {Boronic and borinic acid compounds}
5/027 . . {Organoboranes and organoborohydrides}
5/04 . . Esters of boric acids
5/05 . . Cyclic compounds having at least one ring containing boron but no carbon in the ring
5/06 . Aluminium compounds
5/061 . . {with C-aluminium linkage}
5/062 . . . {Al linked exclusively to C}
5/064 . . . {compounds with an Al-Halogen linkage}
5/065 . . . {compounds with an Al-H linkage}
5/066 . . . {compounds with Al linked to an element other than Al, C, H or halogen (this includes Al-cyanide linkage)}
5/067 . . . . {compounds with Al also linked to H or halogen}
5/068 . . . . {preparation of alum(in)oxanes}
5/069 . . {without C-aluminium linkages}

7/00 Compounds containing elements of Groups 4 or 14 of the Periodic System

7/003 . {without C-Metal linkages}

7/02 . Silicon compounds

7/025 . . {without C-silicon linkages}

7/04 . . Esters of silicic acids

WARNING

Group C07F 7/04 is incomplete pending reclassification of documents from group C07F 7/045.

Group C07F 7/04 is impacted by reclassification into groups C07F 7/06 and C07F 7/07.

Groups C07F 7/04, C07F 7/045, C07F 7/06 and C07F 7/07 should be considered in order to perform a complete search.

7/045 . . . {Esters of monosilicic acid}
(Frozen)

WARNING

Group C07F 7/045 is no longer used for the classification of documents as of August 1, 2018. The content of this group is being reclassified into groups C07F 7/04, C07F 7/06 and C07F 7/07.

Groups C07F 7/04, C07F 7/045, C07F 7/06 and C07F 7/07 should be considered in order to perform a complete search.

7/06 . . . with hydroxyaryl compounds

WARNING

Groups C07F 7/06 and C07F 7/07 are incomplete pending reclassification of documents from groups C07F 7/04 and C07F 7/045.

Groups C07F 7/04, C07F 7/045, C07F 7/06 and C07F 7/07 should be considered in order to perform a complete search.

7/07 . . . Cyclic esters

7/08 . . Compounds having one or more C—Si linkages

7/0801 . . . {General processes}

7/0803 . . . {Compounds with Si-C or Si-Si linkages}

7/0805 . . . . {comprising only Si, C or H atoms}

7/0807 . . . . . {comprising Si as a ring atom}

7/081 . . . . {comprising at least one atom selected from the elements N, O, halogen, S, Se or Te}

7/0812 . . . . . {comprising a heterocyclic ring}

7/0814 . . . . . {said ring is substituted at a C ring atom by Si}

7/0816 . . . . . {said ring comprising Si as a ring atom}

7/0825 . . . . {Preparations of compounds not comprising Si-Si or Si-cyano linkages}

7/0827 . . . . . {Syntheses with formation of a Si-C bond}

7/0829 . . . . . {Hydrosilylation reactions}

7/083 . . . . . {Syntheses without formation of a Si-C bond}

7/0832 . . . . . {Other preparations}

7/0834 . . . {Compounds having one or more O-Si linkage (for compounds with C-O-Si linkages see C07F 7/18)}

7/0836 . . . . {Compounds with one or more Si-OH or Si-O-metal linkage}

7/0838 . . . . {Compounds with one or more Si-O-Si sequences (compounds with a ring containing only alternating Si and O atoms, i.e. cyclosilanes C07F 7/21)}

7/087 . . . . . {Compounds of unknown structure containing a Si-O-Si sequence}

7/0872 . . . . . {Preparation and treatment thereof}

7/0874 . . . . . {Reactions involving a bond of the Si-O-Si linkage}

7/0876 . . . . . {Reactions involving the formation of bonds to a Si atom of a Si-O-Si sequence other than a bond of the Si-O-Si linkage}

7/0878 . . . . . {Si-C bond}

7/0879 . . . . . {Hydrosilylation reactions}

7/0889 . . . . . {Reactions not involving the Si atom of the Si-O-Si sequence}

7/089 . . . . . {Treatments not covered by a preceding group}

7/0892 . . . . {Compounds with a Si-O-N linkage}

7/0894 . . . . {Compounds with a Si-O-O linkage}

7/0896 . . . {Compounds with a Si-H linkage}

7/0898 . . . {Compounds with a Si-S linkage}

7/10 . . . containing nitrogen {having a Si-N linkage}

7/12 . . . Organo silicon halides

7/121 . . . . {Preparation or treatment not provided for in C07F 7/14, C07F 7/16 or C07F 7/20}

NOTE

The silicon atom involved in the reaction that is attached or becomes attached to the highest number of halide atoms determines classification

7/122 . . . . . {by reactions involving the formation of Si-C linkages (hydrosilylation reactions C07F 7/14; direct synthesis C07F 7/16)}

7/123 . . . . . {by reactions involving the formation of Si-halogen linkages}

7/125 . . . . . {by reactions involving both Si-C and Si-halogen linkages, the Si-C and Si-halogen linkages can be to the same or to different Si atoms, e.g. redistribution reactions}

7/126 . . . . . {by reactions involving the formation of Si-Y linkages, where Y is not a carbon or halogen atom}

7/127 . . . . . {by reactions not affecting the linkages to the silicon atom}

7/128 . . . . . {by reactions covered by more than one of the groups C07F 7/122 - C07F 7/127 and of which the starting material is unknown or insufficiently determined}

7/14 . . . . Preparation thereof from {optionally substituted} halogenated silanes and hydrocarbons {hydrosilylation reactions}

7/16 . . . . Preparation thereof from silicon and halogenated hydrocarbons {direct synthesis}

7/18 . . . Compounds having one or more C—Si linkages as well as one or more C—O—Si linkages

7/1804 . . . . {Compounds having Si-O-C linkages (Si-O-acyl linkages C07F 7/1896)}

7/1872 . . . . . {Preparation; Treatments not provided for in C07F 7/20}

7/1876 . . . . . {by reactions involving the formation of Si-C linkages}
7/188 . . . . . {by reactions involving the formation of Si-O linkages}
7/1884 . . . . . {by dismutation}
7/1888 . . . . . {by reactions involving the formation of other Si-linkages, e.g. Si-N}
7/1892 . . . . . {by reactions not provided for in C07F 7/1876 - C07F 7/1888}
7/1896 . . . . {Compounds having one or more Si-O-acyl linkages}
7/20 . . . Purification, separation
7/21 . . Cyclic compounds having at least one ring containing silicon, but no carbon in the ring
7/22 . Tin compounds
7/2204 . . {Not belonging to the groups C07F 7/2208 - C07F 7/2296}
7/2208 . . {Compounds having tin linked only to carbon, hydrogen and/or halogen}
7/2224 . . {Compounds having one or more tin-oxygen linkages}
7/226 . . {Compounds with one or more Sn-S linkages}
7/2284 . . {Compounds with one or more Sn-N linkages}
7/2288 . . {Compounds with one or more Sn-metal linkages}
7/2296 . . {Purification, stabilisation, isolation}
7/24 . Lead compounds
7/26 . . Tetra-alkyl lead compounds
7/28 . Titanium compounds
7/30 . Germanium compounds

9/00 Compounds containing elements of Groups 5 or 15 of the Periodic System

9/005 . {Compounds of elements of Group 5 of the Periodic System without metal-carbon linkages}
9/02 . Phosphorus compounds (sugar phosphates C07H 11/04; nucleotides C07H 19/00, C07H 21/00; nucleic acids C07H 21/00)
9/025 . . {Purification; Separation; Stabilisation; Desodorisation of organo-phosphorus compounds (of natural phosphatides C07F 9/103; phosphines C07F 9/5095)}
9/04 . . Reaction products of phosphorus sulfur compounds with hydrocarbons
9/06 . . without P—C bonds
9/062 . . . {Organo-phosphoranes without P-C bonds}
9/065 . . . . {Phosphoranes containing the structure P=N-}
9/067 . . . . . {Polyphosphazenes containing the structure [P=N-n] (cyclic compounds C07F 9/65812)}
9/08 . . . Esters of oxyacids of phosphorus {(C07F 9/062 takes precedence)}
9/09 . . . . Esters of phosphoric acids
9/091 . . . . . {with hydroxyalkyl compounds with further substituents on alkyl}
9/092 . . . . . {substituted by B, Si or a metal}
9/093 . . . . . {Polyol derivatives esterified at least twice by phosphoric rests}
9/094 . . . . . {with arylalkanols}
9/095 . . . . . {Compounds containing the structure P(=O)-O-acyl, P(=O)-O-heteroatom, P(=O)-O-CN}
9/096 . . . . . {Compounds containing the structure P(=O)-O-C(=X)- (X = O, S, Se)}
9/097 . . . . . {Compounds containing the structure P(=O)-O-N}
9/098 . . . . . {Esters of polyphosphoric acids or anhydrides}
9/10 . . . . . Phosphatides, e.g. lecithin
9/103 . . . . . {Extraction or purification by physical or chemical treatment of natural phosphatides; Preparation of compositions containing phosphatides of unknown structure}
9/106 . . . . . {Adducts, complexes, salts of phosphatides}
9/11 . . . . . with hydroxyalkyl compounds without further substituents on alkyl
9/113 . . . . . with unsaturated acyclic alcohols
9/117 . . . . . with cycloaliphatic alcohols
9/12 . . . . . with hydroxyaryl compounds
9/14 . . . . . containing P(=O)-halide groups
9/1403 . . . . . {containing the structure Hal-P(=O)-O-unsaturated acyclic rest}
9/1406 . . . . . {containing the structure Hal-P(=O)-O-aryl}
9/141 . . . . Esters of phosphorous acids
9/1411 . . . . . {with hydroxyalkyl compounds with further substituents on alkyl}
9/1412 . . . . . {Polyol derivatives esterified at least twice by phosphorous acid rests}
9/1414 . . . . . {with arylalkanols}
9/1415 . . . . . {Compounds containing the structure P-O-acyl, P-O-heteroatom, P-O-CN}
9/1417 . . . . . {Compounds containing the structure P-O-C(=X)- (X = O, S, Se)}
9/1418 . . . . . {Compounds containing the structure P-O-N}
9/142 . . . . . with hydroxyalkyl compounds without further substituents on alkyl
9/143 . . . . . with unsaturated acyclic alcohols
9/144 . . . . . with cycloaliphatic alcohols
9/145 . . . . . with hydroxyaryl compounds
9/146 . . . . . containing P-halide groups
9/16 . . . Esters of thiophosphoric acids or thiophosphorous acids
9/165 . . . . Esters of thiophosphoric acids
9/1651 . . . . . {with hydroxyalkyl compounds with further substituents on alkyl}
9/1652 . . . . . {Polyol derivatives esterified at least twice by (thio)phosphoric acid esters}
9/1653 . . . . . {with arylalkanols}
9/1654 . . . . . {Compounds containing the structure P(=X)n-X-acyl, P(=X)n-X-heteroatom, P(=X)n-X-CN (X = O, S, Se; n = 0, 1)}
9/1655 . . . . . {Compounds containing the structure P(=X)n-S-(S)x- (X = O, S, Se; n=0,1; x>=1)}
9/1656 . . . . . {Compounds containing the structure P(=X)n-X-C(=X)- (X = O, S, Se; n = 0, 1)}
9/1657 . . . . . {Compounds containing the structure P(=X)n-X-N (X = O, S, Se; n = 0, 1)}
9/1658 . . . . . {Esters of thiopolyphosphoric acids or anhydrides}

9/17 . . . . . with hydroxyalkyl compounds without further substituents on alkyl
9/173 . . . . . with unsaturated acyclic alcohols
9/177 . . . . . with cycloaliphatic alcohols
9/18 . . . . . with hydroxyaryl compounds
9/20 . . . . . containing P-halide groups
9/2003 . . . . . {containing the structure Hal-P-X-unsaturated acyclic rest}
9/2006 . . . . . {containing the structure Hal-P-X-aryl}
9/201 . . . . Esters of thiophosphorus acids
9/2015 . . . . . {with hydroxyalkyl compounds with further substituents on alkyl}
9/202 . . . . . with hydroxyl compounds without further substituents on alkyl
9/203 . . . . . with unsaturated acyclic alcohols
9/204 . . . . . with cycloaliphatic alcohols
9/205 . . . . . with hydroxyaryl compounds
9/206 . . . . . containing P-halide groups
9/22 . . . Amides of acids of phosphorus
9/222 . . . . {Amides of phosphoric acids}
9/224 . . . . {Phosphorus triamides}
9/226 . . . . {containing the structure P-isocyanates}
9/228 . . . . {containing the structure P-N-N, e.g. azides, hydrazides}
9/24 . . . . Esteramides
9/2404 . . . . . {the ester moiety containing a substituent or a structure which is considered as characteristic}
9/2408 . . . . . {of hydroxyalkyl compounds}
9/2412 . . . . . {of unsaturated acyclic alcohols}
9/2416 . . . . . {of cycloaliphatic alcohols}
9/242 . . . . . {of hydroxyaryl compounds}
9/2425 . . . . . {containing the structure (RX)(RR'N)P(=Y)-Z-(C)n-Z'-P(=Y)(XR)2 (X = O, S, NR; Y = O, S, electron pair; Z = O, S; Z' = O, S)}
9/2429 . . . . . {of arylalkanols}
9/2433 . . . . . {Compounds containing the structure N-P(=X)n-X-acyl, N-P(=X)n-X-heteroatom, N-P(=X)n-X-CN (X = O, S, Se; n = 0, 1)}
9/2437 . . . . . {Compounds containing the structure N-P(=X)n-S-(S)x-(X = O, S, Se; n=0,1; x>=1)}
9/2441 . . . . . {containing the structure N-P(=X)n-X-C(=X) (X = O, S, Se; n = 0, 1)}
9/2445 . . . . . {containing the structure N-P(=X)n-X-N (X = O, S, Se; n = 0, 1)}
9/245 . . . . . {containing the structure N-P(=X)n-X-P (X = O, S, Se; n = 0, 1)}
9/2454 . . . . . {the amide moiety containing a substituent or a structure which is considered as characteristic}
9/2458 . . . . . {of aliphatic amines}
9/2462 . . . . . {of unsaturated acyclic amines}
9/2466 . . . . . {of cycloaliphatic amines}
9/247 . . . . . {of aromatic amines (N-C aromatic linkage)}
9/2475 . . . . . {of aralkylamines}
9/2479 . . . . . {Compounds containing the structure P(=X)n-N-acyl, P(=X)n-N-heteroatom, P(=X)n-N-CN (X = O, S, Se; n = 0, 1)}
9/2483 . . . . . {containing the structure P(=X)n-N-S (X = O, S, Se; n = 0, 1)}
9/2487 . . . . . {containing the structure P(=X)n-N-C(=X) (X = O, S, Se; n = 0, 1)}
9/2491 . . . . . {containing the structure P(=X)n-N-N (X = O, S, Se; n = 0, 1)}
9/2495 . . . . . {containing the structure P(=X)n-N-P (X = O, S, Se; n = 0, 1)}
9/26 . . . . containing P-halide groups
9/28 . . with one or more P—C bonds
9/30 . . . Phosphinic acids $R_2P(=O)(OH)$; Thiophosphinic acids {, i.e. $R_2P(=X)(XH)$ (X = S, Se)}
9/301 . . . . {Acyclic saturated acids which can have further substituents on alkyl}
9/302 . . . . {Acyclic unsaturated acids}
9/303 . . . . {Cycloaliphatic acids}
9/304 . . . . {Aromatic acids (P-C aromatic linkage)}
9/305 . . . . {Poly(thio)phosphinic acids}
9/306 . . . . {Arylalkanephosphinic acids, e.g. Ar-(CH2)n-P(=X)(R)(XH), (X = O,S, Se; n>=1)}
9/307 . . . . {Acids containing the structure -C(=X)-P(=X)(R)(XH) or NC-P(=X)(R)(XH), (X = O, S, Se)}
9/308 . . . . {Pyrophosphinic acids; Phosphinic acid anhydrides}
9/32 . . . . Esters thereof
9/3205 . . . . . {the acid moiety containing a substituent or a structure which is considered as characteristic}
9/3211 . . . . . {Esters of acyclic saturated acids which can have further substituents on alkyl}
9/3217 . . . . . {Esters of acyclic unsaturated acids}
9/3223 . . . . . {Esters of cycloaliphatic acids}
9/3229 . . . . . {Esters of aromatic acids (P-C aromatic linkage)}
9/3235 . . . . . {Esters of poly(thio)phosphinic acids}
9/3241 . . . . . {Esters of arylalkanephosphinic acids}
9/3247 . . . . . {Esters of acids containing the structure -C(=X)-P(=X)(R)(XH) or NC-P(=X)(R)(XH), (X = O, S, Se)}
9/3252 . . . . . {containing the structure -C(=X)-P(=X)(R)(XR), (X = O, S, Se)}
9/3258 . . . . . {the ester moiety containing a substituent or a structure which is considered as characteristic}
9/3264 . . . . . {Esters with hydroxyalkyl compounds}
9/327 . . . . . {Esters with unsaturated acyclic alcohols}
9/3276 . . . . . {Esters with cycloaliphatic alcohols}
9/3282 . . . . . {Esters with hydroxyaryl compounds}
9/3288 . . . . . {Esters with arylalkanols}
9/3294 . . . . . {Compounds containing the structure R2P(=X)-X-acyl, R2P(=X)-X-heteroatom, R2P(=X)-X-CN (X = O, S, Se)}
9/34 . . . . Halides thereof
9/36 . . . . Amides thereof
9/38 . . . Phosphonic acids $RP(=O)(OH)_2$; Thiophosphonic acids {, i.e. RP(=X)(XH)2 (X = S, Se)}
9/3804 . . . . {not used, see subgroups}

9/3808 . . . . . {Acyclic saturated acids which can have further substituents on alkyl}
9/3813 . . . . . {N-Phosphonomethylglycine; Salts or complexes thereof}
9/3817 . . . . . {Acids containing the structure (RX)2P(=X)-alk-N...P (X = O, S, Se)}
9/3821 . . . . . {substituted by B, Si, P or a metal (C07F 9/3839 takes precedence)}
9/3826 . . . . . {Acyclic unsaturated acids}
9/383 . . . . . {Cycloaliphatic acids}
9/3834 . . . . . {Aromatic acids (P-C aromatic linkage)}
9/3839 . . . . . {Polyphosphonic acids}
9/3843 . . . . . {containing no further substituents than -PO_3H_2 groups}
9/3847 . . . . . {Acyclic unsaturated derivatives}
9/3852 . . . . . {Cycloaliphatic derivatives}
9/3856 . . . . . {containing halogen or nitro(so) substituents}
9/386 . . . . . {containing hydroxy substituents in the hydrocarbon radicals}
9/3865 . . . . . {containing sulfur substituents}
9/3869 . . . . . {containing carboxylic acid or carboxylic acid derivative substituents}
9/3873 . . . . . {containing nitrogen substituents, e.g. N.....H or N-hydrocarbon rest which can be substituted by halogen or nitro(so), N.....O, N.....S, N.....C(=X)- (X =O, S) , N.....N, N...C(=X)...N (X =O, S)}
9/3878 . . . . . {containing substituents selected from B, Si, P (other than -PO_3H_2 groups) or a metal}
9/3882 . . . . . {Arylalkanephosphonic acids (C07F 9/3839 takes precedence)}
9/3886 . . . . . {Acids containing the structure -C(=X)-P(=X)(XH)2 or NC-P(=X)(XH)2, (X = O, S, Se)}
9/3891 . . . . . {Acids containing the structure -C(=X)-P(=X)(XH)2, (X = O, S, Se)}
9/3895 . . . . {Pyrophosphonic acids; phosphonic acid anhydrides}
9/40 . . . . Esters thereof
9/4003 . . . . . {the acid moiety containing a substituent or a structure which is considered as characteristic}
9/4006 . . . . . {Esters of acyclic acids which can have further substituents on alkyl}
9/4009 . . . . . {Esters containing the structure (RX)2P(=X)-alk-N...P (X = O, S, Se)}
9/4012 . . . . . {substituted by B, Si, P or a metal (C07F 9/4025 takes precedence)}
9/4015 . . . . . {Esters of acyclic unsaturated acids}
9/4018 . . . . . {Esters of cycloaliphatic acids}
9/4021 . . . . . {Esters of aromatic acids (P-C aromatic linkage)}
9/4025 . . . . . {Esters of poly(thio)phosphonic acids}
9/4028 . . . . . {containing no further substituents than -PO_3H_2 groups in free or esterified form}
9/4031 . . . . . {Acyclic unsaturated derivatives}
9/4034 . . . . . {Cycloaliphatic derivatives}
9/4037 . . . . . {containing halogen or nitro(so) substituents}
9/404 . . . . . {containing hydroxy substituents in the hydrocarbon radicals}
9/4043 . . . . . {containing sulfur substituents}
9/4046 . . . . . {containing carboxylic acid or carboxylic acid derivative substituents}
9/405 . . . . . {containing nitrogen substituents, e.g. N.....H or N-hydrocarbon rest which can be substituted by halogen or nitro(so), N.....O, N.....S, N.....C(=X)- (X =O, S) , N.....N, N...C(=X)...N (X =O, S)}
9/4053 . . . . . {containing substituents selected from B, Si, P (other than -PO_3H_2 groups in free or esterified form), or a metal}
9/4056 . . . . . {Esters of arylalkanephosphonic acids (C07F 9/4025 takes precedence)}
9/4059 . . . . . {Compounds containing the structure (RY)2P(=X)-(CH_2)n-C(=O)-(CH_2)m-Ar, (X, Y = O, S, Se; n>=1, m>=0)}
9/4062 . . . . . {Esters of acids containing the structure -C(=X)-P(=X)(XR)2 or NC-P(=X)(XR)2, (X = O, S, Se)}
9/4065 . . . . . {Esters of acids containing the structure -C(=X)-P(=X)(XR)2, (X = O, S, Se)}
9/4068 . . . . . {Esters of pyrophosphonic acids; Esters of phosphonic acid anhydrides}
9/4071 . . . . . {the ester moiety containing a substituent or a structure which is considered as characteristic}
9/4075 . . . . . {Esters with hydroxyalkyl compounds}
9/4078 . . . . . {Esters with unsaturated acyclic alcohols}
9/4081 . . . . . {Esters with cycloaliphatic alcohols}
9/4084 . . . . . {Esters with hydroxyaryl compounds}
9/4087 . . . . . {Esters with arylalkanols}
9/409 . . . . . {Compounds containing the structure P(=X)-X-acyl, P(=X) -X-heteroatom, P(=X)-X-CN (X = O, S, Se)}
9/4093 . . . . . {Compounds containing the structure P(=X)-X-C(=X)- (X = O, S, Se)}
9/4096 . . . . . {Compounds containing the structure P(=X)-X-N (X = O, S, Se)}
9/42 . . . . Halides thereof
9/425 . . . . . {Acid or estermonohalides thereof, e.g. RP(=X)(YR)(Hal) (X, Y = O, S; R = H, or hydrocarbon group)}
9/44 . . . . Amides thereof
9/4403 . . . . . {the acid moiety containing a substituent or a structure which is considered as characteristic}
9/4407 . . . . . {Amides of acyclic saturated acids which can have further substituents on alkyl}
9/4411 . . . . . {Amides of acyclic unsaturated acids}
9/4415 . . . . . {Amides of cycloaliphatic acids}
9/4419 . . . . . {Amides of aromatic acids (P-C aromatic linkage)}
9/4423 . . . . . {Amides of poly (thio)phosphonic acids}
9/4426 . . . . . {Amides of arylalkanephosphonic acids}

9/443 . . . . . {Amides of acids containing the structure -C(=Y)-P(=X)(XR)-N or NC-(P(=X)(XR)-N)}
9/4434 . . . . . {the ester moiety containing a substituent or a structure which is considered as characteristic}
9/4438 . . . . . {Ester with hydroxyalkyl compounds}
9/4442 . . . . . {Esters with unsaturated acyclic alcohols}
9/4446 . . . . . {Esters with cycloaliphatic alcohols}
9/4449 . . . . . {Esters with hydroxyaryl compounds}
9/4453 . . . . . {Esters with arylalkanols}
9/4457 . . . . . {Compounds containing the structure C-P(=X)(X-acyl)-N, C-P(=X)(X-heteroatom)-N or C-P(=X)(X-CN)-N (X, Y = O, S)}
9/4461 . . . . . {the amide moiety containing a substituent or a structure which is considered as characteristic}
9/4465 . . . . . {of aliphatic amines}
9/4469 . . . . . {of unsaturated acyclic amines}
9/4473 . . . . . {of cycloaliphatic amines}
9/4476 . . . . . {of aromatic amines (N-C aromatic linkage)}
9/448 . . . . . {of aralkylamines}
9/4484 . . . . . {Compounds containing the structure C-P(=X)(N-acyl)-X, C-P(=X)(N-heteroatom)-X or C-P(=X)(N-CN)-X (X = O, S, Se)}
9/4488 . . . . . {Compounds containing the structure P(=X)(N-S-) (X = O, S, Se)}
9/4492 . . . . . {Compounds containing the structure P(=X)(N-C(=X)-) (X = O, S, Se)}
9/4496 . . . . . {Compounds containing the structure P(=X)(N-N-) (X = O, S, Se)}
9/46 . . . Phosphinous acids R_2=P—OH; Thiophosphinous acids; Aminophosphines R_2-P-NH_2 {including $R_2P(=O)H$; derivatives thereof}
9/48 . . . Phosphonous acids R—$P(OH)_2$; Thiophosphonous acids {including RHP(=O)(OH); Derivatives thereof}
9/4808 . . . . {the acid moiety containing a substituent or structure which is considered as characteristic}
9/4816 . . . . . {Acyclic saturated acids or derivatices which can have further substituents on akyl}
9/4825 . . . . . {Acyclic unsaturated acids or derivatives}
9/4833 . . . . . {Cycloaliphatic acids or derivatives}
9/4841 . . . . . {Aromatic acids or derivatives (P-C aromatic linkage)}
9/485 . . . . . {Polyphosphonous acids or derivatives}
9/4858 . . . . . {Acids or derivatives containing the structure -C(=X)-P(XR)2 or NC-P(XR)2 (X = O, S, Se)}
9/4866 . . . . {the ester moiety containing a substituent or structure which is considered as characteristic}
9/4875 . . . . . {Esters with hydroxy aryl compounds}
9/4883 . . . . {Amides or esteramides thereof, e.g. RP(NR'2)2 or RP(XR')(NR"2) (X = O, S)}
9/4891 . . . . {Monohalide derivatives RP (XR') (Hal) (X = O, S, N) (dihalide derivatives C07F 9/52)}
9/50 . . . Organo-phosphines
9/5004 . . . . {Acyclic saturated phosphines}
9/5009 . . . . . {substituted by B, Si, P or a metal (C07F 9/5027 takes precedence)}
9/5013 . . . . {Acyclic unsaturated phosphines}
9/5018 . . . . {Cycloaliphatic phosphines}
9/5022 . . . . {Aromatic phosphines (P-C aromatic linkage)}
9/5027 . . . . {Polyphosphines}
9/5031 . . . . {Arylalkane phosphines (C07F 9/5027 takes precedence)}
9/5036 . . . . {Phosphines containing the structure -C(=X)-P or NC-P}
9/504 . . . . {Organo-phosphines containing a P-P bond}
9/5045 . . . . {Complexes or chelates of phosphines with metallic compounds or metals}
9/505 . . . . {Preparation; Separation; Purification; Stabilisation}
9/5054 . . . . . {by a process in which the phosphorus atom is not involved}
9/5059 . . . . . {by addition of phosphorus compounds to alkenes or alkynes}
9/5063 . . . . . {from compounds having the structure P-H or P-Heteroatom, in which one or more of such bonds are converted into P-C bonds (C07F 9/5059 takes precedence)}
9/5068 . . . . . {from starting materials having the structure >P-Hal}
9/5072 . . . . . {from starting materials having the structure P-H (C07F 9/5059 takes precedence)}
9/5077 . . . . . {from starting materials having the structure P-Metal, including $R_2P^-M^+$}
9/5081 . . . . . {from starting materials having the structure >P-Het, Het being an heteroatom different from Hal or Metal}
9/5086 . . . . . {from phosphonium salts as starting materials}
9/509 . . . . . {by reduction of pentavalent phosphorus derivatives, e.g. -P=X with X = O, S, Se or -P-Hal2}
9/5095 . . . . . {Separation; Purification; Stabilisation}
9/52 . . . . Halophosphines
9/53 . . . . Organo-phosphine oxides; Organo-phosphine thioxides
9/5304 . . . . . {Acyclic saturated phosphine oxides or thioxides}
9/5308 . . . . . {substituted by B, Si, P or a metal}
9/5312 . . . . . {substituted by a phosphorus atom (C07F 9/5329 takes precedence)}
9/5316 . . . . . {Unsaturated acyclic phosphine oxides or thioxides}
9/532 . . . . . {Cycloaliphatic phosphine oxides or thioxides}
9/5325 . . . . . {Aromatic phosphine oxides or thioxides (P-C aromatic linkage)}
9/5329 . . . . . {Polyphosphine oxides or thioxides}
9/5333 . . . . . {Arylalkane phosphine oxides or thioxides (C07F 9/5329 takes precedence)}
9/5337 . . . . . {Phosphine oxides or thioxides containing the structure -C(=X)-P(=X) or NC-P(=X) (X = O, S, Se)}
9/5341 . . . . . {Organo-phosphine oxides or thioxides containing a P-P bond}

9/5345 . . . . . {Complexes or chelates of phosphine-oxides or thioxides with metallic compounds or metals}
9/535 . . . Organo-phosphoranes
9/5352 . . . . {Phosphoranes containing the structure P=C-}
9/5355 . . . . {Phosphoranes containing the structure P=N-}
9/5357 . . . . . {Polyphosphazenes containing the structure [P=N-]n (cyclic phosphazenes C07F 9/65812)}
9/54 . . . Quaternary phosphonium compounds
9/5407 . . . . {Acyclic saturated phosphonium compounds}
9/5414 . . . . . {substituted by B, Si, P or a metal}
9/5421 . . . . . {substituted by a phosphorus atom (C07F 9/5449 takes precedence)}
9/5428 . . . . {Acyclic unsaturated phosphonium compounds}
9/5435 . . . . {Cycloaliphatic phosphonium compounds}
9/5442 . . . . {Aromatic phosphonium compounds (P-C aromatic linkage)}
9/5449 . . . . {Polyphosphonium compounds}
9/5456 . . . . {Arylalkanephosphonium compounds}
9/5463 . . . . {Compounds of the type "quasi-phosphonium", e.g. (C)a-P-(Y)b wherein a +b=4, b>=1 and Y=heteroatom, generally N or O}
9/547 . . Heterocyclic compounds, e.g. containing phosphorus as a ring hetero atom
9/5475 . . . {having nitrogen and selenium with or without oxygen or sulfur as ring hetero atoms; having nitrogen and tellurium with or without oxygen or sulfur as ring hetero atoms}
9/553 . . . having one nitrogen atom as the only ring hetero atom
9/5532 . . . . {Seven-(or more) membered rings}
9/5535 . . . . . {condensed with carbocyclic rings or ring systems}
9/5537 . . . . {the heteroring containing the structure -C(=O)-N-C(=O)- (both carbon atoms belong to the heteroring)}
9/564 . . . . Three-membered rings
9/568 . . . . Four-membered rings
9/5686 . . . . . {condensed with carbocyclic rings or ring systems}
9/572 . . . . Five-membered rings
9/5728 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/576 . . . . Six-membered rings
9/5765 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/58 . . . . . Pyridine rings
9/59 . . . . . Hydrogenated pyridine rings
9/60 . . . . . Quinoline or hydrogenated quinoline ring systems
9/62 . . . . . Isoquinoline or hydrogenated isoquinoline ring systems
9/64 . . . . . Acridine or hydrogenated acridine ring systems
9/645 . . . having two nitrogen atoms as the only ring hetero atoms
9/6503 . . . . Five-membered rings
9/65031 . . . . . {having the nitrogen atoms in the positions 1 and 2}
9/65038 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/6506 . . . . . having the nitrogen atoms in positions 1 and 3
9/65068 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/6509 . . . . Six-membered rings
9/650905 . . . . . {having the nitrogen atoms in the positions 1 and 2}
9/650947 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/650952 . . . . . {having the nitrogen atoms in the positions 1 and 4}
9/650994 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/6512 . . . . . having the nitrogen atoms in positions 1 and 3
9/65128 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/6515 . . . having three nitrogen atoms as the only ring hetero atoms
9/6518 . . . . Five-membered rings
9/65188 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/6521 . . . . Six-membered rings
9/65218 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/6524 . . . having four or more nitrogen atoms as the only ring hetero atoms
9/6527 . . . having nitrogen and oxygen atoms as the only ring hetero atoms
9/653 . . . . Five-membered rings
9/65306 . . . . . {containing two nitrogen atoms}
9/65312 . . . . . {having the two nitrogen atoms in positions 1 and 2}
9/65318 . . . . . {having the two nitrogen atoms in positions 1 and 3}
9/65324 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/6533 . . . . Six-membered rings
9/65335 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}
9/6536 . . . having nitrogen and sulfur atoms with or without oxygen atoms, as the only ring hetero atoms
9/6539 . . . . Five-membered rings
9/65392 . . . . . {containing two nitrogen atoms}
9/65395 . . . . . {having the two nitrogen atoms in positions 1 and 2}
9/65397 . . . . . {having the two nitrogen atoms in positions 1 and 3}
9/6541 . . . . . condensed with carbocyclic rings or {carbocyclic} ring systems
9/6544 . . . . Six-membered rings
9/6547 . . . . . condensed with carbocyclic rings or {carbocyclic} ring systems
9/655 . . . having oxygen atoms, with or without sulfur, selenium, or tellurium atoms, as the only ring hetero atoms
9/65502 . . . . {the oxygen atom being part of a three-membered ring}

9/65505 . . . . . {Phosphonic acids containing oxirane groups; esters thereof}

9/65507 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/6551 . . . . {the oxygen atom being part of a four-membered ring}

9/65512 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/65515 . . . . {the oxygen atom being part of a five-membered ring}

9/65517 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/6552 . . . . {the oxygen atom being part of a six-membered ring}

9/65522 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/65525 . . . . {the oxygen atom being part of a seven-(or more) membered ring}

9/65527 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/6553 . . . having sulfur atoms, with or without selenium or tellurium atoms, as the only ring hetero atoms

9/655309 . . . . {the sulfur atom being part of a three-membered ring}

9/655318 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/655327 . . . . {the sulfur atom being part of a four-membered ring}

9/655336 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/655345 . . . . {the sulfur atom being part of a five-membered ring}

9/655354 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/655363 . . . . {the sulfur atom being part of a six-membered ring}

9/655372 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/655381 . . . . {the sulfur atom being part of a seven-(or more) membered ring}

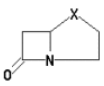
9/65539 . . . . . {condensed with carbocyclic rings or carbocyclic ring systems}

9/6558 . . . containing at least two different or differently substituted hetero rings neither condensed among themselves nor condensed with a common carbocyclic ring or ring system

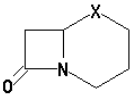
9/65583 . . . . {each of the hetero rings containing nitrogen as ring hetero atom}

9/65586 . . . . {at least one of the hetero rings does not contain nitrogen as ring hetero atom}

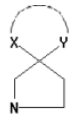
9/6561 . . . containing systems of two or more relevant hetero rings condensed among themselves or condensed with a common carbocyclic ring or ring system, with or without other non-condensed hetero rings

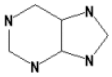
9/65611 . . . . {containing the ring system 

(X = CH_2, O, S, NH) optionally with an additional double bond and/or substituents, e.g. penicillins and analogs}

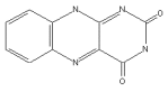
9/65613 . . . . {containing the ring system 

(X = CH_2, O, S, NH) optionally with an additional double bond and/or substituents, e.g. cephalosporins and analogs}

9/65615 . . . . {containing a spiro condensed ring system of the formula  where at least one of the atoms X or Y is a hetero atom, e.g. S}

9/65616 . . . . {containing the ring system 

having three or more than three double bonds between ring members or between ring members and non-ring members, e.g. purine or analogs}

9/65618 . . . . {containing the ring system,  e.g. flavins or analogues}

9/6564 . . . having phosphorus atoms, with or without nitrogen, oxygen, sulfur, selenium or tellurium atoms, as ring hetero atoms

9/6568 . . . . having phosphorus atoms as the only ring hetero atoms

9/65681 . . . . . {the ring phosphorus atom being part of a (thio)phosphinic acid or ester thereof}

9/65683 . . . . . {the ring phosphorus atom being part of a phosphine}

9/65685 . . . . . {the ring phosphorus atom being part of a phosphine oxide or thioxide}

9/65686 . . . . . {the ring phosphorus atom being part of an organo-phosphorane}

9/65688 . . . . . {the ring phosphorus atom being part of a phosphonium compound}

9/6571 . . . . having phosphorus and oxygen atoms as the only ring hetero atoms

9/657109 . . . . . {esters of oxyacids of phosphorus in which one or more exocyclic oxygen atoms have been replaced by (a) sulfur atom(s)}

9/657118 . . . . . {non-condensed with carbocyclic rings or heterocyclic rings or ring systems}

9/657127 . . . . . {condensed with carbocyclic or heterocyclic rings or ring systems}

9/657136 . . . . . {the molecule containing more than one cyclic phosphorus atom}

9/657145 . . . . . {the cyclic phosphorus atom belonging to more than one ring system}

9/657154 . . . . . {Cyclic esteramides of oxyacids of phosphorus}

9/657163 . . . . . {the ring phosphorus atom being bound to at least one carbon atom}

9/657172 . . . . . {the ring phosphorus atom and one oxygen atom being part of a (thio)phosphinic acid ester: 

(X = O, S)}

9/657181 . . . . . {the ring phosphorus atom and, at least, one ring oxygen atom being part of a (thio)phosphonic acid derivative}

9/65719 . . . . . {the ring phosphorus atom and, at least, one ring oxygen atom being part of a (thio)phosphonous acid derivative}
9/6574 . . . . . Esters of oxyacids of phosphorus {(C07F 9/657163 takes precedence)}
9/65742 . . . . . {non-condensed with carbocyclic rings or heterocyclic rings or ring systems}
9/65744 . . . . . {condensed with carbocyclic or heterocyclic rings or ring systems}
9/65746 . . . . . {the molecule containing more than one cyclic phosphorus atom}
9/65748 . . . . . {the cyclic phosphorus atom belonging to more than one ring system}
9/6578 . . . . having phosphorus and sulfur atoms with or without oxygen atoms, as ring hetero atoms
9/65785 . . . . . {the ring phosphorus atom and, at least, one ring sulfur atom being part of a thiophosphonic acid derivative}
9/6581 . . . . having phosphorus and nitrogen atoms with or without oxygen or sulfur atoms, as ring hetero atoms
9/65811 . . . . . {having four or more phosphorus atoms as ring hetero atoms}
9/65812 . . . . . {Cyclic phosphazenes [P=N-]n, n>=3}
9/65814 . . . . . {n = 3 or 4}
9/65815 . . . . . {n = 3}
9/65817 . . . . . {n = 4}
9/65818 . . . . . {n > 4}
9/6584 . . . . . having one phosphorus atom as ring hetero atom
9/65842 . . . . . {Cyclic amide derivatives of acids of phosphorus, in which one nitrogen atom belongs to the ring}
9/65844 . . . . . {the phosphorus atom being part of a five-membered ring which may be condensed with another ring system}
9/65846 . . . . . {the phosphorus atom being part of a six-membered ring which may be condensed with another ring system}
9/65848 . . . . . {Cyclic amide derivatives of acids of phosphorus, in which two nitrogen atoms belong to the ring}
9/6587 . . . . . having two phosphorus atoms as ring hetero atoms in the same ring
9/659 . . . . . having three phosphorus atoms as ring hetero atoms in the same ring {(C07F 9/65812 takes precedence)}
9/6596 . . . having atoms other than oxygen, sulfur, selenium, tellurium, nitrogen or phosphorus as ring hetero atoms
9/66 . Arsenic compounds
9/68 . . without As—C bonds
9/70 . . Organo-arsenic compounds
9/72 . . . Aliphatic compounds
9/74 . . . Aromatic compounds
9/76 . . . . containing hydroxyl groups
9/78 . . . . containing amino groups
9/80 . . . Heterocyclic compounds
9/82 . . . . Arsenic compounds containing one or more pyridine rings
9/84 . . . . Arsenic compounds containing one or more quinoline ring systems
9/86 . . . . Arsenic compounds containing one or more isoquinoline ring systems
9/88 . . . . Arsenic compounds containing one or more acridine ring systems
9/90 . Antimony compounds
9/902 . . {Compounds without antimony-carbon linkages}
9/92 . . Aromatic compounds
9/94 . Bismuth compounds

11/00 Compounds containing elements of Groups 6 or 16 of the Periodic System

11/005 . {compounds without a metal-carbon linkage}

13/00 Compounds containing elements of Groups 7 or 17 of the Periodic System

13/005 . {Compounds without a metal-carbon linkage}

15/00 Compounds containing elements of Groups 8, 9, 10 or 18 of the Periodic System

15/0006 . {compounds of the platinum group}
15/0013 . . {without a metal-carbon linkage}
15/002 . . {Osmium compounds}
15/0026 . . . {without a metal-carbon linkage}
15/0033 . . {Iridium compounds}
15/004 . . . {without a metal-carbon linkage}
15/0046 . . {Ruthenium compounds}
15/0053 . . . {without a metal-carbon linkage}
15/006 . . {Palladium compounds}
15/0066 . . . {without a metal-carbon linkage}
15/0073 . . {Rhodium compounds}
15/008 . . . {without a metal-carbon linkage}
15/0086 . . {Platinum compounds}
15/0093 . . . {without a metal-carbon linkage}
15/02 . Iron compounds
15/025 . . {without a metal-carbon linkage}
15/03 . . Sideramines; The corresponding desferri compounds
15/04 . Nickel compounds
15/045 . . {without a metal-carbon linkage}
15/06 . Cobalt compounds
15/065 . . {without a metal-carbon linkage}

17/00 Metallocenes

17/02 . of metals of Groups 8, 9 or 10 of the Periodic System

19/00 Metal compounds according to more than one of main groups C07F 1/00 - C07F 17/00

19/005 . {without metal-C linkages}