

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### CHEMISTRY

**C07 ORGANIC CHEMISTRY** (such compounds as the oxides, sulfides, or oxysulfides of carbon, cyanogen, phosgene, hydrocyanic acid or salts thereof [C01](#); products obtained from layered base-exchange silicates by ion-exchange with organic compounds such as ammonium, phosphonium or sulfonium compounds or by intercalation of organic compounds [C01B 33/44](#); macromolecular compounds [C08](#); dyes [C09](#); fermentation products [C12](#); fermentation or enzyme-using processes to synthesise a desired chemical compound or composition or to separate optical isomers from a racemic mixture [C12P](#); production of organic compounds by electrolysis or electrophoresis [C25B 3/00](#), [C25B 7/00](#))  
(NOTES omitted)

## C07C ACYCLIC OR CARBOCYCLIC COMPOUNDS

### NOTES

- In this subclass, the following terms or expressions are used with meanings indicated:
  - "bridged" means the presence of at least one fusion other than ortho, peri or spiro;
  - two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed;
  - "condensed ring system" is a ring system in which all rings are condensed among themselves;
  - "number of rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;
  - "quinones" are compounds derived from compounds containing a six-membered aromatic ring or a system comprising six-membered aromatic rings (which system may be condensed or not condensed) by replacing two or four CH groups of the six-membered aromatic rings by C=O groups, and by removing one or two carbon-to-carbon double bonds, respectively, and rearranging the remaining carbon-to-carbon double bonds to give a ring or ring system with alternating double bonds, including the carbon-to-oxygen bonds; this means that acenaphthenequinone or camphorquinone are not considered as quinones.
- In this subclass, in the absence of an indication to the contrary, a process is classified in the last appropriate place.
- In this subclass, in the absence of an indication to the contrary, "quaternary ammonium compounds" are classified with the corresponding "non-quaternised nitrogen compounds".
- For the classification of compounds in groups [C07C 1/00](#) - [C07C 71/00](#) and [C07C 401/00](#) - [C07C 409/00](#) :
  - a compound is classified considering the molecule as a whole (rule of the "whole molecule approach");
  - a compound is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
  - a compound is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes six-membered aromatic ring, unless otherwise specified or implicitly derivable from the subdivision.
- For the classification of compounds in groups [C07C 201/00](#) - [C07C 395/00](#), i.e. after the functional group has been determined according to the "last place rule", a compound is classified according to the following principles:
  - compounds are classified in accordance with the nature of the carbon atom to which the functional group is attached;
  - a carbon skeleton is a carbon atom, other than a carbon atom of a carboxyl group, or a chain of carbon atoms bound to each other, a carbon skeleton is considered to be terminated by every bond to an element other than carbon or to a carbon atom of a carboxyl group;
  - when the molecule contains several functional groups, only functional groups linked to the same carbon skeleton as the one first determined are considered;
  - a carbon skeleton is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
  - a carbon skeleton is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes a six-membered aromatic ring.
- When classifying in this subclass, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.
- When a process is classified in a process group, combination sets are used to indicate the product of the process. A combination set consists of a process group, followed by and linked to the group of the product. The products are selected from the corresponding product groups.

### WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

[C07C 27/02](#)

covered by

[C07C 29/00](#), [C07C 51/00](#)

C07C (continued)	C07C 47/042, C07C 47/045, C07C 47/048, C07C 47/052, C07C 47/055, C07C 47/058	covered by	<a href="#">C07C 47/04</a>
	C07C 47/07, C07C 47/09	covered by	<a href="#">C07C 47/06</a>
	C07C 53/04	covered by	<a href="#">C07C 53/02</a>
	C07C 57/045, C07C 57/05, C07C 57/055, C07C 57/065, C07C 57/07, C07C 57/075	covered by	<a href="#">C07C 57/04</a>
	C07C 69/025, C07C 69/03, C07C 69/035	covered by	<a href="#">C07C 69/003</a> - <a href="#">C07C 69/017</a> and <a href="#">C07C 69/02</a>
	C07C 69/347, C07C 69/353	covered by	<a href="#">C07C 69/003</a> - <a href="#">C07C 69/017</a> and <a href="#">C07C 69/34</a>
	C07C 69/527	covered by	<a href="#">C07C 69/003</a> - <a href="#">C07C 69/017</a> and <a href="#">C07C 69/52</a>
	C07C 69/767, C07C 69/773	covered by	<a href="#">C07C 69/003</a> - <a href="#">C07C 69/017</a> and <a href="#">C07C 69/76</a>
	C07C 69/83	covered by	<a href="#">C07C 69/003</a> - <a href="#">C07C 69/017</a> and <a href="#">C07C 69/82</a>

**Hydrocarbons** (derivatives of cyclohexane or of a cyclohexene {or of cyclohexadiene}, having a side-chain containing an acyclic unsaturated part of at least four carbon atoms, this part being directly attached to the cyclohexane or cyclohexene {or cyclohexadiene} rings [C07C 403/00](#); preparation of macromolecular compounds [C08](#); production or separation from undefined hydrocarbon mixtures such as petroleum oil [C10G](#); natural gas, synthetic natural gas, liquefied petroleum gas [C10L 3/00](#); electrolytic or electrophoretic processes [C25B](#))

**1/00 Preparation of hydrocarbons from one or more compounds, none of them being a hydrocarbon**

- 1/02 . from oxides of a carbon ([preparation of liquid hydrocarbon mixtures of undefined composition C10G 2/00](#); of synthetic natural gas [C10L 3/06](#))
- 1/04 . . from carbon monoxide with hydrogen
- 1/0405 . . . {Apparatus}
- 1/041 . . . . {Reactors}
- 1/0415 . . . . . {with moving catalysts}
- 1/042 . . . . {Temperature controlling devices; Heat exchangers}
- 1/0425 . . . {Catalysts; their physical properties}
- 1/043 . . . . {characterised by the composition}
- 1/0435 . . . . . {containing a metal of group 8 or a compound thereof}
- 1/044 . . . . . {containing iron}
- 1/0445 . . . . {Preparation; Activation}
- 1/045 . . . . {Regeneration}
- 1/0455 . . . {Reaction conditions}
- 1/046 . . . . {Numerical values of parameters ([only to be used if no other subgroup of C07C 1/04 is used](#))}
- 1/0465 . . . . {concerning fluidisation}
- 1/047 . . . . {Processes in which one or more parameters are changed during the process; Starting-up of the process}
- 1/0475 . . . . {Regulating}
- 1/048 . . . . {Temperature controlling measures}
- 1/0485 . . . {Set-up of reactors or accessories; Multi-step processes}
- 1/049 . . . . {Coupling of the reaction and regeneration of the catalyst}
- 1/0495 . . . {Non-catalytic processes; Catalytic processes in which there is also another way of activation, e.g. radiation}
- 1/06 . . . in the presence of organic compounds, e.g. hydrocarbons ([{multi-step processes in which the feed to a subsequent reaction zone comprises at least a part of the reaction-product of a previous reaction zone C07C 1/0485}](#))
- 1/063 . . . . {the organic compound being the catalyst or a part of the catalyst system}

- 1/066 . . . . . {used for dissolving, suspending or transporting the catalyst}
- 1/08 . . . Isosyntheses
- 1/10 . . from carbon monoxide with water vapour
- 1/12 . . from carbon dioxide with hydrogen
- 1/20 . starting from organic compounds containing only oxygen atoms as heteroatoms
- 1/207 . . from carbonyl compounds
- 1/2072 . . . {by condensation ([C07C 2/86](#) takes precedence)}
- 1/2074 . . . . {of only one compound}
- 1/2076 . . . {by a transformation in which at least one - C(=O)- moiety is eliminated}
- 1/2078 . . . {by a transformation in which at least one - C(=O)-O- moiety is eliminated}
- 1/213 . . . by splitting of esters
- 1/22 . . by reduction
- 1/24 . . by elimination of water
- 1/247 . . by splitting of cyclic ethers
- 1/26 . starting from organic compounds containing only halogen atoms as hetero-atoms
- 1/28 . . by ring closure
- 1/30 . . by splitting-off the elements of hydrogen halide from a single molecule
- 1/32 . starting from compounds containing hetero-atoms other than or in addition to oxygen or halogen
- 1/321 . . {the hetero-atom being a non-metal atom}
- 1/322 . . . {the hetero-atom being a sulfur atom}
- 1/323 . . . {the hetero-atom being a nitrogen atom}
- 1/324 . . . {the hetero-atom being a phosphorus atom ([C07C 1/34](#) takes precedence)}
- 1/325 . . {the hetero-atom being a metal atom}
- 1/326 . . . {the hetero-atom being a magnesium atom}
- 1/327 . . . {the hetero-atom being an aluminium atom ([C07C 2/88](#) takes precedence)}
- 1/328 . . . {the hetero-atom being an alkali metal atom}
- 1/34 . . reacting phosphines with aldehydes or ketones, e.g. Wittig reaction
- 1/36 . by splitting of esters ([C07C 1/213](#), [C07C 1/30](#) take precedence)
- 2/00 Preparation of hydrocarbons from hydrocarbons containing a smaller number of carbon atoms ([redistribution reactions involving splitting C07C 6/00](#))**
- 2/02 . by addition between unsaturated hydrocarbons
- 2/04 . . by oligomerisation of well-defined unsaturated hydrocarbons without ring formation
- 2/06 . . . of alkenes, i.e. acyclic hydrocarbons having only one carbon-to-carbon double bond
- 2/08 . . . . Catalytic processes

- 2/10 . . . . . with metal oxides
- 2/12 . . . . . with crystalline alumino-silicates {or with catalysts comprising} molecular sieves
- 2/14 . . . . . with inorganic acids; with salts or anhydrides of acids
- 2/16 . . . . . Acids of sulfur; Salts thereof; Sulfur oxides
- 2/18 . . . . . Acids of phosphorus; Salts thereof; Phosphorus oxides
- 2/20 . . . . . Acids of halogen; Salts thereof {Complexes thereof with organic compounds}
- 2/22 . . . . . Metal halides; Complexes thereof with organic compounds
- 2/24 . . . . . with metals
- 2/26 . . . . . with hydrides or organic compounds (C07C 2/20 takes precedence)
- 2/28 . . . . . with ion-exchange resins
- 2/30 . . . . . containing metal-to-carbon bond; Metal hydrides
- 2/32 . . . . . as complexes, e.g. acetyl-acetonates {complexes of salts of acids of halogen C07C 2/20}
- 2/34 . . . . . Metal-hydrocarbon complexes
- 2/36 . . . . . as phosphines, arsines, stilbines or bismuthines
- 2/38 . . . of dienes or alkynes
- 2/40 . . . of conjugated dienes
- 2/403 . . . . . {Catalytic processes}
- 2/406 . . . . . {with hydrides or organic compounds}
- 2/42 . . homo- or co-oligomerisation with ring formation, not being a Diels-Alder conversion
- 2/44 . . . of conjugated dienes only
- 2/46 . . . Catalytic processes
- 2/465 . . . . . {with hydrides or organic compounds}
- 2/48 . . . of only hydrocarbons containing a carbon-to-carbon triple bond
- 2/50 . . Diels-Alder conversion
- 2/52 . . . Catalytic processes
- 2/54 . by addition of unsaturated hydrocarbons to saturated hydrocarbons or to hydrocarbons containing a six-membered aromatic ring with no unsaturation outside the aromatic ring
- 2/56 . . Addition to acyclic hydrocarbons
- 2/58 . . . Catalytic processes
- 2/60 . . . with halides
- 2/62 . . . with acids
- 2/64 . . Addition to a carbon atom of a six-membered aromatic ring
- 2/66 . . . Catalytic processes
- 2/68 . . . with halides
- 2/70 . . . with acids
- 2/72 . . Addition to a non-aromatic carbon atom of hydrocarbons containing a six-membered aromatic ring
- 2/74 . by addition with simultaneous hydrogenation
- 2/76 . by condensation of hydrocarbons with partial elimination of hydrogen
- 2/78 . . Processes with partial combustion
- 2/80 . . Processes with the aid of electrical means
- 2/82 . . oxidative coupling
- 2/84 . . . catalytic
- 2/86 . by condensation between a hydrocarbon and a non-hydrocarbon
- 2/861 . . {the non-hydrocarbon contains only halogen as hetero-atoms}
- 2/862 . . {the non-hydrocarbon contains only oxygen as hetero-atoms}
- 2/864 . . . {the non-hydrocarbon is an alcohol}
- 2/865 . . . {the non-hydrocarbon is an ether}
- 2/867 . . . {the non-hydrocarbon is an aldehyde or a ketone}
- 2/868 . . {the non-hydrocarbon contains sulfur as hetero-atom}
- 2/88 . . Growth and elimination reactions {(preparation of metallo-organic compounds C07F)}
- 4/00 Preparation of hydrocarbons from hydrocarbons containing a larger number of carbon atoms (redistribution reactions involving splitting C07C 6/00; cracking hydrocarbon oils C10G)**
- 4/02 . by cracking a single hydrocarbon or a mixture of individually defined hydrocarbons or a normally gaseous hydrocarbon fraction
- 4/025 . . {Oxidative cracking, autothermal cracking or cracking by partial combustion}
- 4/04 . . Thermal processes {(C07C 4/025 takes precedence)}
- 4/06 . . Catalytic processes {(C07C 4/025 takes precedence)}
- 4/08 . by splitting-off an aliphatic or cycloaliphatic part from the molecule
- 4/10 . . from acyclic hydrocarbons
- 4/12 . . from hydrocarbons containing a six-membered aromatic ring, e.g. propyltoluene to vinyltoluene
- 4/14 . . . splitting taking place at an aromatic-aliphatic bond
- 4/16 . . . . Thermal processes
- 4/18 . . . . Catalytic processes
- 4/20 . . . . Hydrogen being formed *in situ*, e.g. from steam
- 4/22 . by depolymerisation to the original monomer, e.g. dicyclopentadiene to cyclopentadiene
- 4/24 . by splitting polyarylsubstituted aliphatic compounds at an aliphatic-aliphatic bond, e.g. 1,4-diphenylbutane to styrene
- 4/26 . by splitting polyaryl compounds at a bond between uncondensed six-membered aromatic rings, e.g. biphenyl to benzene
- 5/00 Preparation of hydrocarbons from hydrocarbons containing the same number of carbon atoms**
- 5/02 . by hydrogenation (simultaneous hydrogenation and dehydrogenation C07C 5/52)
- 5/03 . . of non-aromatic carbon-to-carbon double bonds
- 5/05 . . . Partial hydrogenation
- 5/08 . . of carbon-to-carbon triple bonds
- 5/09 . . . to carbon-to-carbon double bonds
- 5/10 . . of aromatic six-membered rings
- 5/11 . . . Partial hydrogenation
- 5/13 . . with simultaneous isomerisation
- 5/22 . by isomerisation (with simultaneous hydrogenation C07C 5/13; with simultaneous dehydrogenation C07C 5/373)
- 5/2206 . . {Catalytic processes not covered by C07C 5/23 - C07C 5/31}
- 5/2213 . . . {with metal oxides}

- 5/222 . . . {with crystalline alumino-silicates, e.g. molecular sieves}
- 5/2226 . . . {with inorganic acids; with salt or anhydrides of acids}
- 5/2233 . . . . {Acids of sulfur; Salts thereof; Sulfur oxides}
- 5/224 . . . . {Acids of phosphorus; Salts thereof; Phosphorus oxides}
- 5/2246 . . . . {Acids of halogen; Salts thereof}
- 5/2253 . . . . {Metal halides; Complexes thereof with organic compounds}
- 5/226 . . . {with metals}
- 5/2266 . . . {with hydrides or organic compounds ([C07C 5/2246 takes precedence](#))}
- 5/2273 . . . . {with ion-exchange resins}
- 5/228 . . . . {containing metal-to-carbon bond; Metal hydrides}
- 5/2286 . . . . {containing complexes, e.g. acetyl-acetonates ([complexes of salts of acids of halogen C07C 5/2246](#))}
- 5/2293 . . . . {containing phosphines, arsines, stibines, or bismuthines}
- 5/23 . . Rearrangement of carbon-to-carbon unsaturated bonds
- 5/25 . . . Migration of carbon-to-carbon double bonds
- 5/2506 . . . . {Catalytic processes}
- 5/2512 . . . . {with metal oxides}
- 5/2518 . . . . {with crystalline alumino-silicates, e.g. molecular sieves}
- 5/2525 . . . . {with inorganic acids; with salts or anhydrides of acids}
- 5/2531 . . . . . {Acids of sulfur; Salts thereof; Sulfur oxides}
- 5/2537 . . . . . {Acids of phosphorus; Salts thereof; Phosphorus oxides}
- 5/2543 . . . . . {Acids of halogen; Salts thereof}
- 5/255 . . . . . {Metal halides; Complexes thereof with organic compounds}
- 5/2556 . . . . . {with metals}
- 5/2562 . . . . . {with hydrides or organic compounds ([C07C 5/2543 takes precedence](#))}
- 5/2568 . . . . . {with ion-exchange resins}
- 5/2575 . . . . . {containing metal-to-carbon bond; Metal hydrides}
- 5/2581 . . . . . {containing complexes, e.g. acetyl-acetonates ([complexes of salts of acids of halogen C07C 5/2543](#))}
- 5/2587 . . . . . {Metal-hydrocarbon complexes}
- 5/2593 . . . . . {containing phosphines, arsines, stibines or bismuthines}
- 5/27 . . Rearrangement of carbon atoms in the hydrocarbon skeleton
- 5/2702 . . . {Catalytic processes not covered by [C07C 5/2732](#) - [C07C 5/31](#); Catalytic processes covered by both [C07C 5/2732](#) and [C07C 5/277](#) simultaneously}
- 5/2705 . . . . {with metal oxides}
- 5/2708 . . . . {with crystalline alumino-silicates, e.g. molecular sieves}
- 5/271 . . . . {with inorganic acids; with salts or anhydrides of acids}
- 5/2713 . . . . . {Acids of sulfur; Salts thereof; Sulfur oxides}
- 5/2716 . . . . . {Acids of phosphorus; Salts thereof; Phosphorus oxides}
- 5/2718 . . . . . {Acids of halogen; Salts thereof; complexes thereof with organic compounds}
- 5/2721 . . . . . {Metal halides; Complexes thereof with organic compounds}
- 5/2724 . . . . {with metals}
- 5/2727 . . . . {with hydrides or organic compounds ([C07C 5/2718 takes precedence](#))}
- 5/2729 . . . {Changing the branching point of an open chain or the point of substitution on a ring}
- 5/2732 . . . . {Catalytic processes}
- 5/2735 . . . . . {with metal oxides}
- 5/2737 . . . . . {with crystalline alumino-silicates, e.g. molecular sieves}
- 5/274 . . . . . {with inorganic acids; with salts or anhydrides of acids}
- 5/2743 . . . . . {Acids of sulfur; Salts thereof; Sulfur oxides}
- 5/2745 . . . . . {Acids of phosphorus; Salts thereof; Phosphorus acids}
- 5/2748 . . . . . {Acids of halogen; Salts thereof}
- 5/2751 . . . . . {Metal halides; Complexes thereof with organic compounds}
- 5/2754 . . . . . {with metals}
- 5/2756 . . . . . {with hydrides or organic compounds ([C07C 5/2748 takes precedence](#))}
- 5/2759 . . . . . {containing metal-to-carbon bond; Metal hydrides}
- 5/2762 . . . . . {containing complexes, e.g. acetyl-acetonates ([complexes of salts of acids of halogen C07C 5/2748](#))}
- 5/2764 . . . . . {Metal-hydrocarbon complexes}
- 5/2767 . . . {Changing the number of side-chains}
- 5/277 . . . . {Catalytic processes}
- 5/2772 . . . . . {with metal oxides}
- 5/2775 . . . . . {with crystalline alumino-silicates, e.g. molecular sieves}
- 5/2778 . . . . . {with inorganic acids; with salts or anhydrides of acids}
- 5/2781 . . . . . {Acids of sulfur; Salts thereof; Sulfur oxides}
- 5/2783 . . . . . {Acids of phosphorus; Salts thereof; Phosphorus oxides}
- 5/2786 . . . . . {Acids of halogen; Salts thereof}
- 5/2789 . . . . . {Metal halides; Complexes thereof with organic compounds}
- 5/2791 . . . . . {with metals}
- 5/2794 . . . . . {with hydrides or organic compounds ([C07C 5/2786 takes precedence](#))}
- 5/2797 . . . . . {with ion-exchange resins}
- 5/29 . . . changing the number of carbon atoms in a ring while maintaining the number of rings
- 5/31 . . . changing the number of rings
- 5/32 . . by dehydrogenation with formation of free hydrogen
- 5/321 . . {Catalytic processes}
- 5/322 . . . {with metal oxides or metal sulfides}
- 5/324 . . . {with metals}
- 5/325 . . . . {of the platinum group}
- 5/327 . . Formation of non-aromatic carbon-to-carbon double bonds only

- 5/333 . . . Catalytic processes
- 5/3332 . . . . {with metal oxides or metal sulfides}
- 5/3335 . . . . {with metals}
- 5/3337 . . . . . {of the platinum group}
- 5/35 . . Formation of carbon-to-carbon triple bonds only
- 5/367 . . Formation of an aromatic six-membered ring from an existing six-membered ring, e.g. dehydrogenation of ethylcyclohexane to ethylbenzene
- 5/373 . . with simultaneous isomerisation
- 5/387 . . . of cyclic compounds containing non six-membered ring to compounds containing a six-membered aromatic ring
- 5/393 . . . with cyclisation to an aromatic six-membered ring, e.g. dehydrogenation of n-hexane to benzene
- 5/41 . . . . Catalytic processes
- 5/412 . . . . . {with metal oxides or metal sulfides}
- 5/415 . . . . . {with metals}
- 5/417 . . . . . {of the platinum group}
- 5/42 . . by dehydrogenation with a hydrogen acceptor

**NOTES**

1. The catalyst is considered as forming part of the acceptor system in case of simultaneous catalyst reduction.
2. The acceptor system is classified according to the supplying substances in case of in situ formation of the acceptor system or of in situ regeneration of the reduced acceptor system.
3. Compounds added for binding the reduced acceptor system are not considered as belonging to the acceptor system.

- 5/44 . . with halogen or a halogen-containing compound as an acceptor
- 5/46 . . with sulfur or a sulfur-containing compound as an acceptor
- 5/48 . . with oxygen as an acceptor
- 5/50 . . with an organic compound as an acceptor
- 5/52 . . . with a hydrocarbon as an acceptor, e.g. hydrocarbon disproportionation, i.e.  $2C_nH_p \rightarrow C_nH_{p+q} + C_nH_{p-q}$
- 5/54 . . with an acceptor system containing at least two compounds provided for in more than one of the sub-groups [C07C 5/44](#) - [C07C 5/50](#)
- 5/56 . . . containing only oxygen and either halogens or halogen-containing compounds

**6/00 Preparation of hydrocarbons from hydrocarbons containing a different number of carbon atoms by redistribution reactions**

- 6/02 . . Metathesis reactions at an unsaturated carbon-to-carbon bond
- 6/04 . . at a carbon-to-carbon double bond
- 6/06 . . . at a cyclic carbon-to-carbon double bond
- 6/08 . . by conversion at a saturated carbon-to-carbon bond
- 6/10 . . in hydrocarbons containing no six-membered aromatic rings
- 6/12 . . of exclusively hydrocarbons containing a six-membered aromatic ring
- 6/123 . . . {of only one hydrocarbon}
- 6/126 . . . {of more than one hydrocarbon}

**7/00 Purification; Separation; Use of additives**

(working-up undefined gaseous mixtures obtained by cracking hydrocarbon oils [C10G 70/00](#))

- 7/005 . . {Processes comprising at least two steps in series}
- 7/04 . . by distillation
- 7/05 . . with the aid of auxiliary compounds
- 7/06 . . . by azeotropic distillation
- 7/08 . . . by extractive distillation
- 7/09 . . by fractional condensation
- 7/10 . . by extraction, i.e. purification or separation of liquid hydrocarbons with the aid of liquids
- 7/11 . . by absorption, i.e. purification or separation of gaseous hydrocarbons with the aid of liquids
- 7/12 . . by adsorption, i.e. purification or separation of hydrocarbons with the aid of solids, e.g. with ion-exchangers
- 7/13 . . by molecular-sieve technique
- 7/135 . . by gas-chromatography
- 7/14 . . by crystallisation; Purification or separation of the crystals
- 7/144 . . using membranes, e.g. selective permeation
- 7/148 . . by treatment giving rise to a chemical modification of at least one compound

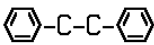
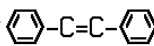
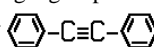
**NOTE**

In the following sub-groups contact masses and catalysts are disregarded for classification purposes

- 7/14808 . . {with non-metals as element ([hydrogenation C07C 7/163](#))}
- 7/14816 . . . {oxygen; ozone}
- 7/14825 . . . {halogens}
- 7/14833 . . {with metals or their inorganic compounds}
- 7/14841 . . . {metals}
- 7/1485 . . . {oxides; hydroxides; salts ([C07C 7/156](#) takes precedence)}
- 7/14858 . . {with inorganic compounds not provided for before ([acids, sulfur oxides C07C 7/17](#))}
- 7/14866 . . . {water ([hydrate formation C07C 7/152](#))}
- 7/14875 . . {with organic compounds ([organo-metallic compounds C07C 7/173](#))}
- 7/14883 . . . {hydrocarbons}
- 7/14891 . . . {alcohols}
- 7/152 . . by forming adducts or complexes
- 7/156 . . . with solutions of copper salts
- 7/163 . . by hydrogenation
- 7/167 . . . for removal of compounds containing a triple carbon-to-carbon bond
- 7/17 . . with acids or sulfur oxides
- 7/171 . . . Sulfuric acid or oleum
- 7/173 . . with the aid of organo-metallic compounds
- 7/177 . . by selective oligomerisation or polymerisation of at least one compound of the mixture
- 7/20 . . Use of additives, e.g. for stabilisation
- 9/00 Aliphatic saturated hydrocarbons**
- 9/02 . . with one to four carbon atoms ([liquefied petroleum gas C10L 3/12](#))
- 9/04 . . Methane ([production by treatment of sewage C02F 11/04](#); natural gas, synthetic natural gas [C10L 3/06](#))
- 9/06 . . Ethane
- 9/08 . . Propane



9/10	. . with four carbon atoms	13/28	. Polycyclic hydrocarbons or acyclic hydrocarbon derivatives thereof
9/12	. . . Iso-butane		<b>NOTE</b>
9/14	. with five to fifteen carbon atoms		Ring systems consisting only of condensed six-membered ring with maximum number of non-cumulative double bonds are classified in group C07C 15/00.
9/15	. . Straight-chain hydrocarbons		
9/16	. . Branched-chain hydrocarbons		
9/18	. . . with five carbon atoms		
9/21	. . . 2, 2, 4-Trimethylpentane		
9/22	. with more than fifteen carbon atoms		
<b>11/00</b>	<b>Aliphatic unsaturated hydrocarbons</b>		
11/02	. Alkenes	13/32	. . with condensed rings
11/04	. . Ethylene	13/34	. . . with a bicyclo ring system containing four carbon atoms
11/06	. . Propene	13/36	. . . with a bicyclo ring system containing five carbon atoms
11/08	. . with four carbon atoms	13/38	. . . with a bicyclo ring system containing six carbon atoms
11/09	. . . Isobutene	13/39	. . . with a bicyclo ring system containing seven carbon atoms
11/10	. . with five carbon atoms	13/40	. . . . with a bicycloheptane ring structure
11/107	. . with six carbon atoms	13/42	. . . . with a bicycloheptene ring structure
11/113	. . . Methylpentenes	13/43	. . . . . substituted by unsaturated acyclic hydrocarbon
11/12	. Alkadienes	13/44	. . . with a bicyclo ring system containing eight carbon atoms
11/14	. . Allene	13/45	. . . with a bicyclo ring system containing nine carbon atoms
11/16	. . with four carbon atoms	13/465	. . . . Indenes; Completely or partially hydrogenated indenes
11/167	. . . 1, 3-Butadiene	13/47	. . . with a bicyclo ring system containing ten carbon atoms
11/173	. . with five carbon atoms	13/48	. . . . Completely or partially hydrogenated naphthalenes
11/18	. . . Isoprene	13/50	. . . . . Decahydronaphthalenes
11/20	. . . 1, 3-Pentadiene	13/52	. . . . Azulenes; Completely or partially hydrogenated azulenes
11/21	. Alkatienes; Alkatetraenes; Other alkapolynes	13/54	. . . with three condensed rings
11/22	. containing carbon-to-carbon triple bonds	13/547	. . . . at least one ring not being six-membered, the other rings being at the most six-membered
11/24	. . Acetylene ( <a href="#">production of acetylene gas by wet methods C10H</a> )	13/553	. . . . . with an indacene or hydrogenated indacene ring system
11/28	. containing carbon-to-carbon double bonds and carbon-to-carbon triple bonds	13/567	. . . . . with a fluorene or hydrogenated fluorene ring system
11/30	. . Butenyne	13/573	. . . . with three six-membered rings
<b>13/00</b>	<b>Cyclic hydrocarbons containing rings other than, or in addition to, six-membered aromatic rings</b>	13/58	. . . . . Completely or partially hydrogenated anthracenes
13/02	. Monocyclic hydrocarbons or acyclic hydrocarbon derivatives thereof	13/60	. . . . . Completely or partially hydrogenated phenanthrenes
13/04	. . with a three-membered ring	13/605	. . . . with a bridged ring system
13/06	. . with a four-membered ring	13/61	. . . . . with a bridged indene ring, e.g. dicyclopentadiene
13/08	. . with a five-membered ring	13/615	. . . . . with an adamantane ring
13/10	. . . with a cyclopentane ring	13/62	. . . with more than three condensed rings
13/11	. . . . substituted by unsaturated hydrocarbon groups	13/64	. . . . with a bridged ring system
13/12	. . . with a cyclopentene ring	13/66	. . . . the condensed ring system contains only four rings
13/15	. . . with a cyclopentadiene ring	13/68	. . . . . with a bridged ring system
13/16	. . with a six-membered ring	13/70	. . . with a condensed ring system consisting of at least two, mutually uncondensed aromatic ring systems, linked by an annular structure formed by carbon chains on non-adjacent positions of the aromatic ring, e.g. cyclophanes
13/18	. . . with a cyclohexane ring	13/72	. . . Spiro hydrocarbons
13/19	. . . . substituted by unsaturated hydrocarbon groups		
13/20	. . . with a cyclohexene ring		
13/21	. . . . Menthadienes		
13/23	. . . with a cyclohexadiene ring		
13/24	. . with a seven-membered ring		
13/26	. . with an eight-membered ring		
13/263	. . . with a cyclo-octene or cyclo-octadiene ring		
13/267	. . . with a cyclo-octatriene or cyclo-octatetraene ring		
13/271	. . with a nine- to ten- membered ring		
13/273	. . with a twelve-membered ring		
13/275	. . . the twelve-membered ring being unsaturated		
13/277	. . . . with a cyclododecatriene ring		
		<b>15/00</b>	<b>Cyclic hydrocarbons containing only six-membered aromatic rings as cyclic parts</b>

- 15/02 . Monocyclic hydrocarbons
- 15/04 . . Benzene
- 15/06 . . Toluene
- 15/067 . . C<sub>8</sub>H<sub>10</sub> hydrocarbons
- 15/073 . . . Ethylbenzene
- 15/08 . . . Xylenes
- 15/085 . . Isopropylbenzene
- 15/107 . . having saturated side-chain containing at least six carbon atoms, e.g. detergent alkylates
- 15/113 . . . having at least two saturated side-chains, each containing at least six carbon atoms
- 15/12 . Polycyclic non-condensed hydrocarbons
- 15/14 . . all phenyl groups being directly linked
- 15/16 . . containing at least two phenyl groups linked by one single acyclic carbon atom
- 15/18 . . containing at least one group with formula 
- 15/20 . Polycyclic condensed hydrocarbons
- 15/24 . . containing two rings
- 15/27 . . containing three rings
- 15/28 . . . Anthracenes
- 15/30 . . . Phenanthrenes
- 15/38 . . containing four rings
- 15/40 . substituted by unsaturated carbon radicals
- 15/42 . . monocyclic
- 15/44 . . . the hydrocarbon substituent containing a carbon-to-carbon double bond
- 15/46 . . . . Styrene; Ring-alkylated styrenes
- 15/48 . . . the hydrocarbon substituent containing a carbon-to-carbon triple bond
- 15/50 . . polycyclic non-condensed
- 15/52 . . . containing a group with formula 
- 15/54 . . . containing a group with formula 
- 15/56 . . polycyclic condensed
- 15/58 . . . containing two rings
- 15/60 . . . containing three rings
- 15/62 . . . containing four rings
- 17/15 . . with oxygen as auxiliary reagent, e.g. oxychlorination
- 17/152 . . . of hydrocarbons
- 17/154 . . . . of saturated hydrocarbons
- 17/156 . . . . of unsaturated hydrocarbons
- 17/158 . . . of halogenated hydrocarbons
- 17/16 . . of hydroxyl groups
- 17/18 . . of oxygen atoms of carbonyl groups
- 17/20 . . of halogen atoms by other halogen atoms
- 17/202 . . . {two or more compounds being involved in the reaction}
- 17/204 . . . . {the other compound being a halogen}
- 17/206 . . . . {the other compound being HX}
- 17/208 . . . . {the other compound being MX}
- 17/21 . . . with simultaneous increase of the number of halogen atoms
- 17/23 . by dehalogenation
- 17/25 . by splitting-off hydrogen halides from halogenated hydrocarbons
- 17/26 . by reactions involving an increase in the number of carbon atoms in the skeleton
- 17/263 . . by condensation reactions
- 17/2632 . . . {involving an organo-magnesium compound, e.g. Grignard synthesis}
- 17/2635 . . . {involving a phosphorus compound, e.g. Wittig synthesis}
- 17/2637 . . . {between a compound containing only oxygen and possibly halogen as hetero-atoms and a halogenated hydrocarbon}
- 17/266 . . . of hydrocarbons and halogenated hydrocarbons
- 17/269 . . . of only halogenated hydrocarbons
- 17/272 . . by addition reactions
- 17/275 . . . of hydrocarbons and halogenated hydrocarbons
- 17/278 . . . of only halogenated hydrocarbons
- 17/281 . . . . of only one compound
- 17/30 . . by a Diels-Alder synthesis
- 17/32 . . by introduction of halogenated alkyl groups into ring compounds
- 17/35 . by reactions not affecting the number of carbon or of halogen atoms in the reaction
- 17/354 . . by hydrogenation
- 17/357 . . by dehydrogenation
- 17/358 . . by isomerisation
- 17/361 . by reactions involving a decrease in the number of carbon atoms
- 17/363 . . by elimination of carboxyl groups
- 17/367 . . by depolymerisation
- 17/37 . by disproportionation of halogenated hydrocarbons
- 17/38 . Separation; Purification; Stabilisation; Use of additives
- 17/383 . . by distillation
- 17/386 . . . with auxiliary compounds
- 17/389 . . by adsorption on solids
- 17/392 . . by crystallisation; Purification or separation of the crystals
- 17/395 . . by treatment giving rise to a chemical modification of at least one compound
- 17/42 . . Use of additives, e.g. for stabilisation

**Compounds containing carbon and halogens with or without hydrogen** (derivatives of cyclohexane or of a cyclohexene having an unsaturated side chain with at least four carbon atoms [C07C 403/00](#))

**17/00 Preparation of halogenated hydrocarbons**

- 17/007 . from carbon or from carbides and halogens
- 17/013 . by addition of halogens
- 17/02 . . to unsaturated hydrocarbons
- 17/04 . . to unsaturated halogenated hydrocarbons
- 17/06 . . combined with replacement of hydrogen atoms by halogens
- 17/07 . by addition of hydrogen halides
- 17/08 . . to unsaturated hydrocarbons
- 17/087 . . to unsaturated halogenated hydrocarbons
- 17/093 . by replacement by halogens
- 17/10 . . of hydrogen atoms (combined with addition of halogens to unsaturated hydrocarbons [C07C 17/06](#))
- 17/12 . . . in the ring of aromatic compounds
- 17/14 . . . in the side-chain of aromatic compounds
- 19/00 **Acyclic saturated compounds containing halogen atoms**
- 19/01 . containing chlorine
- 19/03 . . Chloromethanes

- 19/04 . . . Chloroform
- 19/041 . . . Carbon tetrachloride
- 19/043 . . Chloroethanes
- 19/045 . . . Dichloroethanes
- 19/05 . . . Trichloroethanes
- 19/055 . . . Tetrachloroethanes
- 19/07 . containing iodine
- 19/075 . containing bromine
- 19/08 . containing fluorine
- 19/10 . . and chlorine
- 19/12 . . . having two carbon atoms
- 19/14 . . and bromine
- 19/16 . . and iodine
- 21/00 Acyclic unsaturated compounds containing halogen atoms**
- 21/02 . containing carbon-to-carbon double bonds
- 21/04 . . Chloro-alkenes
- 21/06 . . . Vinyl chloride
- 21/067 . . . Allyl chloride; Methallyl chloride
- 21/073 . . . Dichloro-alkenes
- 21/08 . . . . Vinylidene chloride
- 21/09 . . . . Dichloro-butenes
- 21/10 . . . Trichloro-ethylene
- 21/12 . . . Tetrachloro-ethylene
- 21/14 . . containing bromine
- 21/16 . . . Crotyl bromide
- 21/17 . . containing iodine
- 21/18 . . containing fluorine
- 21/185 . . . tetrafluorethene
- 21/19 . . Halogenated dienes
- 21/20 . . . Halogenated butadienes
- 21/21 . . . . Chloroprene
- 21/215 . . Halogenated polyenes with more than two carbon-to-carbon double bonds
- 21/22 . containing carbon-to-carbon triple bonds
- 22/00 Cyclic compounds containing halogen atoms bound to an acyclic carbon atom**
- 22/02 . having unsaturation in the rings
- 22/04 . . containing six-membered aromatic rings
- 22/06 . . . Trichloromethylbenzene
- 22/08 . . . containing fluorine
- 23/00 Compounds containing at least one halogen atom bound to a ring other than a six-membered aromatic ring**
- 23/02 . Monocyclic halogenated hydrocarbons
- 23/04 . . with a three-membered ring
- 23/06 . . with a four-membered ring
- 23/08 . . with a five-membered ring
- 23/10 . . with a six-membered ring
- 23/12 . . . Hexachlorocyclohexanes
- 23/14 . . with a seven-membered ring
- 23/16 . . with an eight-membered ring
- 23/18 . Polycyclic halogenated hydrocarbons
- 23/20 . . with condensed rings none of which is aromatic
- 23/22 . . . with a bicyclo ring system containing four carbon atoms
- 23/24 . . . with a bicyclo ring system containing five carbon atoms
- 23/26 . . . with a bicyclo ring system containing six carbon atoms

- 23/27 . . . with a bicyclo ring system containing seven carbon atoms
- 23/28 . . . . Saturated bicyclo ring system
- 23/30 . . . . Mono-unsaturated bicyclo ring system
- 23/32 . . . with a bicyclo ring system containing eight carbon atoms
- 23/34 . . . Halogenated completely or partially hydrogenated indenenes
- 23/36 . . . Halogenated completely or partially hydrogenated naphthalenes
- 23/38 . . . with three condensed rings
- 23/40 . . . . Halogenated completely or partially hydrogenated fluorenes
- 23/42 . . . . Halogenated completely or partially hydrogenated anthracenes
- 23/44 . . . . Halogenated completely or partially hydrogenated phenanthrenes
- 23/46 . . . with more than three condensed rings

**25/00 Compounds containing at least one halogen atom bound to a six-membered aromatic ring**

- 25/02 . Monocyclic aromatic halogenated hydrocarbons
- 25/06 . . Monochloro-benzene
- 25/08 . . Dichloro-benzenes
- 25/10 . . Trichloro-benzenes
- 25/12 . . Hexachloro-benzene
- 25/125 . . Halogenated xylenes
- 25/13 . . containing fluorine
- 25/18 . Polycyclic aromatic halogenated hydrocarbons
- 25/20 . . Dichloro-diphenyl-trichloro-ethane
- 25/22 . . with condensed rings
- 25/24 . Halogenated aromatic hydrocarbons with unsaturated side chains
- 25/28 . . Halogenated styrenes

**Compounds containing carbon and oxygen, with or without hydrogen or halogens** (irradiation products of cholesterol or its derivatives [C07C 401/00](#); vitamin D derivatives, 9,10-seco cyclopenta[a]phenanthrene or analogues obtained by chemical preparation without irradiation [C07C 401/00](#); derivatives of cyclohexane or of a cyclohexene {or of cyclohexadiene}, having a side-chain containing an acyclic unsaturated part of at least four carbon atoms, this part being directly attached to the cyclohexane or cyclohexene {or cyclohexadiene} rings [C07C 403/00](#); prostaglandins or derivatives thereof [C07C 405/00](#); peroxy compounds [C07C 407/00](#), [C07C 409/00](#))

**27/00 Processes involving the simultaneous production of more than one class of oxygen-containing compounds**

- 27/04 . by reduction of oxygen-containing compounds ([C07C 29/14](#) takes precedence)
- 27/06 . . by hydrogenation of oxides of carbon
- 27/08 . . . with moving catalysts
- 27/10 . by oxidation of hydrocarbons
- 27/12 . . with oxygen
- 27/14 . . . wholly gaseous reactions
- 27/16 . . with other oxidising agents
- 27/18 . by addition of alkynes to aldehydes, ketones, or alkylene oxides
- 27/20 . by oxo-reaction
- 27/22 . . with the use of catalysts which are specific for this process
- 27/24 . . with moving catalysts



- 27/26 . Purification; Separation; Stabilisation
- 27/28 . . by distillation
- 27/30 . . . by azeotropic distillation
- 27/32 . . . by extractive distillation
- 27/34 . . by extraction
- 29/00 Preparation of compounds having hydroxy or O-metal groups bound to a carbon atom not belonging to a six-membered aromatic ring**
- 29/03 . by addition of hydroxy groups to unsaturated carbon-to-carbon bonds, e.g. with the aid of H<sub>2</sub>O<sub>2</sub> (by simultaneous introduction of -OH groups and halogens C07C 29/64)
- 29/04 . . by hydration of carbon-to-carbon double bonds
- 29/05 . . . with formation of absorption products in mineral acids and their hydrolysis (characterised by the method of hydrolysis C07C 29/12)
- 29/06 . . . . the acid being sulfuric acid
- 29/08 . . . . the acid being phosphoric acid
- 29/09 . by hydrolysis
- 29/095 . . {of esters of organic acids}
- 29/10 . . of ethers, including cyclic ethers, e.g. oxiranes
- 29/103 . . . {of cyclic ethers}
- 29/106 . . . . {of oxiranes}
- 29/12 . . of esters of mineral acids
- 29/124 . . . of halides
- 29/128 . by alcoholysis
- 29/1285 . . {of esters of organic acids}
- 29/132 . by reduction of an oxygen containing functional group
- 29/136 . . of >C=O containing groups, e.g. —COOH
- 29/14 . . . of a —CHO group
- 29/141 . . . . with hydrogen or hydrogen-containing gases
- 29/143 . . . of ketones
- 29/145 . . . . with hydrogen or hydrogen-containing gases
- 29/147 . . . of carboxylic acids or derivatives thereof
- 29/149 . . . . with hydrogen or hydrogen-containing gases
- 29/15 . by reduction of oxides of carbon exclusively
- 29/151 . . with hydrogen or hydrogen-containing gases
- 29/1512 . . . {characterised by reaction conditions}
- 29/1514 . . . . {the solvents being characteristic}
- 29/1516 . . . {Multisteps}
- 29/1518 . . . . {one step being the formation of initial mixture of carbon oxides and hydrogen for synthesis}
- 29/152 . . . characterised by the reactor used
- 29/153 . . . characterised by the catalyst used
- 29/154 . . . . containing copper, silver, gold, or compounds thereof
- 29/156 . . . . containing iron group metals, platinum group metals or compounds thereof
- 29/157 . . . . . containing platinum group metals or compounds thereof
- 29/158 . . . . . containing rhodium or compounds thereof
- 29/159 . . with reducing agents other than hydrogen or hydrogen-containing gases
- 29/16 . by oxo-reaction combined with reduction
- 29/17 . by hydrogenation of carbon-to-carbon double or triple bonds
- 29/172 . . {with the obtention of a fully saturated alcohol}
- 29/175 . . {with simultaneous reduction of an oxo group}
- 29/177 . . {with simultaneous reduction of a carboxy group}
- 29/19 . . in six-membered aromatic rings
- 29/20 . . . in a non-condensed rings substituted with hydroxy groups
- 29/32 . increasing the number of carbon atoms by reactions without formation of -OH groups
- 29/34 . . by condensation involving hydroxy groups or the mineral ester groups derived therefrom, e.g. Guerbet reaction
- 29/36 . increasing the number of carbon atoms by reactions with formation of hydroxy groups, which may occur via intermediates being derivatives of hydroxy, e.g. O-metal
- 29/38 . . by reaction with aldehydes or ketones
- 29/40 . . . with compounds containing carbon-to-metal bonds
- 29/42 . . . with compounds containing triple carbon-to-carbon bonds, e.g. with metal-alkynes
- 29/44 . increasing the number of carbon atoms by addition reactions, i.e. reactions involving at least one carbon-to-carbon double or triple bond (C07C 29/16 takes precedence)
- 29/46 . . by diene-synthesis
- 29/48 . by oxidation reactions with formation of hydroxy groups
- 29/50 . . with molecular oxygen only
- 29/52 . . . in the presence of mineral boron compounds with, when necessary, hydrolysis of the intermediate formed
- 29/54 . . . starting from compounds containing carbon-to-metal bonds and followed by conversion of the -O- metal to -OH groups
- 29/56 . by isomerisation
- 29/58 . by elimination of halogen, e.g. by hydrogenolysis, splitting-off (C07C 29/124 takes precedence)
- 29/60 . by elimination of -OH groups, e.g. by dehydration (C07C 29/34 takes precedence)
- 29/62 . by introduction of halogen; by substitution of halogen atoms by other halogen atoms
- 29/64 . by simultaneous introduction of -OH groups and halogens
- 29/66 . . by addition of hypohalogenous acids, which may be formed *in situ*, to carbon-to-carbon unsaturated bonds
- 29/68 . Preparation of metal alcoholates (C07C 29/42, C07C 29/54 take precedence)
- 29/685 . . {by converting O-metal groups to other O-metal groups}
- 29/70 . . by converting hydroxy groups to O-metal groups {(C07C 29/09 takes precedence)}
- 29/705 . . . {by transalcoholysis (for the same reaction with the emphasis on alcohol preparation see C07C 29/128)}
- 29/72 . . by oxidation of carbon-to-metal bonds
- 29/74 . Separation; Purification; Use of additives, e.g. for stabilisation
- 29/76 . . by physical treatment
- 29/78 . . . by condensation or crystallisation
- 29/80 . . . by distillation
- 29/82 . . . . by azeotropic distillation
- 29/84 . . . . by extractive distillation
- 29/86 . . . by liquid-liquid treatment

29/88	. . by treatment giving rise to a chemical modification of at least one compound (chemisorption C07C 29/76)	33/03	. . . in beta-position, e.g. allyl alcohol, methallyl alcohol
29/90	. . . using hydrogen only	33/035	. . . Alkenediols
29/92	. . . by a consecutive conversion and reconstruction	33/04	. Acyclic alcohols with carbon-to-carbon triple bonds
29/94	. . Use of additives, e.g. for stabilisation	33/042	. . with only one triple bond
<b>31/00</b>	<b>Saturated compounds having hydroxy or O-metal groups bound to acyclic carbon atoms</b>	33/044	. . . Alkynediols
31/02	. Monohydroxylic acyclic alcohols	33/046	. . . . Butynediols
31/04	. . Methanol	33/048	. . with double and triple bonds
31/08	. . Ethanol	33/05	. Alcohols containing rings other than six-membered aromatic rings
31/10	. . containing three carbon atoms	33/12	. . containing five-membered rings
31/12	. . containing four carbon atoms	33/14	. . containing six-membered rings
31/125	. . containing five to twenty-two carbon atoms	33/16	. . containing rings with more than six ring members
31/13	. Monohydroxylic alcohols containing saturated rings	33/18	. Monohydroxylic alcohols containing only six-membered aromatic rings as cyclic part
31/133	. . monocyclic	33/20	. . monocyclic
31/1333	. . . {with a three-membered ring}	33/22	. . . Benzylalcohol; phenethyl alcohol
31/1336	. . . {with a four-membered ring}	33/24	. . polycyclic without condensed ring systems
31/135	. . . with a five or six-membered rings; Naphthenic alcohols	33/26	. Polyhydroxylic alcohols containing only six-membered aromatic rings as cyclic part
31/1355	. . . . {with a six-membered ring}	33/28	. Alcohols containing only six-membered aromatic rings as cyclic part with unsaturation outside the aromatic rings
31/137	. . polycyclic with condensed ring systems	33/30	. . monocyclic
31/18	. Polyhydroxylic acyclic alcohols	33/32	. . . Cinnamyl alcohol
31/20	. . Dihydroxylic alcohols	33/34	. Monohydroxylic alcohols containing six-membered aromatic rings and other rings
31/202	. . . {Ethylene glycol}	33/36	. Polyhydroxylic alcohols containing six-membered aromatic rings and other rings
31/205	. . . {1,3-Propanediol; 1,2-Propanediol}	33/38	. Alcohols containing six-membered aromatic rings and other rings and having unsaturation outside the aromatic rings
31/207	. . . {1,4-Butanediol; 1,3-Butanediol; 1,2-Butanediol; 2,3-Butanediol}	33/40	. Halogenated unsaturated alcohols
31/22	. . Trihydroxylic alcohols, e.g. glycerol	33/42	. . acyclic
31/225	. . . {Glycerol}	33/423	. . . {containing only double bonds as unsaturation}
31/24	. . Tetrahydroxylic alcohols, e.g. pentaerythritol	33/426	. . . {containing only triple bonds as unsaturation}
31/245	. . . {Pentaerythritol}	33/44	. . containing rings other than six-membered aromatic rings
31/26	. . Hexahydroxylic alcohols	33/46	. . containing only six-membered aromatic rings as cyclic parts
31/27	. Polyhydroxylic alcohols containing saturated rings	33/48	. . . with unsaturation outside the aromatic rings
31/272	. . {Monocyclic}	33/483	. . . . {Monocyclic}
31/274	. . . {with a three to five-membered ring}	33/486	. . . . {Polycyclic}
31/276	. . . {with a six-membered ring}	33/50	. . containing six-membered aromatic rings and other rings
31/278	. . {Polycyclic with condensed rings}	<b>35/00</b>	<b>Compounds having at least one hydroxy or O-metal group bound to a carbon atom of a ring other than a six-membered aromatic ring</b>
31/28	. Metal alcoholates (titanates, zirconates C07F 7/00)	35/02	. monocyclic
31/30	. . Alkali metal or alkaline earth metal alcoholates	35/04	. . containing a three or four-membered rings
31/32	. . Aluminium alcoholates	35/045	. . . {containing a four-membered ring}
31/34	. Halogenated alcohols	35/06	. . containing a five-membered rings
31/36	. . the halogen not being fluorine	35/08	. . containing a six-membered rings
31/38	. . containing only fluorine as halogen	35/12	. . . Menthol
31/40	. . perhalogenated	35/14	. . . with more than one hydroxy group bound to the ring
31/42	. . Polyhydroxylic acyclic alcohols	35/16	. . . . Inositols
31/44	. . Halogenated alcohols containing saturated rings	35/17	. . . with unsaturation only outside the ring
<b>33/00</b>	<b>Unsaturated compounds having hydroxy or O-metal groups bound to acyclic carbon atoms</b>	35/18	. . . with unsaturation at least in the ring
<b>NOTE</b>	In condensed ring systems of six-membered aromatic rings and other rings, the double bond belonging to a benzene ring is not considered as unsaturated for the non-aromatic ring condensed thereon, e.g. the 1, 2, 3, 4-tetrahydronaphthalene ring is considered to be saturated outside the aromatic ring	35/20	. . containing a seven or eight-membered rings
33/02	. Acyclic alcohols with carbon-to-carbon double bonds	35/205	. . containing a nine to twelve-membered rings, e.g. cyclododecanols
33/025	. . with only one double bond		

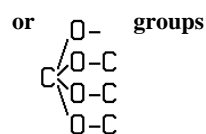
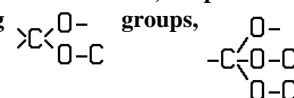
- 35/21 . polycyclic, at least one hydroxy group bound to a non-condensed ring
- 35/22 . polycyclic, at least one hydroxy group bound to a condensed ring system
- 35/23 . . with hydroxy on a condensed ring system having two rings
- 35/24 . . . the condensed ring system containing five carbon atoms
- 35/26 . . . . Bicyclopentadienols
- 35/27 . . . the condensed ring system containing six carbon atoms
- 35/28 . . . the condensed ring system containing seven carbon atoms
- 35/29 . . . . being a (2.2.1) system
- 35/30 . . . . Borneol; Isoborneol
- 35/31 . . . the condensed ring system containing eight carbon atoms
- 35/32 . . . the condensed ring system being a (4.3.0) system, e.g. indenols
- 35/34 . . . the condensed ring system being a (5.3.0.) system, e.g. azulens
- 35/36 . . . the condensed ring system being a (4.4.0) system, e.g. naphols
- 35/37 . . with a hydroxy group on a condensed system having three rings
- 35/38 . . . derived from the fluorene skeleton
- 35/40 . . . derived from the anthracene skeleton
- 35/42 . . . derived from the phenanthrene skeleton
- 35/44 . . with a hydroxy group on a condensed ring system having more than three rings
- 35/46 . O-metal derivatives of the cyclically bound hydroxy groups
- 35/48 . Halogenated derivatives
- 35/50 . . Alcohols with at least two rings
- 35/52 . . Alcohols with a condensed ring system
- 37/00 Preparation of compounds having hydroxy or O-metal groups bound to a carbon atom of a six-membered aromatic ring**
- 37/001 . {by modification in a side chain}
- 37/002 . . {by transformation of a functional group, e.g. oxo, carboxyl}
- 37/003 . . {by hydrogenation of an unsaturated part}
- 37/004 . {by obtaining phenols from plant material or from animal material}
- 37/005 . {by obtaining phenols from products, waste products or side-products of processes, not directed to the production of phenols, by conversion or working-up}
- 37/006 . . {from the petroleum industry}
- 37/007 . . {from the tar industry}
- 37/008 . . {from coke ovens}
- 37/009 . . {from waste water (treatment of waste water C02F)}
- 37/01 . by replacing functional groups bound to a six-membered aromatic ring by hydroxy groups, e.g. by hydrolysis
- 37/02 . . by substitution of halogen
- 37/04 . . by substitution of SO<sub>3</sub>H groups or a derivative thereof
- 37/045 . . by substitution of a group bound to the ring by nitrogen
- 37/05 . . . by substitution of a NH<sub>2</sub> group
- 37/055 . . the substituted group being bound to oxygen, e.g. ether group
- 37/0555 . . . {being esterified hydroxy groups}
- 37/06 . by conversion of non-aromatic six-membered rings or of such rings formed *in situ* into aromatic six-membered rings, e.g. by dehydrogenation
- 37/07 . . with simultaneous reduction of C=O group in that ring
- 37/08 . by decomposition of hydroperoxides, e.g. cumene hydroperoxide
- 37/11 . by reactions increasing the number of carbon atoms
- 37/115 . . {using acetals}
- 37/14 . . by addition reactions, i.e. reactions involving at least one carbon-to-carbon unsaturated bond
- 37/16 . . by condensation involving hydroxy groups of phenols or alcohols or the ether or mineral ester group derived therefrom
- 37/18 . . by condensation involving halogen atoms of halogenated compounds
- 37/20 . . using aldehydes or ketones
- 37/48 . by exchange of hydrocarbon groups, which may be substituted, from the same of other compounds, e.g. transalkylation
- 37/50 . by reactions decreasing the number of carbon atoms (C07C 37/04, C07C 37/045, C07C 37/055, C07C 37/08 take precedence)
- 37/52 . . by splitting polyaromatic compounds, e.g. polyphenolalkanes
- 37/54 . . . by hydrolysis of lignin or sulfite waste liquor
- 37/56 . . by replacing a carboxyl or aldehyde group by a hydroxy group
- 37/58 . by oxidation reactions introducing directly hydroxy groups on a =CH-group belonging to a six-membered aromatic ring with the aid of molecular oxygen
- 37/60 . by oxidation reactions introducing directly hydroxy groups on a =CH-group belonging to a six-membered aromatic ring with the aid of other oxidants than molecular oxygen or their mixtures with molecular oxygen
- 37/62 . by introduction of halogen; by substitution of halogen atoms by other halogen atoms
- 37/64 . Preparation of O-metal compounds with O-metal group bound to a carbon atom belonging to a six-membered aromatic ring
- 37/66 . . by conversion of hydroxy groups to O-metal groups
- 37/68 . Purification; separation; Use of additives, e.g. for stabilisation {(C07C 37/004 and C07C 37/005 take precedence)}
- 37/685 . . {Processes comprising at least two steps in series}
- 37/70 . . by physical treatment
- 37/72 . . . by liquid-liquid treatment
- 37/74 . . . by distillation
- 37/76 . . . . by steam distillation
- 37/78 . . . . by azeotropic distillation
- 37/80 . . . . by extractive distillation
- 37/82 . . . by solid-liquid treatment; by chemisorption
- 37/84 . . . by crystallisation
- 37/86 . . by treatment giving rise to a chemical modification (chemisorption C07C 37/82)
- 37/88 . . Use of additives, e.g. for stabilisation

**39/00 Compounds having at least one hydroxy or O-metal group bound to a carbon atom of a six-membered aromatic ring****NOTE**

In condensed ring systems of six-membered aromatic rings and other rings, the double bond belonging to the benzene ring is not considered as unsaturated for the non-aromatic ring condensed thereon.

- 39/02 . monocyclic with no unsaturation outside the aromatic ring
- 39/04 . . Phenol
- 39/06 . . Alkylated phenols
- 39/07 . . . containing only methyl groups, e.g. cresols, xlenols
- 39/08 . . Dihydroxy benzenes; Alkylated derivatives thereof
- 39/10 . . Polyhydroxy benzenes; Alkylated derivatives thereof (**C07C 39/08 takes precedence**)
- 39/11 . . Alkylated hydroxy benzenes containing also acyclically bound hydroxy groups, e.g. saligenol
- 39/12 . polycyclic with no unsaturation outside the aromatic rings
- 39/14 . . with at least one hydroxy group on a condensed ring system containing two rings
- 39/15 . . with all hydroxy groups on non-condensed rings {, e.g. **phenylphenol**}
- 39/16 . . . Bis-(hydroxyphenyl) alkanes; Tris-(hydroxyphenyl)alkanes
- 39/17 . . containing other rings in addition to the six-membered aromatic rings {, e.g. **cyclohexylphenol**}
- 39/18 . monocyclic with unsaturation outside the aromatic ring
- 39/19 . . containing carbon-to-carbon double bonds but no carbon-to-carbon triple bonds
- 39/20 . . . Hydroxy-styrenes
- 39/205 . polycyclic, containing only six-membered aromatic rings as cyclic parts with unsaturation outside the rings
- 39/21 . . with at least one hydroxy group on a non-condensed ring
- 39/215 . . . containing  $\text{HO}-\text{C}_6\text{H}_4-\text{C}(\text{C}_6\text{H}_4)=\text{C}(\text{C}_6\text{H}_4)-\text{OH}$ , e.g. diethylstilbestrol
- 39/225 . . with at least one hydroxy group on a condensed ring system
- 39/23 . polycyclic, containing six-membered aromatic rings and other rings, with unsaturation outside the aromatic rings
- 39/235 . Metal derivatives of a hydroxy group bound to a six-membered aromatic ring
- 39/24 . Halogenated derivatives
- 39/245 . . {monocyclic polyhydroxylic containing halogens bound to ring carbon atoms}
- 39/26 . . monocyclic monohydroxylic containing halogen bound to ring carbon atoms
- 39/27 . . . all halogen atoms being bound to ring carbon atoms
- 39/28 . . . . the halogen being one chlorine atom
- 39/30 . . . . the halogen being two chlorine atoms
- 39/32 . . . . the halogen being three chlorine atoms

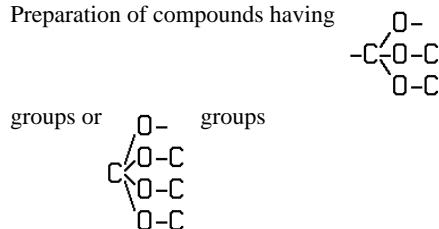
- 39/34 . . . . the halogen being four chlorine atoms
- 39/36 . . . . Pentachlorophenol
- 39/367 . . polycyclic non-condensed, containing only six-membered aromatic rings as cyclic parts, e.g. halogenated poly-hydroxyphenylalkanes
- 39/373 . . with all hydroxy groups on non-condensed rings and with unsaturation outside the aromatic rings
- 39/38 . . with at least one hydroxy group on a condensed ring system containing two rings
- 39/40 . . with at least one hydroxy group on a condensed ring system containing more than two rings
- 39/42 . . containing six-membered aromatic rings and other rings
- 39/44 . . Metal derivatives of an hydroxy group bound to a carbon atom of a six-membered aromatic ring

**41/00 Preparation of ethers; Preparation of compounds having**

- 41/01 . Preparation of ethers
- 41/02 . . from oxiranes
- 41/03 . . . by reaction of oxirane rings with hydroxy groups
- 41/05 . . by addition of compounds to unsaturated compounds
- 41/06 . . . by addition of organic compounds only
- 41/08 . . . . to carbon-to-carbon triple bonds
- 41/09 . . by dehydration of compounds containing hydroxy groups
- 41/14 . . by exchange of organic parts on the ether-oxygen for other organic parts, e.g. by trans-etherification
- 41/16 . . by reaction of esters of mineral or organic acids with hydroxy or O-metal groups
- 41/18 . . by reactions not forming ether-oxygen bonds
- 41/20 . . . by hydrogenation of carbon-to-carbon double or triple bonds
- 41/22 . . . by introduction of halogens; by substitution of halogen atoms by other halogen atoms
- 41/24 . . . by elimination of halogens, e.g. elimination of HCl
- 41/26 . . . by introduction of hydroxy or O-metal groups
- 41/28 . . . from acetals, e.g. by dealcoholysis
- 41/30 . . . by increasing the number of carbon atoms, e.g. by oligomerisation
- 41/32 . . by isomerisation
- 41/34 . . Separation; Purification; Stabilisation; Use of additives
- 41/36 . . . by solid-liquid treatment; by chemisorption
- 41/38 . . . by liquid-liquid treatment
- 41/40 . . . by change of physical state, e.g. by crystallisation
- 41/42 . . . . by distillation
- 41/44 . . . by treatments giving rise to a chemical modification (**by chemisorption C07C 41/36**)
- 41/46 . . . Use of additives, e.g. for stabilisation
- 41/48 . Preparation of compounds having  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  groups



- 41/50 . . by reactions producing  $\text{>C} \begin{smallmatrix} \text{O}- \\ \text{O}-\text{C} \end{smallmatrix}$  groups
- 41/52 . . . by substitution of halogen only
- 41/54 . . . by addition of compounds to unsaturated carbon-to-carbon bonds
- 41/56 . . . by condensation of aldehydes, paraformaldehyde, or ketones
- 41/58 . . Separation; Purification; Stabilisation; Use of additives
- 41/60 . Preparation of compounds having



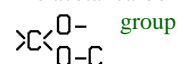
- 43/00 Ethers; Compounds having**  $\text{>C} \begin{smallmatrix} \text{O}- \\ \text{O}-\text{C} \end{smallmatrix}$  groups,  $\begin{smallmatrix} \text{O}- \\ \text{O}-\text{C} \\ \text{O}-\text{C} \end{smallmatrix}$  groups or  $\begin{smallmatrix} \text{O}- \\ \text{O}-\text{C} \\ \text{O}-\text{C} \\ \text{O}-\text{C} \end{smallmatrix}$  groups

- 43/02 . Ethers
- 43/03 . . having all ether-oxygen atoms bound to acyclic carbon atoms
- 43/04 . . . Saturated ethers
- 43/043 . . . . {Dimethyl ether}
- 43/046 . . . . {Alkyl tert-alkyl ether, e.g.  $\text{CH}_3\text{OC}(\text{CH}_3)_3$ }
- 43/06 . . . . Diethyl ether
- 43/10 . . . . of polyhydroxy compounds
- 43/11 . . . . Polyethers containing  $\text{—O—(C—C—O—)}_n$  units with  $\leq 2 \leq 10$
- 43/115 . . . . containing carbocyclic rings
- 43/12 . . . . containing halogen
- 43/123 . . . . {both carbon chains are substituted by halogen atoms}
- 43/126 . . . . {having more than one ether bond}
- 43/13 . . . . containing hydroxy or O-metal groups (C07C 43/11 takes precedence)
- 43/132 . . . . {both carbon chains being substituted by hydroxy or O-metal groups}
- 43/135 . . . . {having more than one ether bond}
- 43/137 . . . . {containing halogen}
- 43/14 . . . Unsaturated ethers
- 43/15 . . . . containing only non-aromatic carbon-to-carbon double bonds
- 43/16 . . . . Vinyl ethers
- 43/162 . . . . containing rings other than six-membered aromatic rings
- 43/164 . . . . containing six-membered aromatic rings
- 43/166 . . . . having unsaturation outside the aromatic rings
- 43/168 . . . . containing six-membered aromatic rings and other rings
- 43/17 . . . . containing halogen
- 43/172 . . . . containing rings other than six-membered aromatic rings
- 43/174 . . . . containing six-membered aromatic rings
- 43/1742 . . . . . {with halogen atoms bound to the aromatic rings}
- 43/1745 . . . . . {having more than one ether bond}

- 43/1747 . . . . . {containing six membered aromatic rings and other rings}
- 43/176 . . . . . having unsaturation outside the aromatic rings
- 43/178 . . . . containing hydroxy or O-metal groups
- 43/1781 . . . . . {containing rings other than six-membered aromatic rings}
- 43/1782 . . . . . {containing six-membered aromatic rings}
- 43/1783 . . . . . {with hydroxy or -O-metal groups bound to the aromatic rings}
- 43/1785 . . . . . {having more than one ether bound}
- 43/1786 . . . . . {containing halogen}
- 43/1787 . . . . . {containing six-membered aromatic rings and having unsaturation outside the aromatic rings}
- 43/1788 . . . . . {containing six-membered aromatic rings and other rings}
- 43/18 . . having an ether-oxygen atom bound to a carbon atom of a ring other than a six-membered aromatic ring
- 43/184 . . . to a carbon atom of a non-condensed ring
- 43/188 . . . Unsaturated ethers
- 43/192 . . . containing halogen
- 43/196 . . . containing hydroxy or O-metal groups
- 43/20 . . having an ether-oxygen atom bound to a carbon atom of a six-membered aromatic ring
- 43/202 . . . {the aromatic ring being a naphthalene}
- 43/205 . . . the aromatic ring being a non-condensed ring
- 43/2055 . . . . {containing more than one ether bond}
- 43/21 . . . containing rings other than six-membered aromatic rings
- 43/215 . . . having unsaturation outside the six-membered aromatic rings
- 43/225 . . . containing halogen
- 43/23 . . . containing hydroxy or O-metal groups
- 43/235 . . having an ether-oxygen atom bound to a carbon atom of a six-membered aromatic ring and to a carbon atom of a ring other than a six-membered aromatic ring
- 43/243 . . . having unsaturation outside the six-membered aromatic rings
- 43/247 . . . containing halogen
- 43/253 . . . containing hydroxy or O-metal groups
- 43/257 . . having an ether-oxygen atom bound to carbon atoms both belonging to six-membered aromatic rings
- 43/263 . . . the aromatic rings being non-condensed
- 43/267 . . . containing other rings
- 43/275 . . . having all ether-oxygen atoms bound to carbon atoms of six-membered aromatic rings
- 43/285 . . . having unsaturation outside the six-membered aromatic rings
- 43/29 . . . containing halogen
- 43/295 . . . containing hydroxy or O-metal groups
- 43/30 . Compounds having  $\text{>C} \begin{smallmatrix} \text{O}- \\ \text{O}-\text{C} \end{smallmatrix}$  groups

**NOTE**






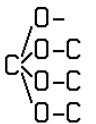


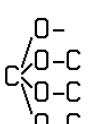


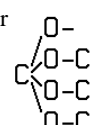


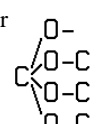
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

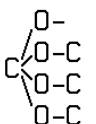


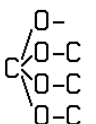


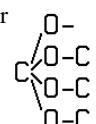




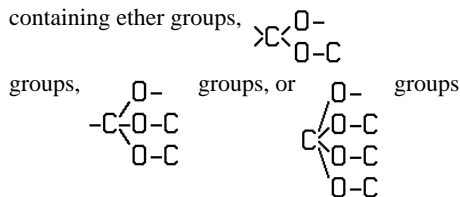
- 43/303 . . having acetal carbon atoms bound to acyclic carbon atoms
- 43/305 . . having acetal carbon atoms as rings members or bound to carbon atoms of rings other than six-membered aromatic rings
- 43/307 . . having acetal carbon atoms bound to carbon atoms of six-membered aromatic rings
- 43/313 . . containing halogen
- 43/315 . . containing oxygen atoms singly bound to carbon atoms not being acetal carbon atoms
- 43/317 . . having  $\begin{array}{c} \diagup \text{O} \diagdown \\ \text{C} \diagup \text{O-X} \diagdown \\ \diagdown \text{O} \diagup \end{array}$  groups, X being hydrogen or metal
- 43/32 . Compounds having  $\begin{array}{c} \text{O-} \\ | \\ \text{C} \diagup \text{O-C} \diagdown \\ | \\ \text{O-C} \end{array}$  groups or  $\begin{array}{c} \text{O-} \\ | \\ \text{C} \diagup \text{O-C} \diagdown \\ | \\ \text{O-C} \end{array}$  groups
- 45/00 Preparation of compounds having >C = O groups bound only to carbon or hydrogen atoms; Preparation of chelates of such compounds**
- 45/002 . {by dehydrogenation}
- 45/004 . {by reaction with organometalhalides}
- 45/006 . {by hydrogenation of aromatic hydroxy compounds}
- 45/008 . {by reaction with tri- or tetrahalomethyl compounds}
- 45/26 . by hydration of carbon-to-carbon triple bonds
- 45/27 . by oxidation (with ozone [C07C 45/40](#))
- 45/28 . . of CH<sub>x</sub>-moieties
- 45/29 . . of hydroxy groups
- 45/292 . . . {with chromium derivatives}
- 45/294 . . . {with hydrogen peroxide}
- 45/296 . . . {with lead derivatives}
- 45/298 . . . {with manganese derivatives}
- 45/30 . . with halogen containing compounds, e.g. hypohalogenation
- 45/305 . . . {with halogenochromate reagents, e.g. pyridinium chlorochromate}
- 45/31 . . with compounds containing mercury atoms, which may be regenerated in situ, e.g. by oxygen
- 45/32 . . with molecular oxygen
- 45/33 . . . of CH<sub>x</sub>-moieties
- 45/34 . . . . in unsaturated compounds
- 45/35 . . . . . in propene or isobutene
- 45/36 . . . . . in compounds containing six-membered aromatic rings
- 45/37 . . . of >C—O—functional groups to >C=O groups
- 45/38 . . . . being a primary hydroxyl group
- 45/39 . . . . being a secondary hydroxyl group
- 45/40 . by oxidation with ozone; by ozonolysis
- 45/41 . by hydrogenolysis or reduction of carboxylic groups or functional derivatives thereof
- 45/42 . by hydrolysis
- 45/43 . . of >CX<sub>2</sub> groups, X being halogen
- 45/44 . by reduction and hydrolysis of nitriles
- 45/45 . by condensation
- 45/455 . . {with carboxylic acids or their derivatives}
- 45/46 . . Friedel-Crafts reactions
- 45/47 . . using phosgene
- 45/48 . . involving decarboxylation
- 45/49 . . by reaction with carbon monoxide
- 45/50 . . by oxo-reactions
- 45/505 . . . {Asymmetric hydroformylation}
- 45/51 . by pyrolysis, rearrangement or decomposition
- 45/511 . . {involving transformation of singly bound oxygen functional groups to >C = O groups (involving two hydroxy groups [C07C 45/52](#); hydroperoxides [C07C 45/53](#))}
- 45/512 . . . {the singly bound functional group being a free hydroxyl group}
- 45/513 . . . {the singly bound functional group being an etherified hydroxyl group}
- 45/515 . . . {the singly bound functional group being an acetalised, ketalised hemi-acetalised, or hemi-ketalised hydroxyl group ([cyclic acetals or ketals C07C 45/59](#), [C07C 45/60](#))}
- 45/516 . . {involving transformation of nitrogen-containing compounds to >C = O groups}
- 45/517 . . {involving transformation of peroxy-compounds to >C = O groups}
- 45/518 . . {involving transformation of sulfur-containing compounds to >C = O groups}
- 45/52 . . by dehydration and rearrangement involving two hydroxy groups in the same molecule
- 45/53 . . of hydroperoxides
- 45/54 . . of compounds containing doubly bound oxygen atoms, e.g. esters
- 45/55 . . of oligo- or polymeric oxo-compounds
- 45/56 . from heterocyclic compounds ([C07C 45/55 takes precedence](#))
- 45/562 . . {with nitrogen as the only hetero atom}
- 45/565 . . . {by reaction with hexamethylene-tetramine}
- 45/567 . . {with sulfur as the only hetero atom}
- 45/57 . . with oxygen as the only heteroatom
- 45/58 . . . in three-membered rings
- 45/59 . . . in five-membered rings ([from ozonides C07C 45/40](#))
- 45/60 . . . in six-membered rings
- 45/61 . by reactions not involving the formation of >C = O groups
- 45/62 . . by hydrogenation of carbon-to-carbon double or triple bonds
- 45/63 . . by introduction of halogen; by substitution of halogen atoms by other halogen atoms
- 45/64 . . by introduction of functional groups containing oxygen only in singly bound form
- 45/65 . . by splitting-off hydrogen atoms or functional groups; by hydrogenolysis of functional groups
- 45/66 . . . by dehydration
- 45/67 . . by isomerisation; by change of size of the carbon skeleton
- 45/673 . . . {by change of size of the carbon skeleton}
- 45/676 . . . . {by elimination of carboxyl groups}
- 45/68 . . . by increase in the number of carbon atoms
- 45/69 . . . . by addition to carbon-to-carbon double or triple bonds
- 45/70 . . . . by reaction with functional groups containing oxygen only in singly bound form
- 45/71 . . . . . being hydroxy groups
- 45/72 . . . . by reaction of compounds containing >C = O groups with the same or other compounds containing >C = O groups
- 45/73 . . . . . combined with hydrogenation

- 45/74 . . . . . combined with dehydration
- 45/75 . . . . . Reactions with formaldehyde
- 45/76 . . . with the aid of ketenes
- 45/77 . Preparation of chelates of aldehydes or ketones
- 45/78 . Separation; Purification; Stabilisation; Use of additives
- 45/783 . . {by gas-liquid treatment, e.g. by gas-liquid absorption}
- 45/786 . . {by membrane separation process, e.g. pervaporation, perstraction, reverse osmosis}
- 45/79 . . by solid-liquid treatment; by chemisorption
- 45/80 . . by liquid-liquid treatment
- 45/81 . . by change in the physical state, e.g. crystallisation
- 45/82 . . . by distillation
- 45/83 . . . . by extractive distillation
- 45/84 . . . . by azeotropic distillation
- 45/85 . . by treatment giving rise to a chemical modification (by chemisorption C07C 45/79)
- 45/86 . . Use of additives, e.g. for stabilisation
- 45/87 . Preparation of ketenes or dimeric ketenes (heterocyclic compounds C07D)
- 45/88 . . from ketones
- 45/89 . . from carboxylic acids, their anhydrides, esters or halides
- 45/90 . . Separation; Purification; Stabilisation; Use of additives
- 46/00 Preparation of quinones**
- 46/02 . by oxidation giving rise to quinoid structures
- 46/04 . . of unsubstituted ring carbon atoms in six-membered aromatic rings
- 46/06 . . of at least one hydroxy group on a six-membered aromatic ring
- 46/08 . . . with molecular oxygen
- 46/10 . Separation; Purification; Stabilisation; Use of additives
- 47/00 Compounds having —CHO groups**
- 47/02 . Saturated compounds having —CHO groups bound to acyclic carbon atoms or to hydrogen
- 47/04 . . Formaldehyde
- 47/06 . . Acetaldehyde
- 47/105 . . containing rings
- 47/11 . . . monocyclic
- 47/115 . . . containing condensed ring systems
- 47/12 . . containing more than one —CHO group
- 47/127 . . . Glyoxal
- 47/133 . . . containing rings
- 47/14 . . containing halogen
- 47/16 . . . Trichloroacetaldehyde
- 47/17 . . . containing rings
- 47/19 . . containing hydroxy groups (sugars C07H)
- 47/192 . . . containing rings
- 47/195 . . . containing halogen
- 47/198 . . containing ether groups,  $\begin{array}{c} \text{O} \\ | \\ \text{>C} \text{---} \text{O} \text{---} \text{C} \end{array}$
- groups,  $\begin{array}{c} \text{O} \\ | \\ \text{---C} \text{---} \text{O} \text{---} \text{C} \\ | \\ \text{O} \text{---} \text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O} \\ | \\ \text{C} \text{---} \text{O} \text{---} \text{C} \\ | \\ \text{O} \text{---} \text{C} \end{array}$  groups
- 47/20 . Unsaturated compounds having —CHO groups bound to acyclic carbon atoms
- 47/21 . . with only carbon-to-carbon double bonds as unsaturation
- 47/22 . . . Acrylaldehyde; Methacrylaldehyde
- 47/222 . . with only carbon-to-carbon triple bonds as unsaturation
- 47/225 . . containing rings other than six-membered aromatic rings
- 47/228 . . containing six-membered aromatic rings, e.g. phenylacetaldehyde
- 47/23 . . . polycyclic
- 47/232 . . . having unsaturation outside the aromatic rings
- 47/235 . . containing six-membered aromatic rings and other rings
- 47/238 . . . having unsaturation outside the aromatic rings
- 47/24 . . containing halogen
- 47/26 . . containing hydroxy groups
- 47/263 . . . acyclic
- 47/267 . . . containing rings other than six-membered aromatic rings
- 47/27 . . . containing six-membered aromatic rings
- 47/273 . . . containing halogen
- 47/277 . . containing ether groups,  $\begin{array}{c} \text{O} \\ | \\ \text{>C} \text{---} \text{O} \text{---} \text{C} \end{array}$
- groups,  $\begin{array}{c} \text{O} \\ | \\ \text{---C} \text{---} \text{O} \text{---} \text{C} \\ | \\ \text{O} \text{---} \text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O} \\ | \\ \text{C} \text{---} \text{O} \text{---} \text{C} \\ | \\ \text{O} \text{---} \text{C} \end{array}$  groups
- 47/28 . Saturated compounds having —CHO groups bound to carbon atoms of rings other than six—membered aromatic rings
- 47/293 . . with three- or four-membered ring
- 47/30 . . with a five-membered ring
- 47/32 . . with a six-membered ring
- 47/33 . . with a seven- to twelve-membered ring
- 47/34 . . polycyclic
- 47/347 . . . having a —CHO group on a condensed ring system
- 47/353 . . containing halogen
- 47/36 . . containing hydroxy groups
- 47/37 . . containing ether groups,  $\begin{array}{c} \text{O} \\ | \\ \text{>C} \text{---} \text{O} \text{---} \text{C} \end{array}$
- groups,  $\begin{array}{c} \text{O} \\ | \\ \text{---C} \text{---} \text{O} \text{---} \text{C} \\ | \\ \text{O} \text{---} \text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O} \\ | \\ \text{C} \text{---} \text{O} \text{---} \text{C} \\ | \\ \text{O} \text{---} \text{C} \end{array}$  groups
- 47/38 . Unsaturated compounds having —CHO groups bound to carbon atoms of rings other than six—membered aromatic rings
- 47/395 . . with a three- or four-membered ring
- 47/40 . . with a five-membered ring
- 47/42 . . with a six-membered ring
- 47/43 . . with a seven- to twelve-membered ring
- 47/44 . . polycyclic
- 47/445 . . . containing a condensed ring system
- 47/45 . . having unsaturation outside the rings
- 47/453 . . containing six-membered aromatic rings
- 47/457 . . containing halogen
- 47/46 . . containing hydroxy groups

- 47/47 . . containing ether groups,  groups,  groups, or  groups
- 47/52 . Compounds having —CHO groups bound to carbon atoms of six-membered aromatic rings
- 47/54 . . Benzaldehyde
- 47/542 . . Alkylated benzaldehydes
- 47/544 . . Diformyl benzenes; Alkylated derivatives thereof
- 47/546 . . polycyclic
- 47/548 . . having unsaturation outside the six-membered aromatic rings
- 47/55 . . containing halogen
- 47/56 . . containing hydroxy groups
- 47/565 . . . all hydroxy groups bound to the ring
- 47/57 . . . polycyclic
- 47/575 . . containing ether groups,  groups,  groups, or  groups
- 47/58 . . . Vanillin
- 49/00 Ketones; Ketenes; Dimeric ketenes (heterocyclic compounds C07D, e.g. beta-lactones C07D 305/12); Ketonic chelates**
- 49/04 . Saturated compounds containing keto groups bound to acyclic carbon atoms
- 49/08 . . Acetone
- 49/10 . . Methyl-ethyl ketone
- 49/105 . . containing rings
- 49/11 . . . monocyclic
- 49/115 . . . containing condensed ring systems
- 49/12 . . Ketones containing more than one keto group
- 49/14 . . . Acetylacetone, i.e. 2,4-pentanedione
- 49/15 . . . containing rings
- 49/16 . . containing halogen
- 49/163 . . . containing rings
- 49/167 . . . containing only fluorine as halogen
- 49/17 . . containing hydroxy groups (sugars C07H)
- 49/172 . . . containing rings
- 49/173 . . . containing halogen
- 49/175 . . containing ether groups,  groups,  groups, or  groups
- 49/185 . . containing —CHO groups
- 49/20 . Unsaturated compounds containing keto groups bound to acyclic carbon atoms
- 49/203 . . with only carbon-to-carbon double bonds as unsaturation
- 49/205 . . . Methyl-vinyl ketone
- 49/207 . . with only carbon-to-carbon triple bonds as unsaturation
- 49/21 . . containing rings other than six-membered aromatic rings
- 49/213 . . containing six-membered aromatic rings
- 49/215 . . . polycyclic
- 49/217 . . . having unsaturation outside the aromatic rings
- 49/223 . . . . polycyclic
- 49/225 . . containing six-membered aromatic rings and other rings
- 49/227 . . containing halogen
- 49/23 . . . containing rings other than six-membered aromatic rings
- 49/233 . . . containing six-membered aromatic rings
- 49/235 . . . . having unsaturation outside the aromatic rings
- 49/237 . . . containing six-membered aromatic rings and other rings
- 49/24 . . containing hydroxy groups
- 49/242 . . . containing rings other than six-membered aromatic rings
- 49/245 . . . containing six-membered aromatic rings
- 49/248 . . . . having unsaturation outside the aromatic rings
- 49/252 . . . containing six-membered aromatic rings and other rings
- 49/255 . . containing ether groups,  groups,  groups, or  groups
- 49/258 . . containing —CHO groups
- 49/29 . Saturated compounds containing keto groups bound to rings
- 49/293 . . to a three- or four-membered ring
- 49/297 . . to a five-membered ring
- 49/303 . . to a six-membered ring
- 49/307 . . to a seven- to twelve-membered ring
- 49/313 . . polycyclic
- 49/317 . . . both carbon atoms bound to the keto group belonging to rings
- 49/323 . . . having keto groups bound to condensed ring systems
- 49/327 . . containing halogen
- 49/333 . . . polycyclic
- 49/337 . . containing hydroxy groups
- 49/345 . . . polycyclic
- 49/35 . . containing ether groups,  groups,  groups, or  groups
- 49/355 . . containing —CHO groups
- 49/385 . Saturated compounds containing a keto group being part of a ring
- 49/39 . . of a three- or four-membered ring
- 49/395 . . of a five-membered ring
- 49/403 . . of a six-membered ring
- 49/407 . . . Menthones
- 49/413 . . of a seven- to twelve-membered ring
- 49/417 . . polycyclic
- 49/423 . . . a keto group being part of a condensed ring system

- 49/427 . . . . having two rings
- 49/433 . . . . the condensed ring system containing seven carbon atoms
- 49/437 . . . . . Camphor; Fenchone
- 49/443 . . . . the condensed ring system containing eight or nine carbon atoms
- 49/447 . . . . the condensed ring system containing ten carbon atoms
- 49/453 . . . . having three rings
- 49/457 . . containing halogen
- 49/463 . . . a keto group being part of a six-membered ring
- 49/467 . . . polycyclic
- 49/473 . . . . a keto group being part of a condensed ring system
- 49/477 . . . . . having two rings
- 49/483 . . . . . having three rings
- 49/487 . . containing hydroxy groups
- 49/493 . . . a keto group being part of a three- to five-membered ring
- 49/497 . . . a keto group being part of a six-membered ring
- 49/503 . . . a keto group being part of a seven- to twelve-membered ring
- 49/507 . . . polycyclic
- 49/513 . . . . a keto group being part of a condensed ring system
- 49/517 . . containing ether groups,  groups,  groups, or  groups
- 49/523 . . containing —CHO groups
- 49/527 . Unsaturated compounds containing keto groups bound to rings other than six-membered aromatic rings
- 49/533 . . to a three- or four-membered ring
- 49/537 . . to a five-membered ring
- 49/543 . . to a six-membered ring
- 49/547 . . to a seven- to twelve-membered ring
- 49/553 . . polycyclic
- 49/557 . . having unsaturation outside the rings
- 49/563 . . containing six-membered aromatic rings
- 49/567 . . containing halogen
- 49/573 . . containing hydroxy groups
- 49/577 . . containing ether groups,  groups,  groups, or  groups
- 49/583 . . containing —CHO groups
- 49/587 . Unsaturated compounds containing a keto groups being part of a ring
- 49/593 . . of a three- or four-membered ring
- 49/597 . . of a five-membered ring
- 49/603 . . of a six-membered ring
- 49/607 . . of a seven- to twelve-membered ring
- 49/613 . . polycyclic
- 49/617 . . . a keto group being part of a condensed ring system
- 49/623 . . . . having two rings
- 49/627 . . . . . the condensed ring system containing seven carbon atoms
- 49/633 . . . . . the condensed ring system containing eight or nine carbon atoms
- 49/637 . . . . . the condensed ring system containing ten carbon atoms
- 49/643 . . . . having three rings
- 49/647 . . having unsaturation outside the ring
- 49/653 . . . polycyclic
- 49/657 . . containing six-membered aromatic rings
- 49/665 . . . a keto group being part of a condensed ring system
- 49/67 . . . . having two rings, e.g. tetralones
- 49/675 . . . . having three rings
- 49/683 . . . having unsaturation outside the aromatic rings
- 49/687 . . containing halogen
- 49/693 . . . polycyclic
- 49/697 . . . containing six-membered aromatic rings
- 49/703 . . containing hydroxy groups
- 49/707 . . . a keto group being part of a three- to five-membered ring
- 49/713 . . . a keto group being part of a six-membered ring
- 49/717 . . . a keto group being part of a seven- to twelve-membered ring
- 49/723 . . . polycyclic
- 49/727 . . . . a keto group being part of a condensed ring system
- 49/733 . . . . . having two rings
- 49/737 . . . . . having three rings
- 49/743 . . . having unsaturation outside the rings, e.g. humulones, lupulones
- 49/747 . . . containing six-membered aromatic rings
- 49/753 . . containing ether groups,  groups,  groups, or  groups
- 49/755 . . . a keto group being part of a condensed ring system with two or three rings, at least one ring being a six-membered aromatic ring
- 49/757 . . containing —CHO groups
- 49/76 . Ketones containing a keto group bound to a six-membered aromatic ring ([compounds having a keto group being part of a condensed ring system and being bound to a six-membered aromatic ring C07C 49/657 - C07C 49/757](#))
- 49/78 . . Acetophenone
- 49/782 . . polycyclic
- 49/784 . . . with all keto groups bound to a non-condensed ring
- 49/786 . . . . Benzophenone
- 49/788 . . . with keto groups bound to a condensed ring system
- 49/792 . . . containing rings other than six-membered aromatic rings
- 49/794 . . having unsaturation outside an aromatic ring
- 49/796 . . . polycyclic
- 49/798 . . . containing rings other than six-membered aromatic rings
- 49/80 . . containing halogen
- 49/807 . . . all halogen atoms bound to the ring

- 49/813 . . . polycyclic  
 49/82 . . containing hydroxy groups  
 49/825 . . . all hydroxy groups bound to the ring  
 49/83 . . . polycyclic  
 49/835 . . . having unsaturation outside an aromatic ring  
 49/84 . . containing ether groups,



- 49/86 . . containing —CHO groups  
 49/88 . Ketenes; Dimeric ketenes  
 49/90 . . Ketene, i.e.  $\text{C}_2\text{H}_2\text{O}$   
 49/92 . Ketonic chelates

**50/00** **Quinones** (for quinone methides, see unsaturated ketones with a keto group being part of a ring)

**NOTE**

In this group, quinhydrone are classified according to their quinoid part.

- 50/02 . with monocyclic quinoid structure  
 50/04 . . Benzoquinones, i.e.  $\text{C}_6\text{H}_4\text{O}_2$   
 50/06 . . with unsaturation outside the quinoid structure  
 50/08 . with polycyclic non-condensed quinoid structure  
 50/10 . the quinoid structure being part of a condensed ring system containing two rings  
 50/12 . . Naphthoquinones, i.e.  $\text{C}_{10}\text{H}_6\text{O}_2$   
 50/14 . . with unsaturation outside the ring system, e.g. vitamin  $\text{K}_1$   
 50/16 . the quinoid structure being part of a condensed ring system containing three rings  
 50/18 . . Anthraquinones, i.e.  $\text{C}_{14}\text{H}_8\text{O}_2$   
 50/20 . . with unsaturation outside the ring system  
 50/22 . the quinoid structure being part of a condensed ring system containing four or more rings  
 50/24 . containing halogen  
 50/26 . containing groups having oxygen atoms singly bound to carbon atoms  
 50/28 . . with monocyclic quinoid structure  
 50/30 . . with polycyclic non-condensed quinoid structure  
 50/32 . . the quinoid structure being part of a condensed ring system having two rings  
 50/34 . . the quinoid structure being part of a condensed ring system having three rings  
 50/36 . . the quinoid structure being part of a condensed ring system having four or more rings  
 50/38 . containing —CHO or non—quinoid keto groups

**51/00** **Preparation of carboxylic acids or their salts, halides or anhydrides** (of acids by hydrolysis of oils, fats or waxes C11C)

- 51/02 . from salts of carboxylic acids  
 51/04 . from carboxylic acid halides  
 51/06 . from carboxylic acid amides  
 51/08 . from nitriles  
 51/083 . from carboxylic acid anhydrides  
 51/087 . . by hydrolysis  
 51/09 . from carboxylic acid esters or lactones  
 51/093 . by hydrolysis of —CX<sub>3</sub> groups, X being halogen  
 51/097 . from or via nitro-substituted organic compounds

- 51/10 . by reaction with carbon monoxide  
 51/12 . . on an oxygen-containing group in organic compounds, e.g. alcohols  
 51/14 . . on a carbon-to-carbon unsaturated bond in organic compounds  
 51/145 . . with simultaneous oxidation  
 51/15 . by reaction of organic compounds with carbon dioxide, e.g. Kolbe-Schmitt synthesis  
 51/16 . by oxidation (C07C 51/145 takes precedence)  
 51/21 . . with molecular oxygen  
 51/215 . . . of saturated hydrocarbyl groups  
 51/225 . . . . of paraffin waxes  
 51/23 . . . of oxygen-containing groups to carboxyl groups  
 51/235 . . . . of —CHO groups or primary alcohol groups  
 51/245 . . . . of keto groups or secondary alcohol groups  
 51/25 . . . of unsaturated compounds containing no six-membered aromatic ring  
 51/252 . . . . {of propene, butenes, acrolein or methacrolein}  
 51/255 . . . of compounds containing six-membered aromatic rings without ring-splitting  
 51/265 . . . . having alkyl side chains which are oxidised to carboxyl groups













**NOTE**

Reactions of the Katzschnmann type, i.e. oxidation of a dialkyl-aromatic compound with intermediate esterification of the mono-acid, see relevant ester groups, even when the end product is a carboxylic acid

- 51/27 . . with oxides of nitrogen or nitrogen-containing mineral acids  
 51/275 . . . of hydrocarbyl groups  
 51/285 . . with peroxy-compounds  
 51/29 . . with halogen-containing compounds which may be formed *in situ*  
 51/295 . . with inorganic bases, e.g. by alkali fusion  
 51/305 . . with sulfur or sulfur-containing compounds  
 51/31 . . of cyclic compounds with ring-splitting  
 51/313 . . . {with molecular oxygen}  
 51/316 . . . {with oxides of nitrogen or nitrogen-containing mineral acids}  
 51/34 . by oxidation with ozone; by hydrolysis of ozonides  
 51/347 . by reactions not involving formation of carboxyl groups  
 51/353 . . by isomerisation; by change of size of the carbon skeleton  
 51/36 . . by hydrogenation of carbon-to-carbon unsaturated bonds  
 51/363 . . by introduction of halogen; by substitution of halogen atoms by other halogen atoms  
 51/367 . . by introduction of functional groups containing oxygen only in singly bound form  
 51/373 . . by introduction of functional groups containing oxygen only in doubly bound form  
 51/377 . . by splitting-off hydrogen or functional groups; by hydrogenolysis of functional groups  
 { (C07C 51/36 - C07C 51/373 take precedence) }  
 51/38 . . . by decarboxylation



51/41	. Preparation of salts of carboxylic acids ( <a href="#">C07C 51/093</a> - <a href="#">C07C 51/34</a> take precedence) preparation of soap <a href="#">C11D</a> )	53/16	. . Halogenated acetic acids
51/412	. . {by conversion of the acids, their salts, esters or anhydrides with the same carboxylic acid part}	53/18	. . . containing fluorine
51/414	. . {Preparation of superbasic salts}	53/19	. . Acids containing three or more carbon atoms
51/416	. . {Henkel reaction and related reactions, i.e. rearrangement of carboxylate salt groups linked to six-membered aromatic rings, in the absence or in the presence of CO or CO <sub>2</sub> , (e.g. preparation of terepholates from benzoates); no additional classification for the subsequent hydrolysis of the salt groups has to be given}	53/21	. . . containing fluorine
51/418	. . {Preparation of metal complexes containing carboxylic acid moieties}	53/23	. . containing rings
51/42	. Separation; Purification; Stabilisation; Use of additives	53/38	. Acyl halides
51/43	. . by change of the physical state, e.g. crystallisation	53/40	. . Acetyl halides
51/44	. . . by distillation	53/42	. . of acids containing three or more carbon atoms
51/445	. . . . {by steam distillation}	53/44	. . containing rings
51/46	. . . . by azeotropic distillation	53/46	. . containing halogen outside the carbonyl halide group
51/47	. . by solid-liquid treatment; by chemisorption	53/48	. . . Halogenated acetyl halides
51/48	. . by liquid-liquid treatment	53/50	. . . of acids containing three or more carbon atoms
51/487	. . by treatment giving rise to chemical modification (by chemisorption <a href="#">C07C 51/47</a> )	<b>55/00</b>	<b>Saturated compounds having more than one carboxyl group bound to acyclic carbon atoms</b>
51/493	. . . whereby carboxylic acid esters are formed	55/02	. Dicarboxylic acids
51/50	. . Use of additives, e.g. for stabilisation	55/06	. . Oxalic acid
51/54	. Preparation of carboxylic acid anhydrides (by oxidation <a href="#">C07C 51/16</a> )	55/07	. . . Salts thereof
51/56	. . from organic acids, their salts, their esters {or their halides, e.g. by carboxylation}	55/08	. . Malonic acid
51/567	. . by reactions not involving carboxylic acid anhydride groups	55/10	. . Succinic acid
51/573	. . Separation; Purification; Stabilisation; Use of additives	55/12	. . Glutaric acid
51/58	. Preparation of carboxylic acid halides	55/14	. . Adipic acid
51/60	. . by conversion of carboxylic acids or their anhydrides {or esters, lactones, salts} into halides with the same carboxylic acid part	55/16	. . Pimelic acid
51/62	. . by reactions not involving the carboxylic acid halide group	55/18	. . Azelaic acid
51/64	. . Separation; Purification; Stabilisation; Use of additives	55/20	. . Sebacic acid
<b>53/00</b>	<b>Saturated compounds having only one carboxyl group bound to an acyclic carbon atom or hydrogen</b>	55/21	. . Dicarboxylic acids containing twelve carbon atoms
53/02	. Formic acid	55/22	. Tricarboxylic acids
53/06	. . Salts thereof	55/24	. . containing more than three carboxyl groups
53/08	. Acetic acid (pyroligneous acid <a href="#">C10C</a> ; preparation of vinegar <a href="#">C12J</a> )	55/26	. . containing rings {other than aromatic rings}
53/10	. . Salts thereof	55/28	. . monocyclic
53/12	. Acetic anhydride (ketene <a href="#">C07C 49/90</a> )	55/30	. . containing condensed ring systems
53/122	. Propionic acid	55/32	. . containing halogen
53/124	. Acids containing four carbon atoms	55/34	. . containing rings
53/126	. Acids containing more than four carbon atoms	55/36	. Acyl halides
53/128	. . the carboxylic group being bound to a carbon atom bound to at least two other carbon atoms, e.g. neo-acids	55/38	. . containing rings
53/132	. containing rings	55/40	. . containing halogen outside the carboxyl halide group
53/134	. . monocyclic	<b>57/00</b>	<b>Unsaturated compounds having carboxyl groups bound to acyclic carbon atoms</b>
53/136	. . containing condensed ring systems	57/02	. with only carbon-to-carbon double bonds as unsaturation
53/138	. . . containing an adamantane ring system	57/03	. . Monocarboxylic acids
53/15	. containing halogen	57/04	. . . Acrylic acid; Methacrylic acid
		57/08	. . . Crotonic acid
		57/10	. . . Sorbic acid
		57/12	. . . Straight chain carboxylic acids containing eighteen carbon atoms
		57/13	. . Dicarboxylic acids
		57/145	. . . Maleic acid
		57/15	. . . Fumaric acid
		57/155	. . . Citraconic acid
		57/16	. . . Muconic acid
		57/18	. with only carbon-to-carbon triple bonds as unsaturation
		57/20	. . Propiolic acid
		57/22	. . Acetylene dicarboxylic acid
		57/24	. . Diacetylene or polyacetylene dicarboxylic acids
		57/26	. containing rings other than six-membered aromatic rings
		57/28	. . containing an adamantane ring system

- 57/30 . containing six-membered aromatic rings
- 57/32 . . Phenylacetic acid
- 57/34 . . containing more than one carboxyl group
- 57/36 . . . Phenylmalonic acid
- 57/38 . . polycyclic
- 57/40 . . . containing condensed ring systems
- 57/42 . . having unsaturation outside the rings
- 57/44 . . . Cinnamic acid
- 57/46 . containing six-membered aromatic rings and other rings, e.g. cyclohexylphenylacetic acid
- 57/48 . . having unsaturation outside the aromatic rings
- 57/50 . . containing condensed ring systems
- 57/52 . containing halogen
- 57/54 . . Halogenated acrylic or methacrylic acids
- 57/56 . . containing rings other than six-membered aromatic rings
- 57/58 . . containing six-membered aromatic rings
- 57/60 . . . having unsaturation outside the rings
- 57/62 . . containing six-membered aromatic rings and other rings
- 57/64 . Acyl halides
- 57/66 . . with only carbon-to-carbon double bonds as unsaturation
- 57/68 . . with only carbon-to-carbon triple bonds as unsaturation
- 57/70 . . containing rings other than six-membered aromatic rings
- 57/72 . . containing six-membered aromatic rings
- 57/74 . . containing six-membered aromatic rings and other rings
- 57/76 . . containing halogen outside the carbonyl halide groups
- 59/00 Compounds having carboxyl groups bound to acyclic carbon atoms and containing any of the groups OH, O—metal, —CHO, keto, ether,**
- groups,**  **groups, or**  **groups,**  **groups**
- 59/01 . Saturated compounds having only one carboxyl group and containing hydroxy or O-metal groups
- 59/06 . . Glycolic acid
- 59/08 . . Lactic acid
- 59/10 . . Polyhydroxy carboxylic acids
- 59/105 . . . having five or more carbon atoms, e.g. aldonic acids
- 59/11 . . containing rings
- 59/115 . . containing halogen
- 59/125 . Saturated compounds having only one carboxyl group and containing ether groups, 
- groups,**  **groups, or**  **groups**
- 59/13 . . containing rings
- 59/135 . . containing halogen
- 59/147 . Saturated compounds having only one carboxyl group and containing —CHO groups
- 59/153 . . Glyoxylic acid
- 59/185 . Saturated compounds having only one carboxyl group and containing keto groups
- 59/19 . . Pyruvic acid
- 59/195 . . Acetoacetic acid
- 59/205 . . containing rings
- 59/21 . . containing halogen
- 59/215 . . containing singly bound oxygen containing groups
- 59/225 . . containing —CHO groups
- 59/235 . Saturated compounds containing more than one carboxyl group
- 59/245 . . containing hydroxy or O-metal groups
- 59/255 . . . Tartaric acid
- 59/265 . . . Citric acid
- 59/285 . . . Polyhydroxy dicarboxylic acids having five or more carbon atoms, e.g. saccharic acids
- 59/29 . . . containing rings
- 59/295 . . . containing halogen
- 59/305 . . containing ether groups, 
- groups,**  **groups, or**  **groups**
- 59/31 . . . containing rings
- 59/315 . . . containing halogen
- 59/325 . . containing —CHO groups
- 59/347 . . containing keto groups
- 59/353 . . . containing rings
- 59/40 . Unsaturated compounds
- 59/42 . . containing hydroxy or O-metal groups
- 59/44 . . . Ricinoleic acid
- 59/46 . . . containing rings other than six-membered aromatic rings
- 59/48 . . . containing six-membered aromatic rings
- 59/50 . . . . Mandelic acid
- 59/52 . . . a hydroxy or O-metal group being bound to a carbon atom of a six-membered aromatic ring
- 59/54 . . . containing six-membered aromatic rings and other rings
- 59/56 . . . containing halogen
- 59/58 . . containing ether groups, 
- groups,**  **groups, or**  **groups**
- 59/60 . . . the non-carboxylic part of the ether being unsaturated
- 59/62 . . . containing rings other than six-membered aromatic rings
- 59/64 . . . containing six-membered aromatic rings
- 59/66 . . . . the non-carboxylic part of the ether containing six-membered aromatic rings
- 59/68 . . . . the oxygen atom of the ether group being bound to a non-condensed six-membered aromatic ring
- 59/70 . . . . Ethers of hydroxy-acetic acid {, e.g. **substitutes on the ring**}
- 59/72 . . . containing six-membered aromatic rings and other rings
- 59/74 . . containing —CHO groups

- 59/76 . . containing keto groups
- 59/80 . . . containing rings other than six-membered aromatic rings
- 59/82 . . . . the keto group being part of a ring
- 59/84 . . . containing six membered aromatic rings
- 59/86 . . . containing six-membered aromatic rings and other rings
- 59/88 . . . containing halogen
- 59/90 . . . containing singly bound oxygen-containing groups
- 59/92 . . . containing —CHO groups

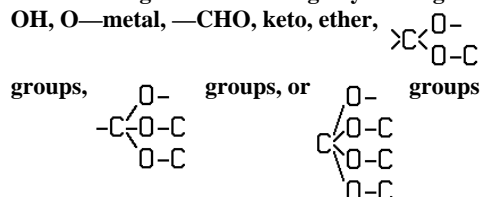
**61/00 Compounds having carboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings**

**NOTE**

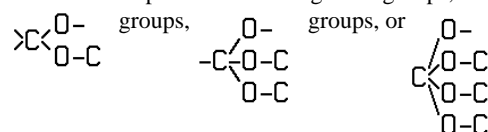
The oxidation mixture of naphthenes containing naphthenic acids, is classified in [C07C 61/005](#)

- 61/005 . {Naphthenic acids}
- 61/04 . Saturated compounds having a carboxyl group bound to a three or four-membered ring
- 61/06 . Saturated compounds having a carboxyl group bound to a five-membered ring
- 61/08 . Saturated compounds having a carboxyl group bound to a six-membered ring
- 61/09 . . Completely hydrogenated benzenedicarboxylic acids
- 61/10 . Saturated compounds having a carboxyl group bound to a seven-to-twelve-membered ring
- 61/12 . Saturated polycyclic compounds
- 61/125 . . having a carboxyl group bound to a condensed ring system
- 61/13 . . . having two rings
- 61/135 . . . having three rings
- 61/15 . Saturated compounds containing halogen
- 61/16 . Unsaturated compounds
- 61/20 . . having a carboxyl group bound to a five-membered ring
- 61/22 . . having a carboxyl group bound to a six-membered ring
- 61/24 . . . Partially hydrogenated benzenedicarboxylic acids
- 61/26 . . having a carboxyl group bound to a seven-to-twelve-membered ring
- 61/28 . . polycyclic
- 61/29 . . . having a carboxyl group bound to a condensed ring system
- 61/35 . . having unsaturation outside the rings
- 61/37 . . . Chrysanthemumic acid
- 61/39 . . containing six-membered aromatic rings
- 61/40 . . containing halogen

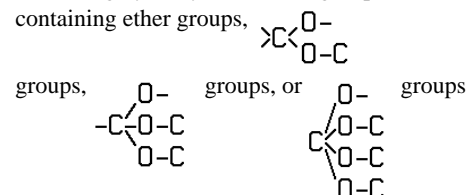
**62/00 Compounds having carboxyl groups bound to carbon atoms of rings other than six—membered aromatic rings and containing any of the groups OH, O—metal, —CHO, keto, ether,**



- 62/02 . Saturated compounds containing hydroxy or O-metal groups
- 62/04 . . with a six-membered ring
- 62/06 . . polycyclic
- 62/08 . Saturated compounds containing ether groups,



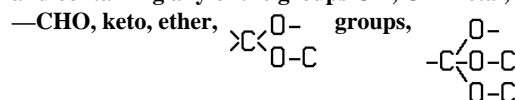
- groups
- 62/10 . . with a six-membered ring
- 62/12 . . polycyclic
- 62/14 . . . having a carboxyl group on a condensed ring system
- 62/16 . Saturated compounds containing —CHO groups
- 62/18 . Saturated compounds containing keto groups
- 62/20 . . with a {saturated} six-membered ring
- 62/22 . . polycyclic
- 62/24 . . the keto group being part of a ring
- 62/26 . . containing singly bound oxygen-containing groups
- 62/28 . . containing —CHO groups
- 62/30 . Unsaturated compounds
- 62/32 . . containing hydroxy or O-metal groups
- 62/34 . . containing ether groups,



- 62/36 . . containing —CHO groups
- 62/38 . . containing keto groups
- 63/00 Compounds having carboxyl groups bound to a carbon atoms of six-membered aromatic rings**
- 63/04 . Monocyclic monocarboxylic acids
- 63/06 . . Benzoic acid
- 63/08 . . . Salts thereof
- 63/10 . . . Halides thereof
- 63/14 . Monocyclic dicarboxylic acids
- 63/15 . . all carboxyl groups bound to carbon atoms of the six-membered aromatic ring
- 63/16 . . . 1,2 - Benzenedicarboxylic acid
- 63/20 . . . . Salts thereof
- 63/22 . . . . Halides thereof
- 63/24 . . . 1,3 - Benzenedicarboxylic acid
- 63/26 . . . 1,4 - Benzenedicarboxylic acid
- 63/28 . . . . Salts thereof
- 63/30 . . . . Halides thereof
- 63/307 . Monocyclic tricarboxylic acids
- 63/313 . Monocyclic acids containing more than three carboxyl groups
- 63/33 . Polycyclic acids
- 63/331 . . with all carboxyl groups bound to non-condensed rings
- 63/333 . . . 4,4' - Diphenyldicarboxylic acids
- 63/337 . . with carboxyl groups bound to condensed ring systems
- 63/34 . . . containing two {condensed} rings
- 63/36 . . . . containing one carboxyl group

- 63/38 . . . . containing two carboxyl groups both bound to carbon atoms of the condensed ring system
- 63/40 . . . . containing three or more carboxyl groups all bound to carbon atoms of the condensed ring system
- 63/42 . . . . containing three or more {condensed} rings
- 63/44 . . . . containing one carboxyl group
- 63/46 . . . . containing two carboxyl groups both bound to carbon atoms of the condensed ring system
- 63/48 . . . . containing three or more carboxyl groups all bound to carbon atoms of the condensed ring system
- 63/49 . . containing rings other than six-membered aromatic rings
- 63/64 . Monocyclic acids with unsaturation outside the aromatic ring
- 63/66 . Polycyclic acids with unsaturation outside the aromatic rings
- 63/68 . containing halogen
- 63/70 . . Monocarboxylic acids
- 63/72 . . Polycyclic acids
- 63/74 . . . having unsaturation outside the aromatic rings

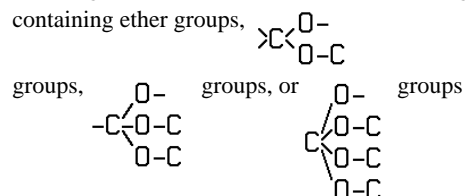
**65/00 Compounds having carboxyl groups bound to carbon atoms of six—membered aromatic rings and containing any of the groups OH, O—metal, —CHO, keto, ether,**



**groups, or**  **groups (cyclic anhydrides)**

[C07D\)](#)

- 65/01 . containing hydroxy or O-metal groups
- 65/03 . . monocyclic and having all hydroxy or O-metal groups bound to the ring
- 65/05 . . . o-Hydroxy carboxylic acids
- 65/10 . . . . Salicylic acid
- 65/105 . . polycyclic
- 65/11 . . . with carboxyl groups on a condensed ring system containing two rings
- 65/15 . . . with carboxyl groups on a condensed ring system containing more than two rings
- 65/17 . . containing rings other than six-membered aromatic rings
- 65/19 . . having unsaturation outside the aromatic ring
- 65/21 . containing ether groups,



- 65/24 . . polycyclic
- 65/26 . . . containing rings other than six-membered aromatic rings
- 65/28 . . having unsaturation outside the aromatic rings
- 65/30 . containing —CHO groups
- 65/32 . containing keto groups
- 65/34 . . polycyclic

- 65/36 . . . containing rings other than six-membered aromatic rings
- 65/38 . . having unsaturation outside the aromatic rings
- 65/40 . . containing singly bound oxygen-containing groups
- 65/42 . . containing —CHO groups
- 66/00 Quinone carboxylic acids**
- 66/02 . Anthraquinone carboxylic acids
- 67/00 Preparation of carboxylic acid esters**
- 67/02 . by interreacting ester groups, i.e. transesterification
- 67/03 . by reacting an ester group with a hydroxy group
- 67/035 . by reacting carboxylic acids or symmetrical anhydrides with saturated hydrocarbons
- 67/04 . by reacting carboxylic acids or symmetrical anhydrides onto unsaturated carbon-to-carbon bonds
- 67/05 . . with oxidation
- 67/055 . . . in the presence of platinum group metals or their compounds
- 67/08 . by reacting carboxylic acids or symmetrical anhydrides with the hydroxy or O-metal group of organic compounds
- 67/10 . by reacting carboxylic acids or symmetrical anhydrides with ester groups or with a carbon-halogen bond ([preparation from carboxylic acid halides C07C 67/14](#))
- 67/11 . . being mineral ester groups
- 67/12 . from asymmetrical anhydrides
- 67/14 . from carboxylic acid halides
- 67/16 . from carboxylic acids, esters or anhydrides wherein one oxygen atom has been replaced by a sulfur, selenium or tellurium atom
- 67/18 . by conversion of a group containing nitrogen into an ester group
- 67/20 . . from amides or lactams
- 67/22 . . from nitriles
- 67/24 . by reacting carboxylic acids or derivatives thereof with a carbon-to-oxygen ether bond, e.g. acetal, tetrahydrofuran
- 67/26 . . with an oxirane ring
- 67/27 . from ortho-esters
- 67/28 . by modifying the hydroxylic moiety of the ester, such modification not being an introduction of an ester group
- 67/283 . . by hydrogenation of unsaturated carbon-to-carbon bonds
- 67/287 . . by introduction of halogen; by substitution of halogen atoms by other halogen atoms
- 67/29 . . by introduction of oxygen-containing functional groups
- 67/293 . . by isomerisation; by change of size of the carbon skeleton
- 67/297 . . by splitting-off hydrogen or functional groups; by hydrogenolysis of functional groups
- 67/30 . by modifying the acid moiety of the ester, such modification not being an introduction of an ester group
- 67/303 . . by hydrogenation of unsaturated carbon-to-carbon bonds
- 67/307 . . by introduction of halogen; by substitution of halogen atoms by other halogen atoms
- 67/31 . . by introduction of functional groups containing oxygen only in singly bound form

- 67/313 . . by introduction of doubly bound oxygen containing functional groups, e.g. carboxyl groups
- 67/317 . . by splitting-off hydrogen or functional groups; by hydrogenolysis of functional groups
- 67/32 . . . Decarboxylation
- 67/327 . . . by elimination of functional groups containing oxygen only in singly bound form
- 67/333 . . by isomerisation; by change of size of the carbon skeleton (introduction or elimination of carboxyl groups [C07C 67/313](#), [C07C 67/32](#))
- 67/34 . . . Migration of  $\begin{array}{c} \text{---C---O---C---} \\ || \quad | \\ \text{O} \quad \text{I} \end{array}$  groups in the molecule
- 67/343 . . . by increase in the number of carbon atoms
- 67/347 . . . by addition to unsaturated carbon-to-carbon bonds
- 67/36 . by reaction with carbon monoxide or formates ([C07C 67/02](#), [C07C 67/03](#), [C07C 67/10](#) take precedence)
- 67/37 . . by reaction of ethers with carbon monoxide
- 67/38 . . by addition to an unsaturated carbon-to-carbon bond
- 67/39 . by oxidation of groups which are precursors for the acid moiety of the ester
- 67/40 . . by oxidation of primary alcohols
- 67/42 . . by oxidation of secondary alcohols or ketones
- 67/44 . by oxidation-reduction of aldehydes, e.g. Tishchenko reaction
- 67/46 . from ketenes or polyketenes
- 67/465 . by oligomerisation
- 67/47 . by telomerisation (macromolecular compounds [C08](#))
- 67/475 . by splitting of carbon-to-carbon bonds and redistribution, e.g. disproportionation or migration of  $\begin{array}{c} \text{---COOC---} \\ | \\ \text{I} \end{array}$  groups between different molecules
- 67/48 . Separation; Purification; Stabilisation; Use of additives
- 67/52 . . by change in the physical state, e.g. crystallisation
- 67/54 . . . by distillation
- 67/56 . . by solid-liquid treatment; by chemisorption
- 67/58 . . by liquid-liquid treatment
- 67/60 . . by treatment giving rise to chemical modification (by chemisorption [C07C 67/56](#))
- 67/62 . . Use of additives, e.g. for stabilisation
- 68/00 Preparation of esters of carbonic or haloformic acids**
- 68/005 . {from carbon monoxide and oxygen}
- 68/02 . from phosgene or haloformates
- 68/04 . from carbon dioxide or inorganic carbonates
- 68/06 . from organic carbonates
- 68/065 . . {from alkylene carbonates}
- 68/08 . Purification; Separation; Stabilisation
- 69/00 Esters of carboxylic acids; Esters of carbonic or haloformic acids (ortho esters, see the relevant groups, e.g. [C07C 43/32](#))**
- NOTE**
- In this group esters having a variably-specified acid moiety, i.e. covered by more than one of groups [C07C 69/02](#), [C07C 69/34](#), [C07C 69/52](#), [C07C 69/608](#), [C07C 69/612](#), [C07C 69/62](#), [C07C 69/66](#), [C07C 69/74](#), [C07C 69/76](#), [C07C 69/95](#), [C07C 69/96](#), are covered by groups [C07C 69/003](#) - [C07C 69/017](#) according to their hydroxylic moiety
- 69/003 . Esters of saturated alcohols having the esterified hydroxy group bound to an acyclic carbon atom
- 69/007 . Esters of unsaturated alcohols having the esterified hydroxy group bound to an acyclic carbon atom
- 69/01 . . Vinyl esters
- 69/013 . Esters of alcohols having the esterified hydroxy group bound to a carbon atom of a ring other than a six-membered aromatic ring
- 69/017 . Esters of hydroxy compounds having the esterified hydroxy group bound to a carbon atom of a six-membered aromatic ring
- 69/02 . Esters of acyclic saturated monocarboxylic acids having the carboxyl group bound to an acyclic carbon atom or to hydrogen
- 69/04 . . Formic acid esters
- 69/06 . . . of monohydroxylic compounds
- 69/07 . . . . of unsaturated alcohols
- 69/08 . . . of dihydroxylic compounds
- 69/10 . . . of trihydroxylic compounds
- 69/12 . . Acetic acid esters
- 69/14 . . . of monohydroxylic compounds
- 69/145 . . . . of unsaturated alcohols
- 69/15 . . . . Vinyl acetate
- 69/155 . . . . Allyl acetate
- 69/157 . . . . containing six-membered aromatic rings
- 69/16 . . . of dihydroxylic compounds
- 69/18 . . . of trihydroxylic compounds
- 69/21 . . . of hydroxy compounds with more than three hydroxy groups (esters of sugars [C07H](#))
- 69/22 . . having three or more carbon atoms in the acid moiety
- 69/24 . . . esterified with monohydroxylic compounds
- 69/26 . . . . Synthetic waxes
- 69/28 . . . esterified with dihydroxylic compounds
- 69/30 . . . esterified with trihydroxylic compounds (fats, oils [C11B](#), [C11C](#))
- 69/33 . . . esterified with hydroxy compounds having more than three hydroxy groups (esters of sugars [C07H](#))
- 69/34 . Esters of acyclic saturated polycarboxylic acids having an esterified carboxyl group bound to an acyclic carbon atom
- 69/36 . . Oxalic acid esters
- 69/38 . . Malonic acid esters
- 69/40 . . Succinic acid esters
- 69/42 . . Glutaric acid esters
- 69/44 . . Adipic acid esters
- 69/46 . . Pimelic acid esters
- 69/48 . . Azelaic acid esters
- 69/50 . . Sebacic acid esters
- 69/52 . Esters of acyclic unsaturated carboxylic acids having the esterified carboxyl group bound to an acyclic carbon atom
- 69/533 . . Monocarboxylic acid esters having only one carbon-to-carbon double bond
- 69/54 . . . Acrylic acid esters; Methacrylic acid esters
- 69/56 . . . Crotonic acid esters; Vinyl acetic acid esters



- 69/58 . . . Esters of straight chain acids with eighteen carbon atoms in the acid moiety
- 69/587 . . Monocarboxylic acid esters having at least two carbon-to-carbon double bonds
- 69/593 . . Dicarboxylic acid esters having only one carbon-to-carbon double bond
- 69/60 . . . Maleic acid esters; Fumaric acid esters
- 69/602 . . Dicarboxylic acid esters having at least two carbon-to-carbon double bonds
- 69/604 . . Polycarboxylic acid esters, the acid moiety containing more than two carboxyl groups
- 69/606 . . having only {or additionally} carbon-to-carbon triple bonds as unsaturation in the carboxylic acid moiety
- 69/608 . Esters of carboxylic acids having a carboxyl group bound to an acyclic carbon atom and having a ring other than a six-membered aromatic ring in the acid moiety
- 69/612 . Esters of carboxylic acids having a carboxyl group bound to an acyclic carbon atom and having a six-membered aromatic ring in the acid moiety
- 69/614 . . of phenylacetic acid
- 69/616 . . polycyclic
- 69/618 . . having unsaturation outside the six-membered aromatic ring
- 69/62 . Halogen-containing esters ([haloformic acid esters C07C 69/96](#))
- 69/63 . . of saturated acids
- 69/635 . . . containing rings in the acid moiety
- 69/65 . . of unsaturated acids
- 69/653 . . . Acrylic acid esters; Methacrylic acid esters; Haloacrylic acid esters; Halomethacrylic acid esters
- 69/657 . . . Maleic acid esters; Fumaric acid esters; Halomaleic acid esters; Halofumaric acid esters
- 69/66 . Esters of carboxylic acids having esterified carboxylic groups bound to acyclic carbon atoms and having any of the groups OH, O—metal, —CHO, keto, ether, acyloxy,  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  groups,  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  in the acid moiety
- 69/67 . . of saturated acids
- 69/675 . . . of saturated hydroxy-carboxylic acids
- 69/68 . . . Lactic acid esters
- 69/70 . . . Tartaric acid esters
- 69/704 . . . Citric acid esters
- 69/708 . . Ethers
- 69/712 . . . the hydroxy group of the ester being etherified with a hydroxy compound having the hydroxy group bound to a carbon atom of a six-membered aromatic ring
- 69/716 . . . Esters of keto-carboxylic acids {or aldehyde-carboxylic acids}
- 69/72 . . . Acetoacetic acid esters
- 69/73 . . of unsaturated acids
- 69/732 . . . of unsaturated hydroxy carboxylic acids
- 69/734 . . Ethers

- 69/736 . . . the hydroxy group of the ester being etherified with a hydroxy compound having the hydroxy group bound to a carbon atom of a six-membered aromatic ring
- 69/738 . . . Esters of keto-carboxylic acids {or aldehyde-carboxylic acids}
- 69/74 . Esters of carboxylic acids having an esterified carboxyl group bound to a carbon atom of a ring other than a six-membered aromatic ring
- 69/743 . . of acids with a three-membered ring and with unsaturation outside the ring
- 69/747 . . . Chrysanthemic acid esters
- 69/75 . . of acids with a six-membered ring
- 69/753 . . of polycyclic acids
- 69/757 . . having any of the groups OH, O—metal, —CHO, keto, ether, acyloxy,  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  groups,  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  in the acid moiety
- 69/76 . Esters of carboxylic acids having a carboxyl group bound to a carbon atom of a six-membered aromatic ring
- 69/78 . . Benzoic acid esters
- 69/80 . . Phthalic acid esters
- 69/82 . . . Terephthalic acid esters
- 69/84 . . of monocyclic hydroxy carboxylic acids, the hydroxy groups and the carboxyl groups of which are bound to carbon atoms of a six-membered aromatic ring
- 69/86 . . . with esterified hydroxyl groups
- 69/88 . . . with esterified carboxyl groups
- 69/90 . . . with esterified hydroxyl and carboxyl groups
- 69/92 . . . with etherified hydroxyl groups
- 69/94 . . of polycyclic hydroxy carboxylic acids, the hydroxy groups and the carboxyl groups of which are bound to carbon atoms of six-membered aromatic rings
- 69/95 . Esters of quinone carboxylic acids
- 69/96 . Esters of carbonic or haloformic acids

**71/00 Esters of oxyacids of halogens**

**Compounds containing carbon and nitrogen with or without hydrogen, halogens or oxygen** ([irradiation products of cholesterol or its derivatives C07C 401/00](#); [vitamin D derivatives, 9,10-seco cyclopenta\[a\]phenanthrene or analogues obtained by chemical preparation without irradiation C07C 401/00](#); [derivatives of cyclohexane or of a cyclohexene {or of cyclohexadiene}, having a side-chain containing an acyclic unsaturated part of at least four carbon atoms, this part being directly attached to the cyclohexane or cyclohexene {or cyclohexadiene} rings C07C 403/00](#); [prostaglandins or derivatives thereof C07C 405/00](#); [peroxy compounds C07C 407/00](#), [C07C 409/00](#))

**201/00 Preparation of esters of nitric or nitrous acid or of compounds containing nitro or nitroso groups bound to a carbon skeleton**

- 201/02 . Preparation of esters of nitric acid
- 201/04 . Preparation of esters of nitrous acid
- 201/06 . Preparation of nitro compounds
- 201/08 . . by substitution of hydrogen atoms by nitro groups

201/10	. . by substitution of functional groups by nitro groups	205/24	. . . . having three, and only three, nitro groups bound to the ring
201/12	. . by reactions not involving the formation of nitro groups	205/25	. . . having nitro groups bound to carbon atoms of six-membered aromatic rings being part of a condensed ring system
201/14	. . by formation of nitro groups together with reactions not involving the formation of nitro groups	205/26	. . and being further substituted by halogen atoms
201/16	. . Separation; Purification; Stabilisation; Use of additives	205/27	. the carbon skeleton being further substituted by etherified hydroxy groups
<b>203/00</b>	<b>Esters of nitric or nitrous acid</b>	205/28	. . having nitro groups and etherified hydroxy groups bound to acyclic carbon atoms of the carbon skeleton
203/02	. Esters of nitric acid	205/29	. . . the carbon skeleton being saturated
203/04	. . having nitrate groups bound to acyclic carbon atoms	205/30	. . . . the oxygen atom of at least one of the etherified hydroxy groups being further bound to a carbon atom of a six-membered aromatic ring
203/06	. . . Glycerol trinitrate	205/31	. . . the carbon skeleton containing six-membered aromatic rings
203/08	. . having nitrate groups bound to carbon atoms of rings other than six-membered aromatic rings	205/32	. . having nitro groups bound to acyclic carbon atoms and etherified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
203/10	. . having nitrate groups bound to carbon atoms of six-membered aromatic rings	205/33	. . having nitro groups or etherified hydroxy groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
<b>205/00</b>	<b>Compounds containing nitro groups bound to a carbon skeleton</b>	205/34	. . having nitro groups bound to carbon atoms of six-membered aromatic rings and etherified hydroxy groups bound to acyclic carbon atoms of the carbon skeleton
205/01	. having nitro groups bound to acyclic carbon atoms	205/35	. . having nitro groups and etherified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
205/02	. . of a saturated carbon skeleton	205/36	. . . to carbon atoms of the same non-condensed six-membered aromatic ring or to carbon atoms of six-membered aromatic rings being part of the same condensed ring system
205/03	. . of an unsaturated carbon skeleton	205/37	. . . . the oxygen atom of at least one of the etherified hydroxy groups being further bound to an acyclic carbon atom
205/04	. . . containing six-membered aromatic rings	205/38	. . . . the oxygen atom of at least one of the etherified hydroxy groups being further bound to a carbon atom of a six-membered aromatic ring, e.g. nitrodiphenyl ethers
205/05	. having nitro groups bound to carbon atoms of rings other than six-membered aromatic rings	205/39	. the carbon skeleton being further substituted by esterified hydroxy groups
205/06	. having nitro groups bound to carbon atoms of six-membered aromatic rings	205/40	. . having nitro groups and esterified hydroxy groups bound to acyclic carbon atoms of the carbon skeleton
205/07	. the carbon skeleton being further substituted by halogen atoms	205/41	. . having nitro groups or esterified hydroxy groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
205/08	. . having nitro groups bound to acyclic carbon atoms	205/42	. . having nitro groups or esterified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
205/09	. . . of an unsaturated carbon skeleton	205/43	. . . to carbon atoms of the same non-condensed six-membered aromatic ring or to carbon atoms of six-membered aromatic rings being part of the same condensed ring system
205/10	. . having nitro groups bound to carbon atoms of rings other than six-membered aromatic rings	205/44	. the carbon skeleton being further substituted by —CHO groups
205/11	. . having nitro groups bound to carbon atoms of six-membered aromatic rings	205/45	. the carbon skeleton being further substituted by at least one doubly—bound oxygen atom, not being part of a —CHO group
205/12	. . . the six-membered aromatic ring or a condensed ring system containing that ring being substituted by halogen atoms	205/46	. . the carbon skeleton containing carbon atoms of quinone rings
205/13	. the carbon skeleton being further substituted by hydroxy groups		
205/14	. . having nitro groups and hydroxy groups bound to acyclic carbon atoms		
205/15	. . . of a saturated carbon skeleton		
205/16	. . . of a carbon skeleton containing six-membered aromatic rings		
205/17	. . having nitro groups bound to acyclic carbon atoms and hydroxy groups bound to carbon atoms of six-membered aromatic rings		
205/18	. . having nitro groups or hydroxy groups bound to carbon atoms of rings other than six-membered aromatic rings		
205/19	. . having nitro groups bound to carbon atoms of six-membered aromatic rings and hydroxy groups bound to acyclic carbon atoms		
205/20	. . having nitro groups and hydroxy groups bound to carbon atoms of six-membered aromatic rings		
205/21	. . . having nitro groups and hydroxy groups bound to carbon atoms of the same non-condensed six-membered aromatic ring		
205/22	. . . . having one nitro groups bound to the ring		
205/23	. . . . having two nitro groups bound to the ring		

205/47	. . . Anthraquinones containing nitro groups	209/20	. . . with formation of quaternary ammonium compounds
205/48	. . . . the carbon skeleton being further substituted by singly-bound oxygen atoms	209/22	. . by substitution of other functional groups
205/49	. the carbon skeleton being further substituted by carboxyl groups	209/24	. by reductive alkylation of ammonia, amines or compounds having groups reducible to amino groups, with carbonyl compounds
205/50	. . having nitro groups and carboxyl groups bound to acyclic carbon atoms of the carbon skeleton	209/26	. . by reduction with hydrogen
205/51	. . . the carbon skeleton being saturated	209/28	. . by reduction with other reducing agents
205/52	. . . . Nitro-acetic acids	209/30	. by reduction of nitrogen-to-oxygen or nitrogen-to-nitrogen bonds
205/53	. . . the carbon skeleton containing six-membered aromatic rings	209/32	. . by reduction of nitro groups
205/54	. . having nitro groups bound to acyclic carbon atoms and carboxyl groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton	209/325	. . . {reduction by other means than indicated in <a href="#">C07C 209/34</a> or <a href="#">C07C 209/36</a> }
205/55	. . having nitro groups or carboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton	209/34	. . . by reduction of nitro groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings {in presence of hydrogen-containing gases and a catalyst}
205/56	. . having nitro groups bound to carbon atoms of six-membered aromatic rings and carboxyl groups bound to acyclic carbon atoms of the carbon skeleton	209/36	. . . by reduction of nitro groups bound to carbon atoms of six-membered aromatic rings {in presence of hydrogen-containing gases and a catalyst}
205/57	. . having nitro groups and carboxyl groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton	209/365	. . . . {by reduction with preservation of halogen-atoms in compounds containing nitro groups and halogen atoms bound to the same carbon skeleton}
205/58	. . . the carbon skeleton being further substituted by halogen atoms	209/38	. . by reduction of nitroso groups
205/59	. . . the carbon skeleton being further substituted by singly-bound oxygen atoms	209/40	. . by reduction of hydroxylamino or oximino groups
205/60	. . . . in ortho-position to the carboxyl group, e.g. nitro-salicylic acids	209/42	. . by reduction of nitrogen-to-nitrogen bonds
205/61	. . . the carbon skeleton being further substituted by doubly-bound oxygen atoms	209/44	. by reduction of carboxylic acids or esters thereof in presence of ammonia or amines, or by reduction of nitriles, carboxylic acid amides, imines or imino-ethers
<b>207/00</b>	<b>Compounds containing nitroso groups bound to a carbon skeleton</b>	209/46	. . by reduction of carboxylic acids or esters thereof in presence of ammonia or amines
207/02	. the carbon skeleton not being further substituted	209/48	. . by reduction of nitriles
207/04	. the carbon skeleton being further substituted by singly-bound oxygen atoms	209/50	. . by reduction of carboxylic acid amides
		209/52	. . by reduction of imines or imino-ethers ( <a href="#">C07C 209/24</a> takes precedence)
<b>209/00</b>	<b>Preparation of compounds containing amino groups bound to a carbon skeleton</b>	209/54	. by rearrangement reactions
209/02	. by substitution of hydrogen atoms by amino groups	209/56	. . from carboxylic acids involving a Hofmann, Curtius, Schmidt, or Lossen-type rearrangement
209/04	. by substitution of functional groups by amino groups	209/58	. . from or <i>via</i> amides
209/06	. . by substitution of halogen atoms	209/60	. by condensation or addition reactions, e.g. Mannich reaction, addition of ammonia or amines to alkenes or to alkynes or addition of compounds containing an active hydrogen atom to Schiff's bases, quinone imines, or aziranes
209/08	. . . with formation of amino groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings	209/62	. by cleaving carbon-to-nitrogen, sulfur-to-nitrogen, or phosphorus-to-nitrogen bonds, e.g. hydrolysis of amides, N-dealkylation of amines or quaternary ammonium compounds ( <a href="#">C07C 209/24</a> takes precedence)
209/10	. . . with formation of amino groups bound to carbon atoms of six-membered aromatic rings or from amines having nitrogen atoms bound to carbon atoms of six-membered aromatic rings	209/64	. by disproportionation
209/12	. . . with formation of quaternary ammonium compounds	209/66	. from or <i>via</i> metallo-organic compounds
209/14	. . by substitution of hydroxy groups or of etherified or esterified hydroxy groups	209/68	. from amines, by reactions not involving amino groups, e.g. reduction of unsaturated amines, aromatisation, or substitution of the carbon skeleton
209/16	. . . with formation of amino groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings	209/70	. . by reduction of unsaturated amines
209/18	. . . with formation of amino groups bound to carbon atoms of six-membered aromatic rings or from amines having nitrogen atoms bound to carbon atoms of six-membered aromatic rings	209/72	. . . by reduction of six-membered aromatic rings
		209/74	. . by halogenation, hydrohalogenation, dehalogenation, or dehydrohalogenation
		209/76	. . by nitration

209/78	. . from carbonyl compounds, e.g. from formaldehyde, and amines having amino groups bound to carbon atoms of six-membered aromatic rings, with formation of methylene-diaryl amines	211/31	. . . the six-membered aromatic ring being part of a condensed ring system formed by at least three rings
209/80	. by photochemical reactions; by using free radicals	211/32	. . . containing dibenzocycloheptane or dibenzocycloheptene ring systems or condensed derivatives thereof
209/82	. Purification; Separation; Stabilisation; Use of additives	211/33	. having amino groups bound to carbon atoms of rings other than six-membered aromatic rings
209/84	. . Purification	211/34	. . of a saturated carbon skeleton
209/86	. . Separation	211/35	. . . containing only non-condensed rings
209/88	. . . Separation of optical isomers	211/36	. . . containing at least two amino groups bound to the carbon skeleton
209/90	. . Stabilisation; Use of additives	211/37	. . . being further substituted by halogen atoms or by nitro or nitroso groups
<b>211/00</b>	<b>Compounds containing amino groups bound to a carbon skeleton</b>	211/38	. . . containing condensed ring systems
211/01	. having amino groups bound to acyclic carbon atoms	211/39	. . of an unsaturated carbon skeleton
211/02	. . of an acyclic saturated carbon skeleton	211/40	. . . containing only non-condensed rings
211/03	. . . Monoamines	211/41	. . . containing condensed ring systems
211/04	. . . . Mono-, di- or tri-methylamine	211/42	. . . . with six-membered aromatic rings being part of the condensed ring systems
211/05	. . . . Mono-, di- or tri-ethylamine	211/43	. having amino groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
211/06	. . . . containing only n- or iso-propyl groups	211/44	. . having amino groups bound to only one six-membered aromatic ring
211/07	. . . . containing one, two or three alkyl groups, each having the same number of carbon atoms in excess of three	211/45	. . . Monoamines
211/08	. . . . containing alkyl groups having a different number of carbon atoms	211/46	. . . . Aniline
211/09	. . . Diamines	211/47	. . . . Toluidines; Homologues thereof
211/10	. . . . Diaminoethanes	211/48	. . . . N-alkylated amines
211/11	. . . . Diaminopropanes	211/49	. . . having at least two amino groups bound to the carbon skeleton
211/12	. . . . 1,6-Diaminohexanes	211/50	. . . . with at least two amino groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
211/13	. . . Amines containing three or more amino groups bound to the carbon skeleton	211/51	. . . . . Phenylenediamines
211/14	. . . Amines containing amino groups bound to at least two aminoalkyl groups, e.g. diethylenetriamines	211/52	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups
211/15	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups	211/53	. . . having the nitrogen atom of at least one of the amino groups further bound to a hydrocarbon radical substituted by amino groups
211/16	. . of a saturated carbon skeleton containing rings other than six-membered aromatic rings	211/54	. . having amino groups bound to two or three six-membered aromatic rings
211/17	. . . containing only non-condensed rings	211/55	. . . Diphenylamines
211/18	. . . containing at least two amino groups bound to the carbon skeleton	211/56	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups
211/19	. . . containing condensed ring systems	211/57	. . having amino groups bound to carbon atoms of six-membered aromatic rings being part of condensed ring systems of the carbon skeleton
211/20	. . of an acyclic unsaturated carbon skeleton	211/58	. . . Naphthylamines; N-substituted derivatives thereof
211/21	. . . Monoamines	211/59	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups
211/22	. . . containing at least two amino groups bound to the carbon skeleton	211/60	. . . containing a ring other than a six-membered aromatic ring forming part of at least one of the condensed ring systems
211/23	. . . the carbon skeleton containing carbon-to-carbon triple bonds	211/61	. . . with at least one of the condensed ring systems formed by three or more rings
211/24	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups	211/62	. Quaternary ammonium compounds
211/25	. . of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings	211/63	. . having quaternised nitrogen atoms bound to acyclic carbon atoms
211/26	. . of an unsaturated carbon skeleton containing at least one six-membered aromatic ring	211/64	. . having quaternised nitrogen atoms bound to carbon atoms of six-membered aromatic rings
211/27	. . . having amino groups linked to the six-membered aromatic ring by saturated carbon chains	211/65	. Metal complexes of amines
211/28	. . . having amino groups linked to the six-membered aromatic ring by unsaturated carbon chains		
211/29	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups		
211/30	. . . the six-membered aromatic ring being part of a condensed ring system formed by two rings		

<b>213/00</b>	<b>Preparation of compounds containing amino and hydroxy, amino and etherified hydroxy or amino and esterified hydroxy groups bound to the same carbon skeleton</b>	215/44	• • bound to carbon atoms of the same ring or condensed ring system
213/02	• by reactions involving the formation of amino groups from compounds containing hydroxy groups or etherified or esterified hydroxy groups	215/46	• having hydroxy groups bound to carbon atoms of at least one six-membered aromatic ring and amino groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton
213/04	• by reaction of ammonia or amines with olefin oxides or halohydrins	215/48	• • with amino groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by carbon chains not further substituted by hydroxy groups
213/06	• from hydroxy amines by reactions involving the etherification or esterification of hydroxy groups	215/50	• • • with amino groups and the six-membered aromatic ring, or the condensed ring system containing that ring, bound to the same carbon atom of the carbon chain
213/08	• by reactions not involving the formation of amino groups, hydroxy groups or etherified or esterified hydroxy groups	215/52	• • • linked by carbon chains having two carbon atoms between the amino groups and the six-membered aromatic ring or the condensed ring system containing that ring
213/10	• Separation; Purification; Stabilisation; Use of additives	215/54	• • • linked by carbon chains having at least three carbon atoms between the amino groups and the six-membered aromatic ring or the condensed ring system containing that ring
<b>215/00</b>	<b>Compounds containing amino and hydroxy groups bound to the same carbon skeleton</b>	215/56	• • with amino groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by carbon chains further substituted by hydroxy groups
215/02	• having hydroxy groups and amino groups bound to acyclic carbon atoms of the same carbon skeleton	215/58	• • • with hydroxy groups and the six-membered aromatic ring, or the condensed ring system containing that ring, bound to the same carbon atom of the carbon chain
215/04	• • the carbon skeleton being saturated	215/60	• • • • the chain having two carbon atoms between the amino groups and the six-membered aromatic ring or the condensed ring system containing that ring
215/06	• • • and acyclic	215/62	• • • • the chain having at least three carbon atoms between the amino groups and the six-membered aromatic ring or the condensed ring system containing that ring
215/08	• • • • with only one hydroxy group and one amino group bound to the carbon skeleton	215/64	• • • with rings other than six-membered aromatic rings being part of the carbon skeleton
215/10	• • • • with one amino group and at least two hydroxy groups bound to the carbon skeleton	215/66	• • • with quaternised amino groups bound to the carbon skeleton
215/12	• • • • the nitrogen atom of the amino group being further bound to hydrocarbon groups substituted by hydroxy groups	215/68	• having amino groups bound to carbon atoms of six-membered aromatic rings and hydroxy groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton
215/14	• • • • the nitrogen atom of the amino group being further bound to hydrocarbon groups substituted by amino groups	215/70	• • with rings other than six-membered aromatic rings being part of the carbon skeleton
215/16	• • • • the nitrogen atom of the amino group being further bound to carbon atoms of six-membered aromatic rings	215/72	• • with quaternised amino groups bound to the carbon skeleton
215/18	• • • • with hydroxy groups and at least two amino groups bound to the carbon skeleton	215/74	• having hydroxy groups and amino groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton
215/20	• • • the carbon skeleton being saturated and containing rings	215/76	• • of the same non-condensed six-membered aromatic ring
215/22	• • the carbon skeleton being unsaturated	215/78	• • • containing at least two hydroxy groups bound to the carbon skeleton
215/24	• • • and acyclic	215/80	• • • containing at least two amino groups bound to the carbon skeleton
215/26	• • • and containing rings other than six-membered aromatic rings	215/82	• • • having the nitrogen atom of at least one of the amino groups further bound to a carbon atom of another six-membered aromatic ring
215/28	• • • and containing six-membered aromatic rings		
215/30	• • • • containing hydroxy groups and carbon atoms of six-membered aromatic rings bound to the same carbon atom of the carbon skeleton		
215/32	• • • • • containing hydroxy groups and carbon atoms of two six-membered aromatic rings bound to the same carbon atom of the carbon skeleton		
215/34	• • • • • containing hydroxy groups and carbon atoms of six-membered aromatic rings bound to the same carbon atom of the carbon skeleton and at least one hydroxy group bound to another carbon atom of the carbon skeleton		
215/36	• • • • • 1-Aryl-2-amino-1,3-propane diols		
215/38	• • • • • with rings other than six-membered aromatic rings being part of the carbon skeleton		
215/40	• • with quaternised nitrogen atoms bound to carbon atoms of the carbon skeleton		
215/42	• having amino groups or hydroxy groups bound to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton		



215/84	. . having amino groups bound to carbon atoms of six-membered aromatic rings being part of condensed ring systems	217/36	. . . . . by carbon atoms having at least two bonds to oxygen atoms
215/86	. . . being formed by two rings	217/38	. . . . . the six-membered aromatic ring being part of a condensed ring system containing rings other than six-membered aromatic rings
215/88	. . . being formed by at least three rings		
215/90	. . with quaternised amino groups bound to the carbon skeleton	217/40	. . . . having at least two singly-bound oxygen atoms, with at least one being part of an etherified hydroxy group, bound to the same carbon atom of the carbon skeleton, e.g. amino-ketals, ortho esters
<b>217/00</b>	<b>Compounds containing amino and etherified hydroxy groups bound to the same carbon skeleton</b>		
217/02	. having etherified hydroxy groups and amino groups bound to acyclic carbon atoms of the same carbon skeleton	217/42	. . . having etherified hydroxy groups and at least two amino groups bound to the carbon skeleton
217/04	. . the carbon skeleton being acyclic and saturated	217/44	. . the carbon skeleton being saturated and containing rings
217/06	. . . having only one etherified hydroxy group and one amino group bound to the carbon skeleton, which is not further substituted	217/46	. . the carbon skeleton being acyclic and unsaturated
217/08	. . . . the oxygen atom of the etherified hydroxy group being further bound to an acyclic carbon atom	217/48	. . the carbon skeleton being unsaturated and containing rings
217/10	. . . . . to an acyclic carbon atom of a hydrocarbon radical containing six-membered aromatic rings	217/50	. . Ethers of hydroxy amines of undetermined structure, e.g. obtained by reactions of epoxides with hydroxy amines
217/12	. . . . the oxygen atom of the etherified hydroxy group being further bound to a carbon atom of a ring other than a six-membered aromatic ring	217/52	. having etherified hydroxy groups or amino groups bound to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton
217/14	. . . . the oxygen atom of the etherified hydroxy group being further bound to a carbon atom of a six-membered aromatic ring	217/54	. having etherified hydroxy groups bound to carbon atoms of at least one six-membered aromatic ring and amino groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton
217/16	. . . . . the six-membered aromatic ring or condensed ring system containing that ring not being further substituted	217/56	. . with amino groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by carbon chains not further substituted by singly-bound oxygen atoms
217/18	. . . . . the six-membered aromatic ring or condensed ring system containing that ring being further substituted	217/58	. . . with amino groups and the six-membered aromatic ring, or the condensed ring system containing that ring, bound to the same carbon atom of the carbon chain
217/20	. . . . . by halogen atoms, by trihalomethyl, nitro or nitroso groups, or by singly-bound oxygen atoms	217/60	. . . linked by carbon chains having two carbon atoms between the amino groups and the six-membered aromatic ring or the condensed ring system containing that ring
217/22	. . . . . by carbon atoms having at least two bonds to oxygen atoms	217/62	. . . linked by carbon chains having at least three carbon atoms between the amino groups and the six-membered aromatic ring or the condensed ring system containing that ring
217/24	. . . . . the six-membered aromatic ring being part of a condensed ring system containing rings other than six-membered aromatic rings	217/64	. . with amino groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by carbon chains further substituted by singly-bound oxygen atoms
217/26	. . . having only one etherified hydroxy group and one amino group bound to the carbon skeleton, which is further substituted by halogen atoms or by nitro or nitroso groups	217/66	. . . with singly-bound oxygen atoms and six-membered aromatic rings bound to the same carbon atom of the carbon chain
217/28	. . . having one amino group and at least two singly-bound oxygen atoms, with at least one being part of an etherified hydroxy group, bound to the carbon skeleton, e.g. ethers of polyhydroxy amines	217/68	. . . . with singly-bound oxygen atoms, six-membered aromatic rings and amino groups bound to the same carbon atom of the carbon chain
217/30	. . . . the oxygen atom of at least one of the etherified hydroxy groups further bound to a carbon atom of a six-membered aromatic ring	217/70	. . . . linked by carbon chains having two carbon atoms between the amino groups and the six-membered aromatic ring or the condensed ring system containing that ring
217/32	. . . . . the six-membered aromatic ring or condensed ring system containing that ring being further substituted	217/72	. . . . linked by carbon chains having at least three carbon atoms between the amino groups and the six-membered aromatic ring or the condensed ring system containing that ring
217/34	. . . . . by halogen atoms, by trihalomethyl, nitro or nitroso groups, or by singly-bound oxygen atoms		

217/74	. . with rings other than six-membered aromatic rings being part of the carbon skeleton	219/14	. . . having at least one of the hydroxy groups esterified by a carboxylic acid having the esterifying carboxyl group bound to a carbon atom of a six-membered aromatic ring
217/76	. having amino groups bound to carbon atoms of six-membered aromatic rings and etherified hydroxy groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton	219/16	. . . having at least one of the hydroxy groups esterified by an inorganic acid or a derivative thereof
217/78	. having amino groups and etherified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton	219/18	. . the carbon skeleton being saturated and containing rings
217/80	. . having amino groups and etherified hydroxy groups bound to carbon atoms of non-condensed six-membered aromatic rings	219/20	. . the carbon skeleton being unsaturated
217/82	. . . of the same non-condensed six-membered aromatic ring	219/22	. . . and containing six-membered aromatic rings
217/84	. . . . the oxygen atom of at least one of the etherified hydroxy groups being further bound to an acyclic carbon atom	219/24	. having esterified hydroxy groups or amino groups bound to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton
217/86	. . . . . to an acyclic carbon atom of a hydrocarbon radical containing six-membered aromatic rings	219/26	. having esterified hydroxy groups bound to carbon atoms of at least one six-membered aromatic ring and amino groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton
217/88	. . . . the oxygen atom of at least one of the etherified hydroxy groups being further bound to a carbon atom of a ring other than a six-membered aromatic ring	219/28	. . having amino groups bound to acyclic carbon atoms of the carbon skeleton
217/90	. . . . the oxygen atom of at least one of the etherified hydroxy groups being further bound to a carbon atom of a six-membered aromatic ring, e.g. amino-diphenylethers	219/30	. . . with amino groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by carbon chains further substituted by singly-bound oxygen atoms
217/92	. . . . the nitrogen atom of at least one of the amino groups being further bound to a carbon atom of a six-membered aromatic ring	219/32	. having amino groups bound to carbon atoms of six-membered aromatic rings and esterified hydroxy groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton
217/94	. . having amino groups bound to carbon atoms of six-membered aromatic rings being part of condensed ring systems and etherified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton	219/34	. having amino groups and esterified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton
<b>219/00</b>	<b>Compounds containing amino and esterified hydroxy groups bound to the same carbon skeleton</b>	<b>221/00</b>	<b>Preparation of compounds containing amino groups and doubly-bound oxygen atoms bound to the same carbon skeleton</b>
219/02	. having esterified hydroxy groups and amino groups bound to acyclic carbon atoms of the same carbon skeleton	<b>223/00</b>	<b>Compounds containing amino and —CHO groups bound to the same carbon skeleton</b>
219/04	. . the carbon skeleton being acyclic and saturated	223/02	. having amino groups bound to acyclic carbon atoms of the carbon skeleton
219/06	. . . having the hydroxy groups esterified by carboxylic acids having the esterifying carboxyl groups bound to hydrogen atoms or to acyclic carbon atoms of an acyclic saturated carbon skeleton	223/04	. having amino groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
219/08	. . . having at least one of the hydroxy groups esterified by a carboxylic acid having the esterifying carboxyl group bound to an acyclic carbon atom of an acyclic unsaturated carbon skeleton	223/06	. having amino groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
219/10	. . . having at least one of the hydroxy groups esterified by a carboxylic acid having the esterifying carboxyl group bound to an acyclic carbon atom of a carbon skeleton containing rings	<b>225/00</b>	<b>Compounds containing amino groups and doubly —bound oxygen atoms bound to the same carbon skeleton, at least one of the doubly—bound oxygen atoms not being part of a —CHO group, e.g. amino ketones</b>
219/12	. . . having at least one of the hydroxy groups esterified by a carboxylic acid having the esterifying carboxyl group bound to a carbon atom of a ring other than a six-membered aromatic ring	225/02	. having amino groups bound to acyclic carbon atoms of the carbon skeleton
		225/04	. . the carbon skeleton being saturated
		225/06	. . . and acyclic
		225/08	. . . and containing rings
		225/10	. . . . with doubly-bound oxygen atoms bound to carbon atoms not being part of rings
		225/12	. . . . with doubly-bound oxygen atoms bound to carbon atoms being part of rings
		225/14	. . the carbon skeleton being unsaturated
		225/16	. . . and containing six-membered aromatic rings

225/18	. . . . the carbon skeleton containing also rings other than six-membered aromatic rings	229/00	<b>Compounds containing amino and carboxyl groups bound to the same carbon skeleton</b>
225/20	. having amino groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton	229/02	. having amino and carboxyl groups bound to acyclic carbon atoms of the same carbon skeleton
225/22	. having amino groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton	229/04	. . the carbon skeleton being acyclic and saturated
225/24	. the carbon skeleton containing carbon atoms of quinone rings	229/06	. . . having only one amino and one carboxyl group bound to the carbon skeleton
225/26	. . having amino groups bound to carbon atoms of quinone rings or of condensed ring systems containing quinone rings	229/08	. . . . the nitrogen atom of the amino group being further bound to hydrogen atoms
225/28	. . . of non-condensed quinone rings	229/10	. . . . the nitrogen atom of the amino group being further bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings
225/30	. . . of condensed quinone ring systems formed by two rings	229/12	. . . . . to carbon atoms of acyclic carbon skeletons
225/32	. . . of condensed quinone ring systems formed by at least three rings	229/14	. . . . . to carbon atoms of carbon skeletons containing rings
225/34	. . . . Amino anthraquinones	229/16	. . . . . to carbon atoms of hydrocarbon radicals substituted by amino or carboxyl groups, e.g. ethylenediamine-tetra-acetic acid, iminodiacetic acids
225/36	. . . . . the carbon skeleton being further substituted by singly-bound oxygen atoms	229/18	. . . . . the nitrogen atom of the amino group being further bound to carbon atoms of six-membered aromatic rings
<b>227/00</b>	<b>Preparation of compounds containing amino and carboxyl groups bound to the same carbon skeleton</b>	229/20	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups
227/02	. Formation of carboxyl groups in compounds containing amino groups, e.g. by oxidation of amino alcohols	229/22	. . . the carbon skeleton being further substituted by oxygen atoms
227/04	. Formation of amino groups in compounds containing carboxyl groups	229/24	. . . having more than one carboxyl group bound to the carbon skeleton, e.g. aspartic acid
227/06	. . by addition or substitution reactions, without increasing the number of carbon atoms in the carbon skeleton of the acid	229/26	. . . having more than one amino group bound to the carbon skeleton, e.g. lysine
227/08	. . . by reaction of ammonia or amines with acids containing functional groups	229/28	. . the carbon skeleton being saturated and containing rings
227/10	. . with simultaneously increasing the number of carbon atoms in the carbon skeleton	229/30	. . the carbon skeleton being acyclic and unsaturated
227/12	. Formation of amino and carboxyl groups	229/32	. . the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings
227/14	. from compounds containing already amino and carboxyl groups or derivatives thereof	229/34	. . the carbon skeleton containing six-membered aromatic rings
227/16	. . by reactions not involving the amino or carboxyl groups	229/36	. . . with at least one amino group and one carboxyl group bound to the same carbon atom of the carbon skeleton
227/18	. . by reactions involving amino or carboxyl groups, e.g. hydrolysis of esters or amides, by formation of halides, salts or esters	229/38	. having amino groups bound to acyclic carbon atoms and carboxyl groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton
227/20	. . . by hydrolysis of N-acylated amino-acids or derivatives thereof, e.g. hydrolysis of carbamates	229/40	. having amino groups bound to carbon atoms of at least one six-membered aromatic ring and carboxyl groups bound to acyclic carbon atoms of the same carbon skeleton
227/22	. from lactams, cyclic ketones or cyclic oximes, e.g. by reactions involving Beckmann rearrangement	229/42	. . with carboxyl groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by saturated carbon chains
227/24	. from hydantoins	229/44	. . with carboxyl groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by unsaturated carbon chains
227/26	. from compounds containing carboxyl groups by reaction with HCN, or a salt thereof, and amines, or from aminonitriles	229/46	. having amino or carboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings of the same carbon skeleton
227/28	. from natural products	229/48	. . with amino groups and carboxyl groups bound to carbon atoms of the same non-condensed ring
227/30	. Preparation of optical isomers	229/50	. . with amino groups and carboxyl groups bound to carbon atoms being part of the same condensed ring system
227/32	. . by stereospecific synthesis		
227/34	. . by separation of optical isomers		
227/36	. Racemisation of optical isomers		
227/38	. Separation; Purification; Stabilisation; Use of additives ( <a href="#">separation of optical isomers C07C 227/34</a> )		
227/40	. . Separation; Purification		
227/42	. . . Crystallisation		
227/44	. . Stabilisation; Use of additives		

- 229/52 . having amino and carboxyl groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton
- 229/54 . . with amino and carboxyl groups bound to carbon atoms of the same non-condensed six-membered aromatic ring
- 229/56 . . . with amino and carboxyl groups bound in ortho-position
- 229/58 . . . . having the nitrogen atom of at least one of the amino groups further bound to a carbon atom of a six-membered aromatic ring, e.g. N-phenyl-anthranilic acids
- 229/60 . . . with amino and carboxyl groups bound in meta- or para- positions
- 229/62 . . . with amino groups and at least two carboxyl groups bound to carbon atoms of the same six-membered aromatic ring
- 229/64 . . . the carbon skeleton being further substituted by singly-bound oxygen atoms
- 229/66 . . . the carbon skeleton being further substituted by doubly-bound oxygen atoms
- 229/68 . . with amino and carboxyl groups bound to carbon atoms of six-membered aromatic rings being part of the same condensed ring system
- 229/70 . . . the carbon skeleton being further substituted by singly-bound oxygen atoms
- 229/72 . . . the carbon skeleton being further substituted by doubly-bound oxygen atoms
- 229/74 . . . . the condensed ring system being formed by at least three rings, e.g. amino anthraquinone carboxylic acids
- 229/76 . Metal complexes of amino carboxylic acids
- 231/00 Preparation of carboxylic acid amides**
- 231/02 . from carboxylic acids or from esters, anhydrides, or halides thereof by reaction with ammonia or amines
- 231/04 . from ketenes by reaction with ammonia or amines
- 231/06 . from nitriles by transformation of cyano groups into carboxamide groups
- 231/065 . . {By hydration using metals or metallic ions as catalyst}
- 231/08 . from amides by reaction at nitrogen atoms of carboxamide groups
- 231/10 . from compounds not provided for in groups [C07C 231/02](#) - [C07C 231/08](#)
- 231/12 . by reactions not involving the formation of carboxamide groups
- 231/14 . by formation of carboxamide groups together with reactions not involving the carboxamide groups
- 231/16 . Preparation of optical isomers
- 231/18 . . by stereospecific synthesis
- 231/20 . . by separation of optical isomers
- 231/22 . Separation; Purification; Stabilisation; Use of additives ([separation of optical isomers C07C 231/20](#))
- 231/24 . . Separation; Purification
- 233/00 Carboxylic acid amides**
- 233/01 . having carbon atoms of carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
- 233/02 . . having nitrogen atoms of carboxamide groups bound to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals
- 233/03 . . . with carbon atoms of carboxamide groups bound to hydrogen atoms
- 233/04 . . . with carbon atoms of carboxamide groups bound to acyclic carbon atoms of an acyclic saturated carbon skeleton
- 233/05 . . . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
- 233/06 . . . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring
- 233/07 . . . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring
- 233/08 . . . with carbon atoms of carboxamide groups bound to acyclic carbon atoms of a saturated carbon skeleton containing rings
- 233/09 . . . with carbon atoms of carboxamide groups bound to carbon atoms of an acyclic unsaturated carbon skeleton
- 233/10 . . . with carbon atoms of carboxamide groups bound to carbon atoms of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings
- 233/11 . . . with carbon atoms of carboxamide groups bound to carbon atoms of an unsaturated carbon skeleton containing six-membered aromatic rings
- 233/12 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by halogen atoms or by nitro or nitroso groups
- 233/13 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom
- 233/14 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a ring other than a six-membered aromatic ring
- 233/15 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a six-membered aromatic ring
- 233/16 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms
- 233/17 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom
- 233/18 . . . . having the carbon atom of the carboxamide group bound to a hydrogen atom or to a carbon atom of an acyclic saturated carbon skeleton
- 233/19 . . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a saturated carbon skeleton containing rings
- 233/20 . . . . having the carbon atom of the carboxamide group bound to a carbon atom of an acyclic unsaturated carbon skeleton
- 233/21 . . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings

233/22	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a carbon skeleton containing six-membered aromatic rings	233/40	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a carbon skeleton containing six-membered aromatic rings
233/23	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a ring other than a six-membered aromatic ring	233/41	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a ring other than a six-membered aromatic ring
233/24	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a six-membered aromatic ring	233/42	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a six-membered aromatic ring
233/25	. . . . having the carbon atom of the carboxamide group bound to a hydrogen atom or to a carbon atom of an acyclic saturated carbon skeleton	233/43	. . . . having the carbon atom of the carboxamide group bound to a hydrogen atom or to a carbon atom of a saturated carbon skeleton
233/26	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a saturated carbon skeleton containing rings	233/44	. . . . having the carbon atom of the carboxamide group bound to a carbon atom of an unsaturated carbon skeleton
233/27	. . . . having the carbon atom of the carboxamide group bound to a carbon atom of an acyclic unsaturated carbon skeleton	233/45	. . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by carboxyl groups
233/28	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings	233/46	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom
233/29	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a carbon skeleton containing six-membered aromatic rings	233/47	. . . . having the carbon atom of the carboxamide group bound to a hydrogen atom or to a carbon atom of an acyclic saturated carbon skeleton
233/30	. . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by doubly-bound oxygen atoms	233/48	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a saturated carbon skeleton containing rings
233/31	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom	233/49	. . . . having the carbon atom of the carboxamide group bound to a carbon atom of an acyclic unsaturated carbon skeleton
233/32	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a ring other than a six-membered aromatic ring	233/50	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings
233/33	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a six-membered aromatic ring	233/51	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a carbon skeleton containing six-membered aromatic rings
233/34	. . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by amino groups	233/52	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a ring other than a six-membered aromatic ring
233/35	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom	233/53	. . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a six-membered aromatic ring
233/36	. . . . having the carbon atom of the carboxamide group bound to a hydrogen atom or to a carbon atom of an acyclic saturated carbon skeleton	233/54	. . . . having the carbon atom of the carboxamide group bound to a hydrogen atom or to a carbon atom of a saturated carbon skeleton
233/37	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a saturated carbon skeleton containing rings	233/55	. . . . having the carbon atom of the carboxamide group bound to a carbon atom of an unsaturated carbon skeleton
233/38	. . . . having the carbon atom of the carboxamide group bound to a carbon atom of an acyclic unsaturated carbon skeleton	233/56	. . having carbon atoms of carboxamide groups bound to carbon atoms of carboxyl groups, e.g. oxamides
233/39	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings	233/57	. having carbon atoms of carboxamide groups bound to carbon atoms of rings other than six-membered aromatic rings



- 233/58 . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals
- 233/59 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by halogen atoms or by nitro or nitroso groups
- 233/60 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms
- 233/61 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by doubly-bound oxygen atoms
- 233/62 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by amino groups
- 233/63 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by carboxyl groups
- 233/64 . having carbon atoms of carboxamide groups bound to carbon atoms of six-membered aromatic rings
- 233/65 . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals
- 233/66 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by halogen atoms or by nitro or nitroso groups
- 233/67 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms
- 233/68 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom
- 233/69 . . . . of an acyclic saturated carbon skeleton
- 233/70 . . . . of a saturated carbon skeleton containing rings
- 233/71 . . . . of an acyclic unsaturated carbon skeleton
- 233/72 . . . . of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings
- 233/73 . . . . of a carbon skeleton containing six-membered aromatic rings
- 233/74 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a ring other than a six-membered aromatic ring
- 233/75 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a six-membered aromatic ring
- 233/76 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by doubly-bound oxygen atoms
- 233/77 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by amino groups
- 233/78 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom
- 233/79 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a ring other than a six-membered aromatic ring
- 233/80 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by a carbon atom of a six-membered aromatic ring
- 233/81 . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a hydrocarbon radical substituted by carboxyl groups
- 233/82 . . . with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom
- 233/83 . . . . of an acyclic saturated carbon skeleton
- 233/84 . . . . of a saturated carbon skeleton containing rings
- 233/85 . . . . of an acyclic unsaturated carbon skeleton
- 233/86 . . . . of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings
- 233/87 . . . . of a carbon skeleton containing six-membered aromatic rings
- 233/88 . having nitrogen atoms of carboxamide groups bound to an acyclic carbon atom and to a carbon atom of a six-membered aromatic ring wherein at least one ortho-hydrogen atom has been replaced
- 233/89 . having nitrogen atoms of carboxamide groups quaternised
- 233/90 . having nitrogen atoms of carboxamide groups further acylated
- 233/91 . . with carbon atoms of the carboxamide groups bound to acyclic carbon atoms
- 233/92 . . with at least one carbon atom of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring
- 235/00 Carboxylic acid amides, the carbon skeleton of the acid part being further substituted by oxygen atoms**
- 235/02 . having carbon atoms of carboxamide groups bound to acyclic carbon atoms and singly-bound oxygen atoms bound to the same carbon skeleton
- 235/04 . . the carbon skeleton being acyclic and saturated
- 235/06 . . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
- 235/08 . . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms
- 235/10 . . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by nitrogen atoms not being part of nitro or nitroso groups
- 235/12 . . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl groups
- 235/14 . . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring

235/16	. . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring	235/56	. . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring
235/18	. . . having at least one of the singly-bound oxygen atoms further bound to a carbon atom of a six-membered aromatic ring, e.g. phenoxyacetamides	235/58	. . . with carbon atoms of carboxamide groups and singly-bound oxygen atoms, bound in ortho-position to carbon atoms of the same non-condensed six-membered aromatic ring
235/20	. . . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms	235/60	. . . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
235/22	. . . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring	235/62	. . . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring
235/24	. . . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring	235/64	. . . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring
235/26	. . the carbon skeleton being saturated and containing rings	235/66	. . with carbon atoms of carboxamide groups bound to carbon atoms of six-membered aromatic rings being part of condensed ring systems and singly-bound oxygen atoms, bound to the same carbon skeleton
235/28	. . the carbon skeleton being acyclic and unsaturated	235/68	. having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom and to a carbon atom of a six-membered aromatic ring wherein at least one ortho-hydrogen atom has been replaced
235/30	. . the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings	235/70	. having carbon atoms of carboxamide groups and doubly-bound oxygen atoms bound to the same carbon skeleton
235/32	. . the carbon skeleton containing six-membered aromatic rings	235/72	. . with the carbon atoms of the carboxamide groups bound to acyclic carbon atoms
235/34	. . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms	235/74	. . . of a saturated carbon skeleton
235/36	. . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring	235/76	. . . of an unsaturated carbon skeleton
235/38	. . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring	235/78	. . . . the carbon skeleton containing rings
235/40	. having carbon atoms of carboxamide groups bound to carbon atoms of rings other than six-membered aromatic rings and singly-bound oxygen atoms bound to the same carbon skeleton	235/80	. . . having carbon atoms of carboxamide groups and keto groups bound to the same carbon atom, e.g. acetoacetamides
235/42	. having carbon atoms of carboxamide groups bound to carbon atoms of six-membered aromatic rings and singly-bound oxygen atoms bound to the same carbon skeleton	235/82	. . with the carbon atom of at least one of the carboxamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring
235/44	. . with carbon atoms of carboxamide groups and singly-bound oxygen atoms bound to carbon atoms of the same non-condensed six-membered aromatic ring	235/84	. . with the carbon atom of at least one of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring
235/46	. . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms	235/86	. having the nitrogen atom of at least one of the carboxamide groups quaternised
235/48	. . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms	235/88	. having the nitrogen atom of at least one of the carboxamide groups further acylated
235/50	. . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by nitrogen atoms not being part of nitro or nitroso groups	<b>237/00</b>	<b>Carboxylic acid amides, the carbon skeleton of the acid part being further substituted by amino groups</b>
235/52	. . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl groups	237/02	. having the carbon atoms of the carboxamide groups bound to acyclic carbon atoms of the carbon skeleton
235/54	. . . having the nitrogen atom of at least one of the carboxamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring	237/04	. . the carbon skeleton being acyclic and saturated
		237/06	. . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
		237/08	. . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms

237/10	. . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by nitrogen atoms not being part of nitro or nitroso groups	237/50	. having the nitrogen atom of at least one of the carboxamide groups quaternised
237/12	. . . having the nitrogen atom of at least one of the carboxamide groups bound to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl groups ( <a href="#">peptides C07K</a> )	237/52	. having the nitrogen atom of at least one of the carboxamide groups further acylated
237/14	. . the carbon skeleton being saturated and containing rings	<b>239/00</b>	<b>Compounds containing nitrogen-to-halogen bonds; Hydroxylamino compounds or ethers or esters thereof (oximes <a href="#">C07C 251/00</a>; hydroxamic acids or derivatives thereof <a href="#">C07C 259/00</a>)</b>
237/16	. . the carbon skeleton being acyclic and unsaturated	239/02	. Compounds containing nitrogen-to-halogen bonds
237/18	. . the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings	239/04	. . N-halogenated amines
237/20	. . the carbon skeleton containing six-membered aromatic rings	239/06	. . N-halogenated carboxamides
237/22	. . having nitrogen atoms of amino groups bound to the carbon skeleton of the acid part, further acylated ( <a href="#">peptides C07K</a> )	239/08	. Hydroxylamino compounds or their ethers or esters
237/24	. having the carbon atom of at least one of the carboxamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring of the carbon skeleton	239/10	. . having nitrogen atoms of hydroxylamino groups further bound to carbon atoms of unsubstituted hydrocarbon radicals or of hydrocarbon radicals substituted by halogen atoms or by nitro or nitroso groups
237/26	. . of a ring being part of a condensed ring system formed by at least four rings, e.g. tetracycline	239/12	. . having nitrogen atoms of hydroxylamino groups further bound to carbon atoms of hydrocarbon radicals substituted by singly-bound oxygen atoms
237/28	. having the carbon atom of at least one of the carboxamide groups bound to a carbon atom of a non-condensed six-membered aromatic ring of the carbon skeleton	239/14	. . having nitrogen atoms of hydroxylamino groups further bound to carbon atoms of hydrocarbon radicals substituted by doubly-bound oxygen atoms
237/30	. . having the nitrogen atom of the carboxamide group bound to hydrogen atoms or to acyclic carbon atoms	239/16	. . having nitrogen atoms of hydroxylamino groups further bound to carbon atoms of hydrocarbon radicals substituted by nitrogen atoms not being part of nitro or nitroso groups
237/32	. . having the nitrogen atom of the carboxamide group bound to an acyclic carbon atom of a hydrocarbon radical substituted by oxygen atoms	239/18	. . having nitrogen atoms of hydroxylamino groups further bound to carbon atoms of hydrocarbon radicals substituted by carboxyl groups
237/34	. . having the nitrogen atom of the carboxamide group bound to an acyclic carbon atom of a hydrocarbon radical substituted by nitrogen atoms not being part of nitro or nitroso groups	239/20	. . having oxygen atoms of hydroxylamino groups etherified
237/36	. . having the nitrogen atom of the carboxamide group bound to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl groups	239/22	. . having oxygen atoms of hydroxylamino groups esterified
237/38	. . having the nitrogen atom of the carboxamide group bound to a carbon atom of a ring other than a six-membered aromatic ring	<b>241/00</b>	<b>Preparation of compounds containing chains of nitrogen atoms singly-bound to each other, e.g. hydrazines, triazanes</b>
237/40	. . having the nitrogen atom of the carboxamide group bound to a carbon atom of a six-membered aromatic ring	241/02	. Preparation of hydrazines
237/42	. . having nitrogen atoms of amino groups bound to the carbon skeleton of the acid part, further acylated	241/04	. Preparation of hydrazides
237/44	. . having carbon atoms of carboxamide groups, amino groups and singly-bound oxygen atoms bound to carbon atoms of the same non-condensed six-membered aromatic ring	<b>243/00</b>	<b>Compounds containing chains of nitrogen atoms singly-bound to each other, e.g. hydrazines, triazanes</b>
237/46	. . having carbon atoms of carboxamide groups, amino groups and at least three atoms of bromine or iodine, bound to carbon atoms of the same non-condensed six-membered aromatic ring	243/02	. N-nitro compounds
237/48	. having the carbon atom of at least one of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring being part of a condensed ring system of the same carbon skeleton	243/04	. N-nitroso compounds
		243/06	. . N-nitroso-amines
		243/08	. . N-nitroso-carboxamides
		243/10	. Hydrazines
		243/12	. . having nitrogen atoms of hydrazine groups bound to acyclic carbon atoms
		243/14	. . . of a saturated carbon skeleton
		243/16	. . . of an unsaturated carbon skeleton
		243/18	. . . . containing rings
		243/20	. . having nitrogen atoms of hydrazine groups bound to carbon atoms of rings other than six-membered aromatic rings
		243/22	. . having nitrogen atoms of hydrazine groups bound to carbon atoms of six-membered aromatic rings
		243/24	. Hydrazines having nitrogen atoms of hydrazine groups acylated by carboxylic acids

- 243/26 . . with acylating carboxyl groups bound to hydrogen atoms or to acyclic carbon atoms
- 243/28 . . . to hydrogen atoms or to carbon atoms of a saturated carbon skeleton
- 243/30 . . . to carbon atoms of an unsaturated carbon skeleton
- 243/32 . . . . the carbon skeleton containing rings
- 243/34 . . . to carbon atoms of a carbon skeleton further substituted by nitrogen atoms
- 243/36 . . with acylating carboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings
- 243/38 . . with acylating carboxyl groups bound to carbon atoms of six-membered aromatic rings
- 243/40 . Hydrazines having nitrogen atoms of hydrazine groups being quaternised
- 243/42 . Hydrazines having nitrogen atoms of hydrazine groups further singly-bound to hetero atoms
- 245/00 Compounds containing chains of at least two nitrogen atoms with at least one nitrogen-to-nitrogen multiple bond (azoxy compounds C07C 291/08)**
- 245/02 . Azo compounds, i.e. compounds having the free valencies of  $\text{—N=N—}$  groups attached to different atoms, e.g. diazohydroxides
- 245/04 . . with nitrogen atoms of azo groups bound to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings
- 245/06 . . with nitrogen atoms of azo groups bound to carbon atoms of six-membered aromatic rings
- 245/08 . . . with the two nitrogen atoms of azo groups bound to carbon atoms of six-membered aromatic rings, e.g. azobenzene
- 245/10 . . . with nitrogen atoms of azo groups bound to carbon atoms of six-membered aromatic rings being part of condensed ring systems
- 245/12 . Diazo compounds, i.e. compounds having the free valencies of  $>\text{N}_2$  groups attached to the same carbon atom
- 245/14 . . having diazo groups bound to acyclic carbon atoms of a carbon skeleton
- 245/16 . . . Diazomethane
- 245/18 . . . the carbon skeleton being further substituted by carboxyl groups
- 245/20 . Diazonium compounds
- 245/22 . containing chains of three or more nitrogen atoms with one or more nitrogen-to-nitrogen double bonds
- 245/24 . . Chains of only three nitrogen atoms, e.g. diazoamines
- 247/00 Compounds containing azido groups**
- 247/02 . with azido groups bound to acyclic carbon atoms of a carbon skeleton
- 247/04 . . being saturated
- 247/06 . . . and containing rings
- 247/08 . . being unsaturated
- 247/10 . . . and containing rings
- 247/12 . . being further substituted by carboxyl groups
- 247/14 . with azido groups bound to carbon atoms of rings other than six-membered aromatic rings
- 247/16 . with azido groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton
- 247/18 . . being further substituted by carboxyl groups
- 247/20 . with azido groups acylated by carboxylic acids
- 247/22 . . with the acylating carboxyl groups bound to hydrogen atoms, to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings
- 247/24 . . with at least one of the acylating carboxyl groups bound to a carbon atom of a six-membered aromatic ring
- 249/00 Preparation of compounds containing nitrogen atoms doubly-bound to a carbon skeleton (of diazo compounds C07C 245/12)**
- 249/02 . of compounds containing imino groups
- 249/04 . of oximes
- 249/06 . . by nitrosation of hydrocarbons or substituted hydrocarbons
- 249/08 . . by reaction of hydroxylamines with carbonyl compounds
- 249/10 . . from nitro compounds or salts thereof
- 249/12 . . by reactions not involving the formation of oxyimino groups
- 249/14 . . Separation; Purification; Stabilisation; Use of additives
- 249/16 . of hydrazones
- 251/00 Compounds containing nitrogen atoms doubly-bound to a carbon skeleton (diazo compounds C07C 245/12)**
- 251/02 . containing imino groups
- 251/04 . . having carbon atoms of imino groups bound to hydrogen atoms or to acyclic carbon atoms
- 251/06 . . . to carbon atoms of a saturated carbon skeleton
- 251/08 . . . . being acyclic
- 251/10 . . . to carbon atoms of an unsaturated carbon skeleton
- 251/12 . . . . being acyclic
- 251/14 . . . . containing rings other than six-membered aromatic rings
- 251/16 . . . . containing six-membered aromatic rings
- 251/18 . . having carbon atoms of imino groups bound to carbon atoms of rings other than six-membered aromatic rings
- 251/20 . . having carbon atoms of imino groups being part of rings other than six-membered aromatic rings
- 251/22 . . . Quinone imines
- 251/24 . . having carbon atoms of imino groups bound to carbon atoms of six-membered aromatic rings
- 251/26 . . having nitrogen atoms of imino groups further bound to halogen atoms
- 251/28 . . having nitrogen atoms of imino groups acylated
- 251/30 . . having nitrogen atoms of imino groups quaternised
- 251/32 . Oximes
- 251/34 . . with oxygen atoms of oxyimino groups bound to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals
- 251/36 . . . with the carbon atoms of the oxyimino groups bound to hydrogen atoms or to acyclic carbon atoms
- 251/38 . . . . to carbon atoms of a saturated carbon skeleton
- 251/40 . . . . to carbon atoms of an unsaturated carbon skeleton
- 251/42 . . . with the carbon atom of at least one of the oxyimino groups bound to a carbon atom of a ring other than a six-membered aromatic ring

251/44	. . . with the carbon atom of at least one of the oxyimino groups being part of a ring other than a six-membered aromatic ring	253/14	. by reaction of cyanides with halogen-containing compounds with replacement of halogen atoms by cyano groups
251/46	. . . . Quinone oximes	253/16	. by reaction of cyanides with lactones or compounds containing hydroxy groups or etherified or esterified hydroxy groups
251/48	. . . with the carbon atom of at least one of the oxyimino groups bound to a carbon atom of a six-membered aromatic ring	253/18	. by reaction of ammonia or amines with compounds containing carbon-to-carbon multiple bonds other than in six-membered aromatic rings
251/50	. . having oxygen atoms of oxyimino groups bound to carbon atoms of substituted hydrocarbon radicals	253/20	. by dehydration of carboxylic acid amides
251/52	. . . of hydrocarbon radicals substituted by halogen atoms or by nitro or nitroso groups	253/22	. by reaction of ammonia with carboxylic acids with replacement of carboxyl groups by cyano groups
251/54	. . . of hydrocarbon radicals substituted by singly-bound oxygen atoms	253/24	. by ammoxidation of hydrocarbons or substituted hydrocarbons
251/56	. . . of hydrocarbon radicals substituted by doubly-bound oxygen atoms	253/26	. . containing carbon-to-carbon multiple bonds, e.g. unsaturated aldehydes
251/58	. . . of hydrocarbon radicals substituted by nitrogen atoms not being part of nitro or nitroso groups	253/28	. . containing six-membered aromatic rings, e.g. styrene
251/60	. . . of hydrocarbon radicals substituted by carboxyl groups	253/30	. by reactions not involving the formation of cyano groups
251/62	. . having oxygen atoms of oxyimino groups esterified	253/32	. Separation; Purification; Stabilisation; Use of additives
251/64	. . . by carboxylic acids	253/34	. . Separation; Purification
251/66	. . . . with the esterifying carboxyl groups bound to hydrogen atoms, to acyclic carbon atoms or to carbon atoms of rings other than six-membered aromatic rings	<b>255/00</b>	<b>Carboxylic acid nitriles (cyanogen or compounds thereof C01C 3/00)</b>
251/68	. . . . with at least one of the esterifying carboxyl groups bound to a carbon atom of a six-membered aromatic ring	255/01	. having cyano groups bound to acyclic carbon atoms
251/70	. . Metal complexes of oximes	255/02	. . of an acyclic and saturated carbon skeleton
251/72	. Hydrazones	255/03	. . . Mononitriles
251/74	. . having doubly-bound carbon atoms of hydrazone groups bound to hydrogen atoms or to acyclic carbon atoms	255/04	. . . containing two cyano groups bound to the carbon skeleton
251/76	. . . to carbon atoms of a saturated carbon skeleton	255/05	. . . containing at least three cyano groups bound to the carbon skeleton
251/78	. . . to carbon atoms of an unsaturated carbon skeleton	255/06	. . of an acyclic and unsaturated carbon skeleton
251/80	. . . . the carbon skeleton containing rings	255/07	. . . Mononitriles
251/82	. . having doubly-bound carbon atoms of hydrazone groups bound to carbon atoms of rings other than six-membered aromatic rings	255/08	. . . . Acrylonitrile; Methacrylonitrile
251/84	. . having doubly-bound carbon atoms of hydrazone groups being part of rings other than six-membered aromatic rings	255/09	. . . containing at least two cyano groups bound to the carbon skeleton
251/86	. . having doubly-bound carbon atoms of hydrazone groups bound to carbon atoms of six-membered aromatic rings	255/10	. . containing cyano groups and halogen atoms, or nitro or nitroso groups, bound to the same acyclic carbon skeleton
251/88	. . having also the other nitrogen atom doubly-bound to a carbon atom, e.g. azines	255/11	. . containing cyano groups and singly-bound oxygen atoms bound to the same saturated acyclic carbon skeleton
<b>253/00</b>	<b>Preparation of carboxylic acid nitriles (of cyanogen or compounds thereof C01C 3/00)</b>	255/12	. . . containing cyano groups and hydroxy groups bound to the carbon skeleton
253/02	. by reaction of nitrogen oxide with organic compounds	255/13	. . . containing cyano groups and etherified hydroxy groups bound to the carbon skeleton
253/04	. by reaction of cyanogen halides, e.g. ClCN, with organic compounds	255/14	. . . containing cyano groups and esterified hydroxy groups bound to the carbon skeleton
253/06	. from N-formylated amino compounds	255/15	. . containing cyano groups and singly-bound oxygen atoms bound to the same unsaturated acyclic carbon skeleton
253/08	. by addition of hydrogen cyanide or salts thereof to unsaturated compounds	255/16	. . containing cyano groups and singly-bound oxygen atoms bound to the same carbon atom of an acyclic carbon skeleton
253/10	. . to compounds containing carbon-to-carbon double bonds	255/17	. . containing cyano groups and doubly-bound oxygen atoms bound to the same acyclic carbon skeleton
253/12	. . to compounds containing carbon-to-carbon triple bonds	255/18	. . containing cyano groups bound to carbon atoms of carboxyl groups
		255/19	. . containing cyano groups and carboxyl groups, other than cyano groups, bound to the same saturated acyclic carbon skeleton



255/20	. . . the carbon skeleton being further substituted by singly-bound oxygen atoms	255/45	. having cyano groups bound to carbon atoms of rings other than six-membered aromatic rings
255/21	. . . the carbon skeleton being further substituted by doubly-bound oxygen atoms	255/46	. . to carbon atoms of non-condensed rings
255/22	. . . containing cyano groups and at least two carboxyl groups bound to the carbon skeleton	255/47	. . to carbon atoms of rings being part of condensed ring systems
255/23	. . containing cyano groups and carboxyl groups, other than cyano groups, bound to the same unsaturated acyclic carbon skeleton	255/48	. . to carbon atoms of 2,2-dimethylcyclopropane rings, e.g. nitrile of chrysanthemumic acids
255/24	. . containing cyano groups and singly-bound nitrogen atoms, not being further bound to other hetero atoms, bound to the same saturated acyclic carbon skeleton	255/49	. having cyano groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton
255/25	. . . Aminoacetonitriles	255/50	. . to carbon atoms of non-condensed six-membered aromatic rings
255/26	. . . containing cyano groups, amino groups and singly-bound oxygen atoms bound to the carbon skeleton	255/51	. . . containing at least two cyano groups bound to the carbon skeleton
255/27	. . . containing cyano groups, amino groups and doubly-bound oxygen atoms bound to the carbon skeleton	255/52	. . to carbon atoms of six-membered aromatic rings being part of condensed ring systems
255/28	. . . containing cyano groups, amino groups and carboxyl groups, other than cyano groups, bound to the carbon skeleton	255/53	. . containing cyano groups and hydroxy groups bound to the carbon skeleton
255/29	. . . containing cyano groups and acylated amino groups bound to the carbon skeleton	255/54	. . containing cyano groups and etherified hydroxy groups bound to the carbon skeleton
255/30	. . containing cyano groups and singly-bound nitrogen atoms, not being further bound to other hetero atoms, bound to the same unsaturated acyclic carbon skeleton	255/55	. . containing cyano groups and esterified hydroxy groups bound to the carbon skeleton
255/31	. . having cyano groups bound to acyclic carbon atoms of a carbon skeleton containing rings other than six-membered aromatic rings	255/56	. . containing cyano groups and doubly-bound oxygen atoms bound to the carbon skeleton
255/32	. . having cyano groups bound to acyclic carbon atoms of a carbon skeleton containing at least one six-membered aromatic ring	255/57	. . containing cyano groups and carboxyl groups, other than cyano groups, bound to the carbon skeleton
255/33	. . . with cyano groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by saturated carbon chains	255/58	. . containing cyano groups and singly-bound nitrogen atoms, not being further bound to other hetero atoms, bound to the carbon skeleton
255/34	. . . with cyano groups linked to the six-membered aromatic ring, or to the condensed ring system containing that ring, by unsaturated carbon chains	255/59	. . . the carbon skeleton being further substituted by singly-bound oxygen atoms
255/35	. . . the carbon skeleton being further substituted by halogen atoms, or by nitro or nitroso groups	255/60	. . . at least one of the singly-bound nitrogen atoms being acylated
255/36	. . . the carbon skeleton being further substituted by hydroxy groups	255/61	. containing cyano groups and nitrogen atoms being part of imino groups bound to the same carbon skeleton
255/37	. . . the carbon skeleton being further substituted by etherified hydroxy groups	255/62	. containing cyano groups and oxygen atoms being part of oxyimino groups bound to the same carbon skeleton
255/38	. . . the carbon skeleton being further substituted by esterified hydroxy groups	255/63	. containing cyano groups and nitrogen atoms further bound to other hetero atoms, other than oxygen atoms of nitro or nitroso groups, bound to the same carbon skeleton
255/39	. . . with hydroxy groups esterified by derivatives of 2,2-dimethylcyclopropane carboxylic acids, e.g. of chrysanthemumic acids	255/64	. . with the nitrogen atoms further bound to oxygen atoms
255/40	. . . the carbon skeleton being further substituted by doubly-bound oxygen atoms	255/65	. . with the nitrogen atoms further bound to nitrogen atoms
255/41	. . . the carbon skeleton being further substituted by carboxyl groups, other than cyano groups	255/66	. . . having cyano groups and nitrogen atoms being part of hydrazine or hydrazone groups bound to the same carbon skeleton
255/42	. . . the carbon skeleton being further substituted by singly-bound nitrogen atoms, not being further bound to other hetero atoms	255/67	. . . having cyano groups and azido groups bound to the same carbon skeleton
255/43	. . . the carbon skeleton being further substituted by singly-bound oxygen atoms	257/00	<b>Compounds containing carboxyl groups, the doubly-bound oxygen atom of a carboxyl group being replaced by a doubly-bound nitrogen atom, this nitrogen atom not being further bound to an oxygen atom, e.g. imino-ethers, amidines</b>
255/44	. . . at least one of the singly-bound nitrogen atoms being acylated	257/02	. with replacement of the other oxygen atom of the carboxyl group by halogen atoms, e.g. imino-halides
		257/04	. without replacement of the other oxygen atom of the carboxyl group, e.g. imino-ethers

257/06	<ul style="list-style-type: none"> <li>having carbon atoms of imino-carboxyl groups bound to hydrogen atoms, to acyclic carbon atoms, or to carbon atoms of rings other than six-membered aromatic rings</li> </ul>	263/10	<ul style="list-style-type: none"> <li>by reaction of amines with carbonyl halides, e.g. with phosgene</li> </ul>
257/08	<ul style="list-style-type: none"> <li>having carbon atoms of imino-carboxyl groups bound to carbon atoms of six-membered aromatic rings</li> </ul>	263/12	<ul style="list-style-type: none"> <li>from or via nitrogen analogues of carboxylic acids, e.g. from hydroxamic acids, involving a Hofmann, Curtius or Lossen-type rearrangement (<a href="#">C07C 209/56 takes precedence</a>)</li> </ul>
257/10	<ul style="list-style-type: none"> <li>with replacement of the other oxygen atom of the carboxyl group by nitrogen atoms, e.g. amidines</li> </ul>	263/14	<ul style="list-style-type: none"> <li>by catalytic reaction of nitro compounds with carbon monoxide</li> </ul>
257/12	<ul style="list-style-type: none"> <li>having carbon atoms of amidino groups bound to hydrogen atoms</li> </ul>	263/16	<ul style="list-style-type: none"> <li>by reactions not involving the formation of isocyanate groups</li> </ul>
257/14	<ul style="list-style-type: none"> <li>having carbon atoms of amidino groups bound to acyclic carbon atoms</li> </ul>	263/18	<ul style="list-style-type: none"> <li>Separation; Purification; Stabilisation; Use of additives</li> </ul>
257/16	<ul style="list-style-type: none"> <li>having carbon atoms of amidino groups bound to carbon atoms of rings other than six-membered aromatic rings</li> </ul>	263/20	<ul style="list-style-type: none"> <li>Separation; Purification</li> </ul>
257/18	<ul style="list-style-type: none"> <li>having carbon atoms of amidino groups bound to carbon atoms of six-membered aromatic rings</li> </ul>	<b>265/00</b>	<b>Derivatives of isocyanic acid</b>
257/20	<ul style="list-style-type: none"> <li>having nitrogen atoms of amidino groups acylated</li> </ul>	265/02	<ul style="list-style-type: none"> <li>having isocyanate groups bound to acyclic carbon atoms</li> </ul>
257/22	<ul style="list-style-type: none"> <li>having nitrogen atoms of amidino groups further bound to nitrogen atoms, e.g. hydrazidines</li> </ul>	265/04	<ul style="list-style-type: none"> <li>of a saturated carbon skeleton</li> </ul>
<b>259/00</b>	<b>Compounds containing carboxyl groups, an oxygen atom of a carboxyl group being replaced by a nitrogen atom, this nitrogen atom being further bound to an oxygen atom and not being part of nitro or nitroso groups</b>	265/06	<ul style="list-style-type: none"> <li>of an unsaturated carbon skeleton</li> </ul>
259/02	<ul style="list-style-type: none"> <li>with replacement of the other oxygen atom of the carboxyl group by halogen atoms</li> </ul>	265/08	<ul style="list-style-type: none"> <li>the carbon skeleton containing rings</li> </ul>
259/04	<ul style="list-style-type: none"> <li>without replacement of the other oxygen atom of the carboxyl group, e.g. hydroxamic acids</li> </ul>	265/10	<ul style="list-style-type: none"> <li>having isocyanate groups bound to carbon atoms of rings other than six-membered aromatic rings</li> </ul>
259/06	<ul style="list-style-type: none"> <li>having carbon atoms of hydroxamic groups bound to hydrogen atoms or to acyclic carbon atoms</li> </ul>	265/12	<ul style="list-style-type: none"> <li>having isocyanate groups bound to carbon atoms of six-membered aromatic rings</li> </ul>
259/08	<ul style="list-style-type: none"> <li>having carbon atoms of hydroxamic groups bound to carbon atoms of rings other than six-membered aromatic rings</li> </ul>	265/14	<ul style="list-style-type: none"> <li>containing at least two isocyanate groups bound to the same carbon skeleton</li> </ul>
259/10	<ul style="list-style-type: none"> <li>having carbon atoms of hydroxamic groups bound to carbon atoms of six-membered aromatic rings</li> </ul>	265/16	<ul style="list-style-type: none"> <li>having isocyanate groups acylated</li> </ul>
259/12	<ul style="list-style-type: none"> <li>with replacement of the other oxygen atom of the carboxyl group by nitrogen atoms, e.g. N-hydroxyamidines</li> </ul>	<b>267/00</b>	<b>Carbodiimides</b>
259/14	<ul style="list-style-type: none"> <li>having carbon atoms of hydroxamidine groups bound to hydrogen atoms or to acyclic carbon atoms</li> </ul>	<b>269/00</b>	<b>Preparation of derivatives of carbamic acid, i.e. compounds containing any of the groups</b>
259/16	<ul style="list-style-type: none"> <li>having carbon atoms of hydroxamidine groups bound to carbon atoms of rings other than six-membered aromatic rings</li> </ul>		$\begin{array}{c} \text{O} \\ \parallel \\ \text{>N}-\text{C}-\text{O}- \\ \text{O}- \end{array} \quad , \text{ the}$ $\begin{array}{c} \text{O} \\ \parallel \\ \text{>N}-\text{C}-\text{Hal} \\ \text{O}- \end{array} \quad , \text{ the}$ $\begin{array}{c} \text{O}- \\   \\ -\text{N}=\text{C}-\text{Hal} \end{array} \quad \text{or} \quad \begin{array}{c} \text{Hal} \\   \\ -\text{N}=\text{C}-\text{Hal} \end{array}$
259/18	<ul style="list-style-type: none"> <li>having carbon atoms of hydroxamidine groups bound to carbon atoms of six-membered aromatic rings</li> </ul>		<b>nitrogen atom not being part of nitro or nitroso groups</b>
259/20	<ul style="list-style-type: none"> <li>with at least one nitrogen atom of hydroxamidine groups bound to another nitrogen atom</li> </ul>	269/02	<ul style="list-style-type: none"> <li>from isocyanates with formation of carbamate groups</li> </ul>
<b>261/00</b>	<b>Derivatives of cyanic acid</b>	269/04	<ul style="list-style-type: none"> <li>from amines with formation of carbamate groups</li> </ul>
261/02	<ul style="list-style-type: none"> <li>Cyanates</li> </ul>	269/06	<ul style="list-style-type: none"> <li>by reactions not involving the formation of carbamate groups</li> </ul>
261/04	<ul style="list-style-type: none"> <li>Cyanamides (<a href="#">unsubstituted cyanamide C01C 3/16</a>)</li> </ul>	269/08	<ul style="list-style-type: none"> <li>Separation; Purification; Stabilisation; Use of additives</li> </ul>
<b>263/00</b>	<b>Preparation of derivatives of isocyanic acid</b>	<b>271/00</b>	<b>Derivatives of carbamic acids, i.e. compounds containing any of the groups</b>
263/02	<ul style="list-style-type: none"> <li>by reaction of halides with isocyanic acid or its derivatives</li> </ul>		$\begin{array}{c} \text{O} \\ \parallel \\ \text{>N}-\text{C}-\text{O}- \\ \text{O}- \end{array} \quad , \text{ the}$ $\begin{array}{c} \text{O} \\ \parallel \\ \text{>N}-\text{C}-\text{Hal} \\ \text{O}- \end{array} \quad , \text{ the}$ $\begin{array}{c} \text{O}- \\   \\ -\text{N}=\text{C}-\text{Hal} \end{array} \quad \text{or} \quad \begin{array}{c} \text{Hal} \\   \\ -\text{N}=\text{C}-\text{Hal} \end{array}$
263/04	<ul style="list-style-type: none"> <li>from or via carbamates or carbamoyl halides</li> </ul>	271/02	<ul style="list-style-type: none"> <li>Carbamic acids; Salts of carbamic acids (<a href="#">unsubstituted carbamic acid or salts thereof C01B 21/12</a>)</li> </ul>
263/06	<ul style="list-style-type: none"> <li>from or via ureas</li> </ul>	271/04	<ul style="list-style-type: none"> <li>Carbamic acid halides</li> </ul>
263/08	<ul style="list-style-type: none"> <li>from or via heterocyclic compounds, e.g. pyrolysis of furoxans</li> </ul>	271/06	<ul style="list-style-type: none"> <li>Esters of carbamic acids</li> </ul>
		271/08	<ul style="list-style-type: none"> <li>having oxygen atoms of carbamate groups bound to acyclic carbon atoms</li> </ul>

- 271/10 . . . with the nitrogen atoms of the carbamate groups bound to hydrogen atoms or to acyclic carbon atoms
- 271/12 . . . . to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals
- 271/14 . . . . to carbon atoms of hydrocarbon radicals substituted by halogen atoms or by nitro or nitroso groups
- 271/16 . . . . to carbon atoms of hydrocarbon radicals substituted by singly-bound oxygen atoms
- 271/18 . . . . to carbon atoms of hydrocarbon radicals substituted by doubly-bound oxygen atoms
- 271/20 . . . . to carbon atoms of hydrocarbon radicals substituted by nitrogen atoms not being part of nitro or nitroso groups
- 271/22 . . . . to carbon atoms of hydrocarbon radicals substituted by carboxyl groups
- 271/24 . . . with the nitrogen atom of at least one of the carbamate groups bound to a carbon atom of a ring other than a six-membered aromatic ring
- 271/26 . . . with the nitrogen atom of at least one of the carbamate groups bound to a carbon atom of a six-membered aromatic ring
- 271/28 . . . . to a carbon atom of a non-condensed six-membered aromatic ring
- 271/30 . . . . to a carbon atom of a six-membered aromatic ring being part of a condensed ring system
- 271/32 . . having oxygen atoms of carbamate groups bound to carbon atoms of rings other than six-membered aromatic rings
- 271/34 . . . with the nitrogen atoms of the carbamate groups bound to hydrogen atoms or to acyclic carbon atoms
- 271/36 . . . with the nitrogen atom of at least one of the carbamate groups bound to a carbon atom of a ring other than a six-membered aromatic ring
- 271/38 . . . with the nitrogen atom of at least one of the carbamate groups bound to a carbon atom of a six-membered aromatic ring
- 271/40 . . having oxygen atoms of carbamate groups bound to carbon atoms of six-membered aromatic rings
- 271/42 . . . with the nitrogen atoms of the carbamate groups bound to hydrogen atoms or to acyclic carbon atoms
- 271/44 . . . . to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals
- 271/46 . . . . to carbon atoms of hydrocarbon radicals substituted by halogen atoms or by nitro or nitroso groups
- 271/48 . . . . to carbon atoms of hydrocarbon radicals substituted by singly-bound oxygen atoms
- 271/50 . . . . to carbon atoms of hydrocarbon radicals substituted by doubly-bound oxygen atoms
- 271/52 . . . . to carbon atoms of hydrocarbon radicals substituted by nitrogen atoms not being part of nitro or nitroso groups
- 271/54 . . . . to carbon atoms of hydrocarbon radicals substituted by carboxyl groups
- 271/56 . . . with the nitrogen atom of at least one of the carbamate groups bound to a carbon atom of a ring other than a six-membered aromatic ring
- 271/58 . . . with the nitrogen atom of at least one of the carbamate groups bound to a carbon atom of a six-membered aromatic ring
- 271/60 . having oxygen atoms of carbamate groups bound to nitrogen atoms
- 271/62 . Compounds containing any of the groups
- $$\begin{array}{c} \text{O} \quad \text{X} \quad \text{O} \quad \text{X} \\ \parallel \quad \diagup \quad \parallel \quad \diagup \\ -\text{O}-\text{C}-\text{N}-\text{C}-\text{Y} \quad \text{Hal}-\text{C}-\text{N}-\text{C}-\text{Y} \end{array}, \text{X}$$
- $$\begin{array}{c} \text{O} \quad \text{X} \quad \text{O} \quad \text{X} \\ \parallel \quad \diagup \quad \parallel \quad \diagup \\ -\text{O}-\text{C}-\text{N}=\text{C}-\text{Y} \quad \text{or} \quad \text{Hal}-\text{C}-\text{N}=\text{C}-\text{Y} \end{array}$$
- being a hetero atom, Y being any atom, e.g. N-acylcarbamates
- 271/64 . . Y being a hydrogen or a carbon atom, e.g. benzoylcarbamates
- 271/66 . . Y being a hetero atom
- 271/68 . Compounds containing any of the groups
- $$\begin{array}{c} \text{O} \quad \text{O} \quad \text{Hal} \\ \diagup \quad \diagdown \quad \diagup \\ -\text{N}=\text{C} \quad -\text{N}=\text{C} \quad \text{or} \quad -\text{N}=\text{C} \\ \diagdown \quad \diagup \quad \diagdown \\ \text{O} \quad \text{Hal} \quad \text{Hal} \end{array}$$
- 273/00 Preparation of urea or its derivatives, i.e. compounds containing any of the groups**
- $$\begin{array}{c} \text{O} \quad \text{N} \quad \text{N} \\ \parallel \quad | \quad | \\ >\text{N}-\text{C}-\text{N}< \quad , >\text{N}-\text{C}-\text{O}- \quad \text{or} \quad >\text{N}-\text{C}-\text{Hal} \end{array}, \text{the}$$
- nitrogen atoms not being part of nitro or nitroso groups**
- 273/02 . of urea, its salts, complexes or addition compounds
- 273/025 . . {of solutions of urea and formaldehyde}
- 273/04 . . from carbon dioxide and ammonia
- 273/06 . . from cyanamide or calcium cyanamide
- 273/08 . . from ammoniacal liquor
- 273/10 . . combined with the synthesis of ammonia
- 273/12 . . combined with the synthesis of melamine
- 273/14 . . Separation; Purification; Stabilisation; Use of additives
- 273/16 . . . Separation; Purification
- 273/18 . of substituted ureas
- 273/1809 . . {with formation of the N-C(O)-N moiety}
- 273/1818 . . . {from -N=C=O and XNR'R"}
- 273/1827 . . . . {X being H}
- 273/1836 . . . {from derivatives of carbamic acid}
- 273/1845 . . . . {comprising the -N-C(O)-Hal moiety}
- 273/1854 . . {by reactions not involving the formation of the N-C(O)-N- moiety}
- 273/1863 . . . {from urea}
- 273/1872 . . {Preparation of compounds comprising a -N-C(O)-N-C(O)-N- moiety}
- 273/1881 . . . {from urea}
- 273/189 . . {Purification, separation, stabilisation, use of additives}
- 275/00 Derivatives of urea, i.e. compounds containing any of the groups**
- $$\begin{array}{c} \text{O} \quad \text{N} \quad \text{N} \\ \parallel \quad | \quad | \\ >\text{N}-\text{C}-\text{N}< \quad , >\text{N}-\text{C}-\text{O}- \quad \text{or} \quad >\text{N}-\text{C}-\text{Hal} \end{array}, \text{the}$$
- nitrogen atoms not being part of nitro or nitroso groups**
- 275/02 . Salts; Complexes; Addition compounds
- 275/04 . having nitrogen atoms of urea groups bound to acyclic carbon atoms
- 275/06 . . of an acyclic and saturated carbon skeleton

- 275/08 . . . being further substituted by halogen atoms, or by nitro or nitroso groups
- 275/10 . . . being further substituted by singly-bound oxygen atoms
- 275/12 . . . being further substituted by doubly-bound oxygen atoms
- 275/14 . . . being further substituted by nitrogen atoms not being part of nitro or nitroso groups
- 275/16 . . . being further substituted by carboxyl groups
- 275/18 . . of a saturated carbon skeleton containing rings
- 275/20 . . of an unsaturated carbon skeleton
- 275/22 . . . containing rings other than six-membered aromatic rings
- 275/24 . . . containing six-membered aromatic rings
- 275/26 . having nitrogen atoms of urea groups bound to carbon atoms of rings other than six-membered aromatic rings
- 275/28 . having nitrogen atoms of urea groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton
- 275/30 . . being further substituted by halogen atoms, or by nitro or nitroso groups
- 275/32 . . being further substituted by singly-bound oxygen atoms
- 275/34 . . . having nitrogen atoms of urea groups and singly-bound oxygen atoms bound to carbon atoms of the same non-condensed six-membered aromatic ring
- 275/36 . . . with at least one of the oxygen atoms further bound to a carbon atom of a six-membered aromatic ring, e.g. N-aryloxyphenylureas
- 275/38 . . being further substituted by doubly-bound oxygen atoms
- 275/40 . . being further substituted by nitrogen atoms not being part of nitro or nitroso groups
- 275/42 . . being further substituted by carboxyl groups
- 275/44 . having nitrogen atoms of urea groups doubly-bound to carbon atoms
- 275/46 . containing any of the groups
- $$\begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{C}-\text{N}-\text{C}=\text{X} \\ \parallel \\ \text{Y} \end{array} \quad \text{or} \quad \begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{C}-\text{N}=\text{C}-\text{X} \\ \parallel \\ \text{Y} \end{array}, \text{X being a hetero atom, Y being any atom, e.g. acylureas}$$
- 275/48 . . Y being a hydrogen or a carbon atom
- 275/50 . . . Y being a hydrogen or an acyclic carbon atom
- 275/52 . . . Y being a carbon atom of a ring other than a six-membered aromatic ring
- 275/54 . . . Y being a carbon atom of a six-membered aromatic ring, e.g. benzoylureas
- 275/56 . . . X being a nitrogen atom
- 275/58 . . Y being a hetero atom
- 275/60 . . . Y being an oxygen atom, e.g. allophanic acids
- 275/62 . . . Y being a nitrogen atom, e.g. biuret
- 275/64 . having nitrogen atoms of urea groups singly-bound to oxygen atoms
- 275/66 . having nitrogen atoms of urea groups bound to halogen atoms or to nitro or nitroso groups
- 275/68 . . N-nitroso ureas

- 275/70 . Compounds containing any of the groups
- $$\begin{array}{c} \text{N}- \\ \parallel \\ \text{C} \\ \parallel \\ \text{O}- \end{array} \quad \text{or} \quad \begin{array}{c} \text{N}- \\ \parallel \\ \text{C} \\ \parallel \\ \text{Hal} \end{array}, \text{e.g. isoureas}$$

- 277/00 **Preparation of guanidine or its derivatives, i.e. compounds containing the group**  $\begin{array}{c} \text{N}- \\ \parallel \\ >\text{N}-\text{C}-\text{N}< \end{array}$ , the

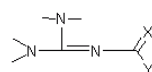
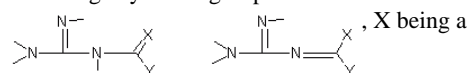
**singly-bound nitrogen atoms not being part of nitro or nitroso groups**

- 277/02 . of guanidine from cyanamide, calcium cyanamide or dicyandiamides
- 277/04 . of guanidine from ammonium thiocyanate
- 277/06 . Purification or separation of guanidine
- 277/08 . of substituted guanidines

- 279/00 **Derivatives of guanidine, i.e. compounds containing the group**  $\begin{array}{c} \text{N}- \\ \parallel \\ >\text{N}-\text{C}-\text{N}< \end{array}$ , the **singly-bound**

**nitrogen atoms not being part of nitro or nitroso groups**

- 279/02 . Guanidine; Salts, complexes or addition compounds thereof
- 279/04 . having nitrogen atoms of guanidine groups bound to acyclic carbon atoms of a carbon skeleton
- 279/06 . . being further substituted by halogen atoms, or by nitro or nitroso groups
- 279/08 . . being further substituted by singly-bound oxygen atoms
- 279/10 . . being further substituted by doubly-bound oxygen atoms
- 279/12 . . being further substituted by nitrogen atoms not being part of nitro or nitroso groups
- 279/14 . . being further substituted by carboxyl groups
- 279/16 . having nitrogen atoms of guanidine groups bound to carbon atoms of rings other than six-membered aromatic rings
- 279/18 . having nitrogen atoms of guanidine groups bound to carbon atoms of six-membered aromatic rings
- 279/20 . containing any of the groups



hetero atom, Y being any atom, e.g. acylguanidines

- 279/22 . . Y being a hydrogen or a carbon atom, e.g. benzoylguanidines
- 279/24 . . Y being a hetero atom
- 279/26 . . . X and Y being nitrogen atoms, i.e. biguanides
- 279/265 . . . {containing two or more biguanide groups}
- 279/28 . having nitrogen atoms of guanidine groups bound to cyano groups, e.g. cyanoguanidines, dicyandiamides
- 279/30 . having nitrogen atoms of guanidine groups bound to nitro or nitroso groups
- 279/32 . . N-nitroguanidines
- 279/34 . . . N-nitroguanidine
- 279/36 . . . Substituted N-nitroguanidines

<b>281/00</b>	<b>Derivatives of carbonic acid containing functional groups covered by groups <a href="#">C07C 269/00</a> - <a href="#">C07C 279/00</a> in which at least one nitrogen atom of these functional groups is further bound to another nitrogen atom not being part of a nitro or nitroso group</b>	<b>301/02</b>	• having sulfite groups bound to carbon atoms of six-membered aromatic rings
281/02	• Compounds containing any of the groups $\begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{N}-\text{C}-\text{O}- \end{array} \text{ or } \begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{N}=\text{C}-\text{O}- \end{array}$ , e.g. carbazates	<b>303/00</b>	<b>Preparation of esters or amides of sulfuric acids; Preparation of sulfonic acids or of their esters, halides, anhydrides or amides</b>
281/04	• • the other nitrogen atom being further doubly-bound to a carbon atom	303/02	• of sulfonic acids or halides thereof
281/06	• Compounds containing any of the groups $\begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{N}-\text{C}-\text{N}- \end{array} \text{ , e.g. } \begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{N}=\text{C}-\text{N}- \end{array}$ or $\begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{N}-\text{C}=\text{N}- \end{array}$ semicarbazides	303/04	• • by substitution of hydrogen atoms by sulfo or halosulfonyl groups
281/08	• • the other nitrogen atom being further doubly-bound to a carbon atom, e.g. semicarbazones	303/06	• • • by reaction with sulfuric acid or sulfur trioxide
281/10	• • • the carbon atom being further bound to an acyclic carbon atom or to a carbon atom of a ring other than a six-membered aromatic ring	303/08	• • • by reaction with halogenosulfonic acids
281/12	• • • the carbon atom being part of a ring other than a six-membered aromatic ring	303/10	• • • by reaction with sulfur dioxide and halogen or by reaction with sulfonyl halides
281/14	• • • the carbon atom being further bound to a carbon atom of a six-membered aromatic ring	303/12	• • • by reaction with thionylhalides
281/16	• Compounds containing any of the groups $\begin{array}{c} \text{N}- \\ \parallel \\ >\text{N}-\text{N}-\text{C}-\text{N}- \end{array} \text{ or } \begin{array}{c} -\text{N}- \\ \parallel \\ >\text{N}-\text{N}=\text{C}-\text{N}- \end{array}$ , e.g. aminoguanidine	303/14	• • by sulfoxidation, i.e. by reaction with sulfur dioxide and oxygen with formation of sulfo or halosulfonyl groups
281/18	• • the other nitrogen atom being further doubly-bound to a carbon atom, e.g. guanyldiazones	303/16	• • by oxidation of thiols, sulfides, hydropolysulfides, or polysulfides with formation of sulfo or halosulfonyl groups
281/20	• the two nitrogen atoms of the functional groups being doubly-bound to each other, e.g. azoformamide	303/18	• • by reaction of sulfides with compounds having functional groups with formation of sulfo or halosulfonyl groups
<b>291/00</b>	<b>Compounds containing carbon and nitrogen and having functional groups not covered by groups <a href="#">C07C 201/00</a> - <a href="#">C07C 281/00</a></b>	303/20	• • by addition of sulfurous acid or salts thereof to compounds having carbon-to-carbon multiple bonds
291/02	• containing nitrogen-oxide bonds	303/22	• • from sulfonic acids, by reactions not involving the formation of sulfo or halosulfonyl groups; {from sulfonic halides by reactions not involving the formation of halosulfonyl groups}
291/04	• • containing amino-oxide bonds	303/24	• of esters of sulfuric acids
291/06	• • Nitrile oxides	303/26	• of esters of sulfonic acids
291/08	• • Azoxy compounds	303/28	• • by reaction of hydroxy compounds with sulfonic acids or derivatives thereof
291/10	• Isocyanides	303/30	• • by reactions not involving the formation of esterified sulfo groups
291/12	• Fulminates	303/32	• of salts of sulfonic acids
291/14	• containing at least one carbon atom bound to a nitro or nitroso group and doubly-bound to a hetero atom	303/34	• of amides of sulfuric acids
		303/36	• of amides of sulfonic acids
		303/38	• • by reaction of ammonia or amines with sulfonic acids, or with esters, anhydrides, or halides thereof
		303/40	• • by reactions not involving the formation of sulfonamide groups
		303/42	• Separation; Purification; Stabilisation; Use of additives
		303/44	• • Separation; Purification
		303/46	• • • from by-products of refining mineral oils with sulfuric acid
		<b>305/00</b>	<b>Esters of sulfuric acids (cyclic esters <a href="#">C07D</a>)</b>
		305/02	• having oxygen atoms of sulfate groups bound to acyclic carbon atoms of a carbon skeleton
		305/04	• • being acyclic and saturated
		305/06	• • • Hydrogenosulfates
		305/08	• • • Dialkylsulfates; Substituted dialkylsulfates
		305/10	• • • being further substituted by singly-bound oxygen atoms
		305/12	• • being saturated and containing rings
		305/14	• • being acyclic and unsaturated
		305/16	• • being unsaturated and containing rings
		305/18	• • • containing six-membered aromatic rings
<b>301/00</b>	<b>Esters of sulfurous acid (cyclic esters <a href="#">C07D</a>)</b>		

**Compounds containing carbon together with sulfur, selenium, or tellurium, with or without hydrogen, halogens, oxygen, or nitrogen** (irradiation products of cholesterol or its derivatives [C07C 401/00](#); vitamin D derivatives, 9-10-seco cyclopenta[a]phenanthrene or analogues obtained by chemical preparation without irradiation [C07C 401/00](#); derivatives of cyclohexane or of a cyclohexene {or of cyclohexadiene}, having a side-chain containing an acyclic unsaturated part of at least four carbon atoms, this part being directly attached to the cyclohexane or cyclohexene {or cyclohexadiene} rings [C07C 403/00](#); protaglandins or derivatives thereof [C07C 405/00](#); peroxy compounds [C07C 407/00](#), [C07C 409/00](#))



305/20	• having oxygen atoms of sulfate groups bound to carbon atoms of rings other than six-membered aromatic rings	309/17	• • • • containing carboxyl groups bound to the carbon skeleton
305/22	• having oxygen atoms of sulfate groups bound to carbon atoms of six-membered aromatic rings	309/18	• • • • containing amino groups bound to the same carbon skeleton
305/24	• • of non-condensed six-membered aromatic rings	309/19	• • • of a saturated carbon skeleton containing rings
305/26	• Halogenosulfates, i.e. monoesters of halogenosulfuric acids	309/20	• • • of an acyclic unsaturated carbon skeleton
<b>307/00</b>	<b>Amides of sulfuric acids, i.e. compounds having singly-bound oxygen atoms of sulfate groups replaced by nitrogen atoms, not being part of nitro or nitroso groups</b>	309/21	• • • • containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton
307/02	• Monoamides of sulfuric acids or esters thereof, e.g. sulfamic acids	309/22	• • • • containing carboxyl groups bound to the carbon skeleton
307/04	• Diamides of sulfuric acids	309/23	• • • of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings
307/06	• • having nitrogen atoms of the sulfamide groups bound to acyclic carbon atoms	309/24	• • • of a carbon skeleton containing six-membered aromatic rings
307/08	• • having nitrogen atoms of the sulfamide groups bound to carbon atoms of rings other than six-membered aromatic rings	309/25	• • having sulfo groups bound to carbon atoms of rings other than six-membered aromatic rings of a carbon skeleton
307/10	• • having nitrogen atoms of the sulfamide groups bound to carbon atoms of six-membered aromatic rings	309/26	• • • containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton
<b>309/00</b>	<b>Sulfonic acids; Halides, esters, or anhydrides thereof</b>	309/27	• • • containing carboxyl groups bound to the carbon skeleton
309/01	• Sulfonic acids	309/28	• • having sulfo groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton
309/02	• • having sulfo groups bound to acyclic carbon atoms	309/29	• • • of non-condensed six-membered aromatic rings
309/03	• • • of an acyclic saturated carbon skeleton	309/30	• • • • of six-membered aromatic rings substituted by alkyl groups
309/04	• • • • containing only one sulfo group	309/31	• • • • • by alkyl groups containing at least three carbon atoms
309/05	• • • • containing at least two sulfo groups bound to the carbon skeleton	309/32	• • • • containing at least two non-condensed six-membered aromatic rings in the carbon skeleton
309/06	• • • • containing halogen atoms, or nitro or nitroso groups bound to the carbon skeleton	309/33	• • • of six-membered aromatic rings being part of condensed ring systems
309/07	• • • • containing oxygen atoms bound to the carbon skeleton	309/34	• • • • formed by two rings
309/08	• • • • • containing hydroxy groups bound to the carbon skeleton	309/35	• • • • • Naphthalene sulfonic acids
309/09	• • • • • containing etherified hydroxy groups bound to the carbon skeleton	309/36	• • • • • substituted by alkyl groups
309/10	• • • • • with the oxygen atom of at least one of the etherified hydroxy groups further bound to an acyclic carbon atom	309/37	• • • • • by alkyl groups containing at least three carbon atoms
309/11	• • • • • with the oxygen atom of at least one of the etherified hydroxy groups further bound to a carbon atom of a six-membered aromatic ring	309/38	• • • • formed by at least three rings
309/12	• • • • • containing esterified hydroxy groups bound to the carbon skeleton	309/39	• • • containing halogen atoms bound to the carbon skeleton
309/13	• • • • containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton	309/40	• • • containing nitro or nitroso groups bound to the carbon skeleton
309/14	• • • • • containing amino groups bound to the carbon skeleton	309/41	• • • containing singly-bound oxygen atoms bound to the carbon skeleton
309/15	• • • • • the nitrogen atom of at least one of the amino groups being part of any of the groups	309/42	• • • • having the sulfo groups bound to carbon atoms of non-condensed six-membered aromatic rings
	$\begin{array}{c} \text{X} \\ \parallel \\ \text{>N-C-Y} \end{array} \text{ or } \begin{array}{c} \text{X} \\ \diagup \\ \text{-N=C} \\ \diagdown \\ \text{Y} \end{array}, \text{X}$	309/43	• • • • having at least one of the sulfo groups bound to a carbon atom of a six-membered aromatic ring being part of a condensed ring system
	being a hetero atom, Y being any atom	309/44	• • • containing doubly-bound oxygen atoms bound to the carbon skeleton
309/16	• • • • • containing doubly-bound nitrogen atoms bound to the carbon skeleton	309/45	• • • containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton
		309/46	• • • • having the sulfo groups bound to carbon atoms of non-condensed six-membered aromatic rings
		309/47	• • • • having at least one of the sulfo groups bound to a carbon atom of a six-membered aromatic ring being part of a condensed ring system

- 309/48 . . . . the carbon skeleton being further substituted by halogen atoms
- 309/49 . . . . the carbon skeleton being further substituted by singly-bound oxygen atoms
- 309/50 . . . . having at least one of the sulfo groups bound to a carbon atom of a six-membered aromatic ring being part of a condensed ring system
- 309/51 . . . . at least one of the nitrogen atoms being part of any of the groups
- $$\begin{array}{c} \text{X} \\ \diagup \quad \diagdown \\ \text{N}-\text{C}=\text{C} \\ \diagdown \quad \diagup \\ \text{Y} \end{array} \quad \text{or} \quad \begin{array}{c} \text{X} \\ \diagup \quad \diagdown \\ \text{N}=\text{C}=\text{C} \\ \diagdown \quad \diagup \\ \text{Y} \end{array}$$

, X being a hetero atom, Y being any atom
- 309/52 . . . . the carbon skeleton being further substituted by doubly-bound oxygen atoms
- 309/53 . . . . the carbon skeleton containing carbon atoms of quinone rings
- 309/54 . . . . at least one of the nitrogen atoms being part of any of the groups
- $$\begin{array}{c} \text{X} \\ \diagup \quad \diagdown \\ \text{N}-\text{C}=\text{C} \\ \diagdown \quad \diagup \\ \text{Y} \end{array} \quad \text{or} \quad \begin{array}{c} \text{X} \\ \diagup \quad \diagdown \\ \text{N}=\text{C}=\text{C} \\ \diagdown \quad \diagup \\ \text{Y} \end{array}$$

, X being a hetero atom, Y being any atom
- 309/55 . . . . . Y being a hydrogen or a carbon atom
- 309/56 . . . . . Y being a hetero atom
- 309/57 . . . containing carboxyl groups bound to the carbon skeleton
- 309/58 . . . . Carboxylic acid groups or esters thereof
- 309/59 . . . . Nitrogen analogues of carboxyl groups
- 309/60 . . . . the carbon skeleton being further substituted by singly-bound oxygen atoms
- 309/61 . . . . the carbon skeleton being further substituted by nitrogen atoms, not being part of nitro or nitroso groups
- 309/62 . . Sulfonated fats, oils or waxes of undetermined constitution ([chemical modification of petroleum waxes C10G 73/38](#) {[Bituminosulfonic acid C07G 9/00](#)})
- 309/63 . Esters of sulfonic acids
- 309/64 . . having sulfur atoms of esterified sulfo groups bound to acyclic carbon atoms
- 309/65 . . . of a saturated carbon skeleton
- 309/66 . . . . Methanesulfonates
- 309/67 . . . of an unsaturated carbon skeleton
- 309/68 . . . of a carbon skeleton substituted by singly-bound oxygen atoms
- 309/69 . . . of a carbon skeleton substituted by nitrogen atoms, not being part of nitro or nitroso groups
- 309/70 . . . of a carbon skeleton substituted by carboxyl groups
- 309/71 . . having sulfur atoms of esterified sulfo groups bound to carbon atoms of rings other than six-membered aromatic rings
- 309/72 . . having sulfur atoms of esterified sulfo groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton
- 309/73 . . . to carbon atoms of non-condensed six-membered aromatic rings
- 309/74 . . . to carbon atoms of six-membered aromatic rings being part of condensed ring systems
- 309/75 . . . containing singly-bound oxygen atoms bound to the carbon skeleton
- 309/76 . . . containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton
- 309/77 . . . containing carboxyl groups bound to the carbon skeleton
- 309/78 . Halides of sulfonic acids
- 309/79 . . having halosulfonyl groups bound to acyclic carbon atoms
- 309/80 . . . of a saturated carbon skeleton
- 309/81 . . . of an unsaturated carbon skeleton
- 309/82 . . . of a carbon skeleton substituted by singly-bound oxygen atoms
- 309/83 . . . of a carbon skeleton substituted by nitrogen atoms, not being part of nitro or nitroso groups
- 309/84 . . . of a carbon skeleton substituted by carboxyl groups
- 309/85 . . having halosulfonyl groups bound to carbon atoms of rings other than six-membered aromatic rings
- 309/86 . . having halosulfonyl groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton
- 309/87 . . . containing singly-bound oxygen atoms bound to the carbon skeleton
- 309/88 . . . containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton
- 309/89 . . . containing carboxyl groups bound to the carbon skeleton
- 311/00 Amides of sulfonic acids, i.e. compounds having singly-bound oxygen atoms of sulfo groups replaced by nitrogen atoms, not being part of nitro or nitroso groups**
- 311/01 . Sulfonamides having sulfur atoms of sulfonamide groups bound to acyclic carbon atoms
- 311/02 . . of an acyclic saturated carbon skeleton
- 311/03 . . . having the nitrogen atoms of the sulfonamide groups bound to hydrogen atoms or to acyclic carbon atoms
- 311/04 . . . . to acyclic carbon atoms of hydrocarbon radicals substituted by singly-bound oxygen atoms
- 311/05 . . . . to acyclic carbon atoms of hydrocarbon radicals substituted by nitrogen atoms, not being part of nitro or nitroso groups
- 311/06 . . . . to acyclic carbon atoms of hydrocarbon radicals substituted by carboxyl groups
- 311/07 . . . having the nitrogen atom of at least one of the sulfonamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring
- 311/08 . . . having the nitrogen atom of at least one of the sulfonamide groups bound to a carbon atom of a six-membered aromatic ring
- 311/09 . . . the carbon skeleton being further substituted by at least two halogen atoms
- 311/10 . . of a saturated carbon skeleton containing rings
- 311/11 . . of an acyclic unsaturated carbon skeleton
- 311/12 . . of an unsaturated carbon skeleton containing rings
- 311/13 . . . the carbon skeleton containing six-membered aromatic rings
- 311/14 . Sulfonamides having sulfur atoms of sulfonamide groups bound to carbon atoms of rings other than six-membered aromatic rings

311/15	• Sulfonamides having sulfur atoms of sulfonamide groups bound to carbon atoms of six-membered aromatic rings	311/41	• . . . . to an acyclic carbon atom of a hydrocarbon radical substituted by nitrogen atoms, not being part of nitro or nitroso groups
311/16	• . having the nitrogen atom of at least one of the sulfonamide groups bound to hydrogen atoms or to an acyclic carbon atom	311/42	• . . . . to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl groups
311/17	• . . to an acyclic carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms	311/43	• . . . having the nitrogen atom of at least one of the sulfonamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring
311/18	• . . to an acyclic carbon atom of a hydrocarbon radical substituted by nitrogen atoms, not being part of nitro or nitroso groups	311/44	• . . . having the nitrogen atom of at least one of the sulfonamide groups bound to a carbon atom of a six-membered aromatic ring
311/19	• . . to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl groups	311/45	• . at least one of the singly-bound nitrogen atoms being part of any of the groups
311/20	• . having the nitrogen atom of at least one of the sulfonamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring	$\begin{array}{c} \text{X} \\ \diagup \\ \text{N}-\text{C} \\ \diagdown \\ \text{Y} \end{array} \quad \text{or} \quad \begin{array}{c} \text{X} \\ \diagup \\ -\text{N}=\text{C} \\ \diagdown \\ \text{Y} \end{array}$	
311/21	• . having the nitrogen atom of at least one of the sulfonamide groups bound to a carbon atom of a six-membered aromatic ring	X, X being a hetero atom, Y being any atom, e.g. N-acylaminosulfonamides	
311/22	• Sulfonamides, the carbon skeleton of the acid part being further substituted by singly-bound oxygen atoms	311/46	• . . Y being a hydrogen or a carbon atom
311/23	• . having the sulfur atoms of the sulfonamide groups bound to acyclic carbon atoms	311/47	• . . Y being a hetero atom
311/24	• . . of an acyclic saturated carbon skeleton	311/48	• having nitrogen atoms of sulfonamide groups further bound to another hetero atom
311/25	• . . of a saturated carbon skeleton containing rings	311/49	• . to nitrogen atoms
311/26	• . . of an acyclic unsaturated carbon skeleton	311/50	• Compounds containing any of the groups
311/27	• . . of an unsaturated carbon skeleton containing rings	$\begin{array}{c} \text{X} \\ \diagup \\ \equiv\text{C}-\text{SO}_2-\text{N}-\text{C} \\ \diagdown \\ \text{Y} \end{array} \quad \text{or} \quad \begin{array}{c} \text{X} \\ \diagup \\ \equiv\text{C}-\text{SO}_2-\text{N}=\text{C} \\ \diagdown \\ \text{Y} \end{array}$	
311/28	• . having the sulfur atom of at least one of the sulfonamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring	a hetero atom, Y being any atom	
311/29	• . having the sulfur atom of at least one of the sulfonamide groups bound to a carbon atom of a six-membered aromatic ring	311/51	• . Y being a hydrogen or a carbon atom
311/30	• Sulfonamides, the carbon skeleton of the acid part being further substituted by singly-bound nitrogen atoms, not being part of nitro or nitroso groups	311/52	• . Y being a hetero atom
311/31	• . having the sulfur atoms of the sulfonamide groups bound to acyclic carbon atoms	311/53	• . . X and Y not being nitrogen atoms, e.g. N-sulfonylcarbamic acid
311/32	• . . of an acyclic saturated carbon skeleton	311/54	• . . either X or Y, but not both, being nitrogen atoms, e.g. N-sulfonylurea
311/33	• . . of a saturated carbon skeleton containing rings	311/55	• . . . having sulfur atoms of the sulfonylurea groups bound to acyclic carbon atoms
311/34	• . . of an acyclic unsaturated carbon skeleton	311/56	• . . . having sulfur atoms of the sulfonylurea groups bound to carbon atoms of rings other than six-membered aromatic rings
311/35	• . . of an unsaturated carbon skeleton containing rings	311/57	• . . . having sulfur atoms of the sulfonylurea groups bound to carbon atoms of six-membered aromatic rings
311/36	• . having the sulfur atom of at least one of the sulfonamide groups bound to a carbon atom of a ring other than a six-membered aromatic ring	311/58	• . . . . having nitrogen atoms of the sulfonylurea groups bound to hydrogen atoms or to acyclic carbon atoms
311/37	• . having the sulfur atom of at least one of the sulfonamide groups bound to a carbon atom of a six-membered aromatic ring	311/59	• . . . . having nitrogen atoms of the sulfonylurea groups bound to carbon atoms of rings other than six-membered aromatic rings
311/38	• . . having sulfur atoms of sulfonamide groups and amino groups bound to carbon atoms of six-membered rings of the same carbon skeleton	311/60	• . . . . having nitrogen atoms of the sulfonylurea groups bound to carbon atoms of six-membered aromatic rings
311/39	• . . . having the nitrogen atom of at least one of the sulfonamide groups bound to hydrogen atoms or to an acyclic carbon atom	311/61	• . . . . having nitrogen atoms of the sulfonylurea groups further bound to another hetero atom
311/40	• . . . . to an acyclic carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms	311/62	• . . . . having nitrogen atoms of the sulfonylurea groups further acylated
		311/63	• . . . . N-sulfonylisoureas
		311/64	• . . . X and Y being nitrogen atoms, e.g. N-sulfonylguanidine
		311/65	• N-sulfonylisocyanates

<b>313/00</b>	<b>Sulfinic acids; Sulfenic acids; Halides, esters or anhydrides thereof; Amides of sulfinic or sulfenic acids, i.e. compounds having singly-bound oxygen atoms of sulfinic or sulfenic groups replaced by nitrogen atoms, not being part of nitro or nitroso groups</b>	317/16	• having sulfone or sulfoxide groups and singly-bound oxygen atoms bound to the same carbon skeleton
313/02	• Sulfinic acids; Derivatives thereof	317/18	• • with sulfone or sulfoxide groups bound to acyclic carbon atoms of the carbon skeleton
313/04	• • Sulfinic acids; Esters thereof	317/20	• • with sulfone or sulfoxide groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
313/06	• • Sulfinamides	317/22	• • with sulfone or sulfoxide groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
313/08	• Sulfenic acids; Derivatives thereof	317/24	• having sulfone or sulfoxide groups and doubly-bound oxygen atoms bound to the same carbon skeleton
313/10	• • Sulfenic acids; Esters thereof	317/26	• having sulfone or sulfoxide groups and nitrogen atoms, not being part of nitro or nitroso groups, bound to the same carbon skeleton
313/12	• • • having sulfur atoms of sulfenic groups bound to acyclic carbon atoms	317/28	• • with sulfone or sulfoxide groups bound to acyclic carbon atoms of the carbon skeleton
313/14	• • • having sulfur atoms of sulfenic groups bound to carbon atoms of rings other than six-membered aromatic rings	317/30	• • with sulfone or sulfoxide groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
313/16	• • • having sulfur atoms of sulfenic groups bound to carbon atoms of six-membered aromatic rings	317/32	• • with sulfone or sulfoxide groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
313/18	• • Sulfenamides	317/34	• • • having sulfone or sulfoxide groups and amino groups bound to carbon atoms of six-membered aromatic rings being part of the same non-condensed ring or of a condensed ring system containing that ring
313/20	• • • having sulfur atoms of sulfenamide groups bound to acyclic carbon atoms	317/36	• • • with the nitrogen atoms of the amino groups bound to hydrogen atoms or to carbon atoms
313/22	• • • having sulfur atoms of sulfenamide groups bound to carbon atoms of rings other than six-membered aromatic rings	317/38	• • • with the nitrogen atom of at least one amino group being part of any of the groups
313/24	• • • having sulfur atoms of sulfenamide groups bound to carbon atoms of six-membered aromatic rings		$\begin{array}{c} \text{X} \\ \parallel \\ \text{>N}-\text{C}-\text{Y} \text{ or } -\text{N}=\text{C}-\text{Y} \\ \text{X} \end{array}$ <p>X being a hetero atom, Y being any atom</p>
313/26	• • • Compounds containing any of the groups		
313/28	• • • • Y being a hydrogen or a carbon atom		
313/30	• • • • Y being a hetero atom		
313/32	• • • • X and Y not being nitrogen atoms, e.g. N-sulphenylcarbamic acid		
313/34	• • • • either X or Y, but not both, being nitrogen atoms, e.g. N-sulphenylureas		
313/36	• • • having nitrogen atoms of sulfenamide groups further bound to other hetero atoms		
313/38	• • • N-sulphenylisocyanates		
<b>315/00</b>	<b>Preparation of sulfones; Preparation of sulfoxides</b>	317/40	• • • • Y being a hydrogen or a carbon atom
315/02	• by formation of sulfone or sulfoxide groups by oxidation of sulfides, or by formation of sulfone groups by oxidation of sulfoxides	317/42	• • • • Y being a hetero atom
315/04	• by reactions not involving the formation of sulfone or sulfoxide groups	317/44	• having sulfone or sulfoxide groups and carboxyl groups bound to the same carbon skeleton
315/06	• Separation; Purification; Stabilisation; Use of additives	317/46	• • the carbon skeleton being further substituted by singly-bound oxygen atoms
<b>317/00</b>	<b>Sulfones; Sulfoxides</b>	317/48	• • the carbon skeleton being further substituted by singly-bound nitrogen atoms, not being part of nitro or nitroso groups
317/02	• having sulfone or sulfoxide groups bound to acyclic carbon atoms	317/50	• • • at least one of the nitrogen atoms being part of any of the groups
317/04	• • of an acyclic saturated carbon skeleton		$\begin{array}{c} \text{X} \\ \parallel \\ \text{>N}-\text{C}-\text{Y} \text{ or } -\text{N}=\text{C}-\text{Y} \\ \text{X} \end{array}$ <p>X being a hetero atom, Y being any atom</p>
317/06	• • of a saturated carbon skeleton containing rings		
317/08	• • of an acyclic unsaturated carbon skeleton	<b>319/00</b>	<b>Preparation of thiols, sulfides, hydropolysulfides or polysulfides</b>
317/10	• • of an unsaturated carbon skeleton containing rings	319/02	• of thiols
317/12	• having sulfone or sulfoxide groups bound to carbon atoms of rings other than six-membered aromatic rings	319/04	• • by addition of hydrogen sulfide or its salts to unsaturated compounds
317/14	• having sulfone or sulfoxide groups bound to carbon atoms of six-membered aromatic rings	319/06	• • from sulfides, hydropolysulfides or polysulfides
		319/08	• • by replacement of hydroxy groups or etherified or esterified hydroxy groups

319/10	. . . by replacement of hydroxy groups or etherified or esterified hydroxy groups bound to carbon atoms of six-membered aromatic rings	323/08	. . having sulfur atoms of thio groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
319/12	. . by reactions not involving the formation of mercapto groups	323/09	. . having sulfur atoms of thio groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
319/14	. of sulfides		
319/16	. . by addition of hydrogen sulfide or its salts to unsaturated compounds	323/10	. containing thio groups and singly-bound oxygen atoms bound to the same carbon skeleton
319/18	. . by addition of thiols to unsaturated compounds	323/11	. . having the sulfur atoms of the thio groups bound to acyclic carbon atoms of the carbon skeleton
319/20	. . by reactions not involving the formation of sulfide groups	323/12	. . . the carbon skeleton being acyclic and saturated
319/22	. of hydropolysulfides or polysulfides	323/13	. . . the carbon skeleton being saturated and containing rings
319/24	. . by reactions involving the formation of sulfur-to-sulfur bonds	323/14	. . . the carbon skeleton being acyclic and unsaturated
319/26	. Separation; Purification; Stabilisation; Use of additives	323/15	. . . the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings
319/28	. . Separation; Purification		
319/30	. . . from the by-products of refining mineral oils	323/16	. . . the carbon skeleton containing six-membered aromatic rings
<b>321/00</b>	<b>Thiols, sulfides, hydropolysulfides or polysulfides</b>		
321/02	. Thiols having mercapto groups bound to acyclic carbon atoms	323/17	. . having the sulfur atom of at least one of the thio groups bound to a carbon atom of a ring other than a six-membered aromatic ring of the carbon skeleton
321/04	. . of an acyclic saturated carbon skeleton		
321/06	. . of a saturated carbon skeleton containing rings		
321/08	. . of an acyclic unsaturated carbon skeleton	323/18	. . having the sulfur atom of at least one of the thio groups bound to a carbon atom of a six-membered aromatic ring of the carbon skeleton
321/10	. . of an unsaturated carbon skeleton containing rings		
321/12	. Sulfides, hydropolysulfides, or polysulfides having thio groups bound to acyclic carbon atoms	323/19	. . . with singly-bound oxygen atoms bound to acyclic carbon atoms of the carbon skeleton
321/14	. . of an acyclic saturated carbon skeleton	323/20	. . . with singly-bound oxygen atoms bound to carbon atoms of the same non-condensed six-membered aromatic ring
321/16	. . of a saturated carbon skeleton containing rings		
321/18	. . of an acyclic unsaturated carbon skeleton	323/21	. . . with the sulfur atom of the thio group bound to a carbon atom of a six-membered aromatic ring being part of a condensed ring system
321/20	. . of an unsaturated carbon skeleton containing rings		
321/22	. Thiols, sulfides, hydropolysulfides, or polysulfides having thio groups bound to carbon atoms of rings other than six-membered aromatic rings	323/22	. containing thio groups and doubly-bound oxygen atoms bound to the same carbon skeleton
321/24	. Thiols, sulfides, hydropolysulfides, or polysulfides having thio groups bound to carbon atoms of six-membered aromatic rings	323/23	. containing thio groups and nitrogen atoms, not being part of nitro or nitroso groups, bound to the same carbon skeleton
321/26	. . Thiols	323/24	. . having the sulfur atoms of the thio groups bound to acyclic carbon atoms of the carbon skeleton
321/28	. . Sulfides, hydropolysulfides, or polysulfides having thio groups bound to carbon atoms of six-membered aromatic rings	323/25	. . . the carbon skeleton being acyclic and saturated
		323/26	. . . the carbon skeleton being saturated and containing rings
321/30	. . . Sulfides having the sulfur atom of at least one thio group bound to two carbon atoms of six-membered aromatic rings	323/27	. . . the carbon skeleton being acyclic and unsaturated
		323/28	. . . the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings
<b>323/00</b>	<b>Thiols, sulfides, hydropolysulfides or polysulfides substituted by halogen, oxygen or nitrogen atoms, or by sulfur atoms not being part of thio groups</b>	323/29	. . . the carbon skeleton containing six-membered aromatic rings
323/01	. containing thio groups and halogen atoms, or nitro or nitroso groups bound to the same carbon skeleton	323/30	. . having the sulfur atom of at least one of the thio groups bound to a carbon atom of a ring other than a six-membered aromatic ring of the carbon skeleton
323/02	. . having sulfur atoms of thio groups bound to acyclic carbon atoms of the carbon skeleton		
323/03	. . . the carbon skeleton being acyclic and saturated		
323/04	. . . the carbon skeleton being saturated and containing rings	323/31	. . having the sulfur atom of at least one of the thio groups bound to a carbon atom of a six-membered aromatic ring of the carbon skeleton
323/05	. . . the carbon skeleton being acyclic and unsaturated		
323/06	. . . the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings	323/32	. . . having at least one of the nitrogen atoms bound to an acyclic carbon atom of the carbon skeleton
323/07	. . . the carbon skeleton containing six-membered aromatic rings	323/33	. . . having at least one of the nitrogen atoms bound to a carbon atom of the same non-condensed six-membered aromatic ring



323/34	. . . . the thio group being a mercapto group	323/64	. containing thio groups and sulfur atoms, not being part of thio groups, bound to the same carbon skeleton
323/35	. . . . the thio group being a sulfide group	323/65	. . containing sulfur atoms of sulfone or sulfoxide groups bound to the carbon skeleton
323/36	. . . . . the sulfur atom of the sulfide group being further bound to an acyclic carbon atom	323/66	. . containing sulfur atoms of sulfo, esterified sulfo or halosulfonyl groups, bound to the carbon skeleton
323/37	. . . . . the sulfur atom of the sulfide group being further bound to a carbon atom of a six-membered aromatic ring	323/67	. . containing sulfur atoms of sulfonamide groups, bound to the carbon skeleton
323/38	. . . with the sulfur atom of the thio group bound to a carbon atom of a six-membered aromatic ring being part of a condensed ring system	<b>325/00</b>	<b>Thioaldehydes; Thioketones; Thioquinones; Oxides thereof</b>
323/39	. . at least one of the nitrogen atoms being part of any of the groups $\begin{array}{c} \text{X} \\ \parallel \\ \text{N}-\text{C}-\text{Y} \end{array}$ or $\begin{array}{c} \text{X} \\ \diagup \\ -\text{N}=\text{C} \\ \diagdown \\ \text{Y} \end{array}$ , X being a hetero atom, Y being any atom	325/02	. Thioketones; Oxides thereof
323/40	. . . Y being a hydrogen or a carbon atom	325/04	. Thioquinones; Oxides thereof
323/41	. . . . Y being a hydrogen or an acyclic carbon atom	<b>327/00</b>	<b>Thiocarboxylic acids</b>
323/42	. . . . Y being a carbon atom of a six-membered aromatic ring	327/02	. Monothiocarboxylic acids
323/43	. . . Y being a hetero atom	327/04	. . having carbon atoms of thiocarboxyl groups bound to hydrogen atoms or to acyclic carbon atoms
323/44	. . . . X or Y being nitrogen atoms	327/06	. . . to hydrogen atoms or to carbon atoms of an acyclic saturated carbon skeleton
323/45	. . having at least one of the nitrogen atoms doubly-bound to the carbon skeleton	327/08	. . . to carbon atoms of a saturated carbon skeleton containing rings
323/46	. . having at least one of the nitrogen atoms, not being part of nitro or nitroso groups, further bound to other hetero atoms	327/10	. . . to carbon atoms of an acyclic unsaturated carbon skeleton
323/47	. . . to oxygen atoms	327/12	. . . to carbon atoms of an unsaturated carbon skeleton containing rings
323/48	. . . to nitrogen atoms	327/14	. . having carbon atoms of thiocarboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings
323/49	. . . to sulfur atoms	327/16	. . having carbon atoms of thiocarboxyl groups bound to carbon atoms of six-membered aromatic rings
323/50	. containing thio groups and carboxyl groups bound to the same carbon skeleton	327/18	. Dithiocarboxylic acids
323/51	. . having the sulfur atoms of the thio groups bound to acyclic carbon atoms of the carbon skeleton	327/20	. Esters of monothiocarboxylic acids
323/52	. . . the carbon skeleton being acyclic and saturated	327/22	. . having carbon atoms of esterified thiocarboxyl groups bound to hydrogen atoms or to acyclic carbon atoms
323/53	. . . the carbon skeleton being saturated and containing rings	327/24	. . having carbon atoms of esterified thiocarboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings
323/54	. . . the carbon skeleton being acyclic and unsaturated	327/26	. . having carbon atoms of esterified thiocarboxyl groups bound to carbon atoms of six-membered aromatic rings
323/55	. . . the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings	327/28	. . having sulfur atoms of esterified thiocarboxyl groups bound to carbon atoms of hydrocarbon radicals substituted by singly-bound oxygen atoms
323/56	. . . the carbon skeleton containing six-membered aromatic rings	327/30	. . having sulfur atoms of esterified thiocarboxyl groups bound to carbon atoms of hydrocarbon radicals substituted by nitrogen atoms, not being part of nitro or nitroso groups
323/57	. . . the carbon skeleton being further substituted by nitrogen atoms, not being part of nitro or nitroso groups	327/32	. . having sulfur atoms of esterified thiocarboxyl groups bound to carbon atoms of hydrocarbon radicals substituted by carboxyl groups
323/58	. . . . with amino groups bound to the carbon skeleton	327/34	. . . with amino groups bound to the same hydrocarbon radicals
323/59	. . . . . with acylated amino groups bound to the carbon skeleton	327/36	. Esters of dithiocarboxylic acids
323/60	. . . with the carbon atom of at least one of the carboxyl groups bound to nitrogen atoms	327/38	. Amides of thiocarboxylic acids
323/61	. . having the sulfur atom of at least one of the thio groups bound to a carbon atom of a ring other than a six-membered aromatic ring of the carbon skeleton	327/40	. . having carbon atoms of thiocarboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
323/62	. . having the sulfur atom of at least one of the thio groups bound to a carbon atom of a six-membered aromatic ring of the carbon skeleton		
323/63	. . . the carbon skeleton being further substituted by nitrogen atoms, not being part of nitro or nitroso groups		

327/42	. . . to hydrogen atoms or to carbon atoms of a saturated carbon skeleton	331/12	. . having sulfur atoms of thiocyanate groups bound to carbon atoms of hydrocarbon radicals substituted by nitrogen atoms, not being part of nitro or nitroso groups
327/44	. . . to carbon atoms of an unsaturated carbon skeleton	331/14	. . having sulfur atoms of thiocyanate groups bound to carbon atoms of hydrocarbon radicals substituted by carboxyl groups
327/46	. . having carbon atoms of thiocarboxamide groups bound to carbon atoms of rings other than six-membered aromatic rings	331/16	. Isothiocyanates
327/48	. . having carbon atoms of thiocarboxamide groups bound to carbon atoms of six-membered aromatic rings	331/18	. . having isothiocyanate groups bound to acyclic carbon atoms
327/50	. . Compounds containing any of the groups $\begin{array}{c} \text{S} \quad \text{X} \\ \parallel \quad \parallel \\ -\text{C}-\text{N}-\text{C}-\text{Y} \text{ or } -\text{C}=\text{N}-\text{C}-\text{X} \end{array}$ X being a hetero atom, Y being any atom	331/20	. . . of a saturated carbon skeleton
327/52	. . . Y being a hydrogen or a carbon atom	331/22	. . . of an unsaturated carbon skeleton
327/54	. . . Y being a hetero atom	331/24	. . . the carbon skeleton containing six-membered aromatic rings
327/56	. . having nitrogen atoms of thiocarboxamide groups further bound to another hetero atom	331/26	. . having isothiocyanate groups bound to carbon atoms of rings other than six-membered aromatic rings
327/58	. Derivatives of thiocarboxylic acids, the doubly-bound oxygen atoms being replaced by nitrogen atoms, e.g. imino-thio ethers	331/28	. . having isothiocyanate groups bound to carbon atoms of six-membered aromatic rings
327/60	. Thiocarboxylic acids having sulfur atoms of thiocarboxyl groups further doubly-bound to oxygen atoms	331/30	. . containing at least two isothiocyanate groups bound to the same carbon skeleton
<b>329/00</b>	<b>Thiocarbonic acids; Halides, esters or anhydrides thereof</b>	331/32	. . having isothiocyanate groups acylated
329/02	. Monothiocarbonic acids; Derivatives thereof	<b>333/00</b>	<b>Derivatives of thiocarbamic acids, i.e. compounds containing any of the groups</b>
329/04	. . Esters of monothiocarbonic acids		$\begin{array}{c} \text{S} \quad \text{O} \quad \text{S} \\ \parallel \quad \parallel \quad \parallel \\ >\text{N}-\text{C}-\text{S}-, >\text{N}-\text{C}-\text{S}-, >\text{N}-\text{C}-\text{O}-, \\ \\ \text{S} \quad \text{S}- \quad \text{O}- \\ \parallel \quad \parallel \quad \parallel \\ >\text{N}-\text{C}-\text{Hal}, >\text{N}-\text{C}-\text{S}-, >\text{N}-\text{C}-\text{S}- \\ \\ \text{S}- \\   \\ \text{or } >\text{N}=\text{C}-\text{Hal} \end{array}$
329/06	. . . having sulfur atoms of thiocarbonic groups bound to acyclic carbon atoms		<b>nitrogen atom not being part of nitro or nitroso groups</b>
329/08	. . . having sulfur atoms of thiocarbonic groups bound to carbon atoms of rings other than six-membered aromatic rings	333/02	. Monothiocarbamic acids; Derivatives thereof
329/10	. . . having sulfur atoms of thiocarbonic groups bound to carbon atoms of six-membered aromatic rings	333/04	. . having nitrogen atoms of thiocarbamic groups bound to hydrogen atoms or to acyclic carbon atoms
329/12	. Dithiocarbonic acids; Derivatives thereof	333/06	. . having nitrogen atoms of thiocarbamic groups bound to carbon atoms of rings other than six-membered aromatic rings
329/14	. . Esters of dithiocarbonic acids	333/08	. . having nitrogen atoms of thiocarbamic groups bound to carbon atoms of six-membered aromatic rings
329/16	. . . having sulfur atoms of dithiocarbonic groups bound to acyclic carbon atoms	333/10	. . having nitrogen atoms of thiocarbamic groups being part of any of the groups
329/18	. . . having sulfur atoms of dithiocarbonic groups bound to carbon atoms of rings other than six-membered aromatic rings		$\begin{array}{c} \text{O} \quad \text{X} \quad \text{S} \quad \text{X} \\ \parallel \quad \parallel \quad \parallel \quad \parallel \\ -\text{S}-\text{C}-\text{N}-\text{C}-, -\text{O}-\text{C}-\text{N}-\text{C}-, \\ \parallel \quad \parallel \quad \parallel \quad \parallel \\ \text{S} \quad \text{X} \quad \text{O} \quad \text{X} \\ \parallel \quad \parallel \quad \parallel \quad \parallel \\ \text{Hal}-\text{C}-\text{N}-\text{C}-, -\text{S}-\text{C}-\text{N}-\text{C}-, \\ \parallel \quad \parallel \quad \parallel \quad \parallel \\ \text{S} \quad \text{X} \quad \text{S} \quad \text{X} \\ \parallel \quad \parallel \quad \parallel \quad \parallel \\ -\text{O}-\text{C}-\text{N}-\text{C}-, \text{Hal}-\text{C}-\text{N}-\text{C}- \end{array}$
331/00	<b>Derivatives of thiocyanic acid or of isothiocyanic acid</b>		X being a hetero atom, Y being any atom, e.g., N-acyl-thiocarbamates
331/02	. Thiocyanates	333/12	. . having nitrogen atoms of thiocarbamic groups bound to other hetero atoms
331/04	. . having sulfur atoms of thiocyanate groups bound to acyclic carbon atoms	333/14	. Dithiocarbamic acids; Derivatives thereof
331/06	. . having sulfur atoms of thiocyanate groups bound to carbon atoms of rings other than six-membered aromatic rings		
331/08	. . having sulfur atoms of thiocyanate groups bound to carbon atoms of six-membered aromatic rings		
331/10	. . having sulfur atoms of thiocyanate groups bound to carbon atoms of hydrocarbon radicals substituted by singly-bound oxygen atoms		

$$-S-\overset{\overset{S}{\parallel}}{C}-\overset{\overset{|}{N}}{C}=\overset{\overset{X}{\parallel}}{C}-Y \quad \text{or} \quad -S-\overset{\overset{S}{\parallel}}{C}-N=\overset{\overset{X}{\parallel}}{C}-Y, \text{ X being}$$

a hetero atom, Y being any atom, e.g. N-acyldithiocarbamates

$$\text{ps} \quad \begin{array}{c} \text{S} \\ \parallel \\ \text{>N}-\text{C}-\text{N}< \end{array} \quad \text{or} \quad \begin{array}{c} \text{S}- \\ | \\ -\text{N}=\text{C}-\text{N}< \end{array}, \text{ the nitrogen}$$

**atoms not being part of nitro or nitroso groups**

$$\text{N}-\overset{\text{S}}{\underset{\text{||}}{\text{C}}}-\overset{\text{X}}{\underset{\text{||}}{\text{N}}}-\overset{\text{Y}}{\underset{\text{||}}{\text{C}}} \quad \text{or} \quad \text{N}-\overset{\text{S}}{\underset{\text{||}}{\text{C}}}-\text{N}=\overset{\text{X}}{\underset{\text{||}}{\text{C}}}-\overset{\text{Y}}{\underset{\text{||}}{\text{C}}}, \text{X being a}$$

hetero atom, Y being any atom

335/38 . . containing any of the groups

$\text{>N}-\overset{\text{S}-}{\underset{|}{\text{C}}}=\text{N}-\overset{\text{X}}{\underset{|}{\text{C}}}-\underset{\text{Y}}{\text{C}}$  .  $\text{>N}-\overset{\text{S}-}{\underset{|}{\text{C}}}=\text{N}-\overset{\text{X}}{\underset{|}{\text{C}}}-\underset{\text{Y}}{\text{C}}$  , X being a

or  $-\text{N}=\overset{\text{S}-}{\underset{|}{\text{C}}}-\text{N}=\overset{\text{X}}{\underset{|}{\text{C}}}-\underset{\text{Y}}{\text{C}}$

hetero atom, Y being any atom

335/40      • having nitrogen atoms of thiourea or isothiourea groups further bound to other hetero atoms

335/42 . . Sulfonylthioureas; Sulfonylthioureas

335/44 . . Sulfenylthioureas; Sulfenylisothioureas

**337/00** Derivatives of thiocarbonic acids containing functional groups covered by groups [C07C 333/00](#) or [C07C 335/00](#) in which at least one nitrogen atom of these functional groups is further bound to another nitrogen atom not being part of a nitro or nitroso group

337/02 . Compounds containing any of the groups

$$\text{>N}-\overset{\overset{\text{S}}{\parallel}}{\text{N}}-\text{C}-\text{S}-, \quad \text{>N}-\text{N}=\overset{\overset{\text{S}-}{\mid}}{\text{C}}-\text{S}-, \quad \text{e.g.}$$
$$\text{>N}-\overset{\text{S}}{\underset{\text{||}}{\text{C}}}-\text{O}-, \quad \text{>N}-\overset{\text{O}}{\underset{\text{||}}{\text{C}}}-\text{S}-$$
$$\text{or } >\text{N}-\text{N}=\overset{\text{S}-}{\underset{|}{\text{C}}}-\text{O}-$$

thiocarbazates

337/04 . . the other nitrogen atom being further doubly-bound to a carbon atom

337/06 . Compounds containing any of the groups

$$\text{>N}-\overset{\overset{\text{S}}{\parallel}}{\text{N}}-\text{C}-\text{N}< \quad , \quad \text{>N}-\text{N}=\overset{\overset{\text{S}-}}{\text{C}}-\text{N}< \quad , \text{ e.g.}$$
$$\text{or } >\text{N}-\overset{\text{I}}{\underset{\text{I}}{\text{N}}}-\overset{\text{S-}}{\underset{\text{I}}{\text{C}}}=\text{N}<$$

thiosemicarbazides

337/08 . . the other nitrogen atom being further doubly-bound to a carbon atom, e.g. thiosemicarbazones

337/10      • the two nitrogen atoms of the functional groups  
being doubly-bound to each other

**381/00**      **Compounds containing carbon and sulfur and having functional groups not covered by groups**  
**C07C 301/00 - C07C 337/00**

381/02 . Thiosulfates

381/04 . Thiosulfonates

381/06 . Compounds containing sulfur atoms only bound to two nitrogen atoms

381/08 . . having at least one of the nitrogen atoms acylated

381/10 . Compounds containing sulfur atoms doubly-bound to nitrogen atoms

381/12 . Sulfonium compounds

381/14 . Compounds containing a carbon atom having four

bonds to hetero atoms with a double bond to one hetero atom and at least one bond to a sulfur atom further doubly-bound to oxygen atoms

391/00      **Compounds containing selenium**

391/02 . having selenium atoms bound to carbon atoms of six-membered aromatic rings

<b>395/00</b>	<b>Compounds containing tellurium</b>
<b>401/00</b>	<b>Irradiation products of cholesterol or its derivatives; Vitamin D derivatives, 9,10-seco cyclopenta[a]phenanthrene or analogues obtained by chemical preparation without irradiation</b>
<b>403/00</b>	<b>Derivatives of cyclohexane or of a cyclohexene {or of cyclohexadiene}, having a side-chain containing an acyclic unsaturated part of at least four carbon atoms, this part being directly attached to the cyclohexane or cyclohexene {or cyclohexadiene} rings, e.g. vitamin A, beta-carotene, beta-ionone</b>
403/02	. having side-chains containing only carbon and hydrogen atoms
403/04	. having side-chains substituted by halogen atoms
403/06	. having side-chains substituted by singly-bound oxygen atoms
403/08	. . by hydroxy groups
403/10	. . by etherified hydroxy groups
403/12	. . by esterified hydroxy groups
403/14	. having side-chains substituted by doubly-bound oxygen atoms
403/16	. . not being part of —CHO groups
403/18	. having side-chains substituted by nitrogen atoms
403/20	. having side-chains substituted by carboxyl groups {or halides, anhydrides, or (thio)esters thereof}
403/22	. having side-chains substituted by sulfur atoms
403/24	. having side-chains substituted by six-membered non-aromatic rings, e.g. beta-carotene
<b>405/00</b>	<b>Compounds containing a five-membered ring having two side-chains in ortho position to each other, and having oxygen atoms directly attached to the ring in ortho position to one of the side-chains, one side-chain containing, not directly attached to the ring, a carbon atom having three bonds to hetero atoms with at the most one to halogen, and the other side-chain having oxygen atoms attached in gamma-position to the ring, e.g. prostaglandins {Analogues or derivatives thereof}</b>
405/0008	. {Analogues having the carboxyl group in the side-chains replaced by other functional groups}
405/0016	. . {containing only hydroxy, etherified or esterified hydroxy groups}
405/0025	. . {containing keto groups}
405/0033	. . {containing sulfur}
405/0041	. . {containing nitrogen}
405/005	. {Analogues or derivatives having the five membered ring replaced by other rings}
405/0058	. . {having the side-chains or their analogues or derivatives attached to a not condensed ring different from a five-membered ring (five-membered ring see 124 CA and sub-groups)}
405/0066	. . . {to a six-membered ring}
405/0075	. . {having the side-chains or their analogues or derivatives attached to a condensed ring system}
405/0083	. . . {which is only ortho or peri condensed, e.g. carbacyclins}
405/0091	. . . {which is bridged condensed}
<b>407/00</b>	<b>Preparation of peroxy compounds</b>
407/003	. {Separation; Purification; Stabilisation; Use of additives}
407/006	. . {Stabilisation; Use of additives}

<b>409/00</b>	<b>Peroxy compounds</b>
409/02	. the —O—O— group being bound between a carbon atom, not further substituted by oxygen atoms, and hydrogen, i.e. hydroperoxides
409/04	. . the carbon atom being acyclic
409/06	. . . Compounds containing rings other than six-membered aromatic rings
409/08	. . . Compounds containing six-membered aromatic rings
409/10	. . . . Cumene hydroperoxide
409/12	. . . . with two alpha,alpha-dialkylmethyl hydroperoxy groups bound to carbon atoms of the same six-membered aromatic ring
409/14	. . the carbon atom belonging to a ring other than a six-membered aromatic ring
409/16	. the —O—O— group being bound between two carbon atoms not further substituted by oxygen atoms, i.e. peroxides
409/18	. . at least one of the carbon atoms belonging to a ring other than a six-membered aromatic ring
409/20	. the —O—O— group being bound to a carbon atom further substituted by singly-bound oxygen atoms
409/22	. . having two —O—O— groups bound to the carbon atom
409/24	. the —O—O— group being bound between a >C=O group and hydrogen, i.e. peroxy acids
409/26	. . Peracetic acid
409/28	. . a >C=O group being bound to a carbon atom of a ring other than a six-membered aromatic ring
409/30	. . a >C=O group being bound to a carbon atom of a six-membered aromatic ring
409/32	. the —O—O— group being bound between two >C=O groups
409/34	. . both belonging to carboxylic acids
409/36	. . . Diacetyl peroxide
409/38	. the —O—O— group being bound between a >C=O group and a carbon atom, not further substituted by oxygen atoms, i.e. esters of peroxy acids
409/40	. containing nitrogen atoms
409/42	. containing sulfur atoms
409/44	. . with sulfur atoms directly bound to the —O—O— groups, e.g. persulfonic acids

**Indexing scheme associated with groups C07C 1/00 - C07C 6/00, relating to catalysts used in the preparation of hydrocarbons**

<b>2521/00</b>	<b>Catalysts comprising the elements, oxides or hydroxides of magnesium, boron, aluminium, carbon, silicon, titanium, zirconium or hafnium</b>
2521/02	. Boron or aluminium; Oxides or hydroxides thereof
2521/04	. . Alumina
2521/06	. Silicon, titanium, zirconium or hafnium; Oxides or hydroxides thereof
2521/08	. . Silica
2521/10	. Magnesium; Oxides or hydroxides thereof
2521/12	. Silica and alumina
2521/14	. Silica and magnesia
2521/16	. Clays or other mineral silicates
2521/18	. Carbon
<b>2523/00</b>	<b>Catalysts comprising metals or metal oxides or hydroxides, not provided for in group C07C 2521/00 (C07C 2521/16 takes precedence)</b>
2523/02	. of the alkali- or alkaline earth metals or beryllium
2523/04	. . Alkali metals

2523/06	. of zinc, cadmium or mercury	2523/83	. . . with rare earths or actinides
2523/08	. of gallium, indium or thallium	2523/835	. . . with germanium, tin or lead
2523/10	. of rare earths	2523/84	. . . with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
2523/12	. of actinides	2523/843	. . . . Arsenic, antimony or bismuth
2523/14	. of germanium, tin or lead	2523/847	. . . . Vanadium, niobium or tantalum
2523/16	. of arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium	2523/85	. . . . Chromium, molybdenum or tungsten
2523/18	. . Arsenic, antimony or bismuth	2523/86	. . . . . Chromium
2523/20	. . Vanadium, niobium or tantalum	2523/88	. . . . . Molybdenum
2523/22	. . . Vanadium	2523/881	. . . . . and iron
2523/24	. . Chromium, molybdenum or tungsten	2523/882	. . . . . and cobalt
2523/26	. . . Chromium	2523/883	. . . . . and nickel
2523/28	. . . Molybdenum	2523/885	. . . . . and copper
2523/30	. . . Tungsten	2523/887	. . . . . containing in addition other metals, oxides or hydroxides provided for in groups <a href="#">C07C 2523/02</a> - <a href="#">C07C 2523/36</a>
2523/31	. . . combined with bismuth	2523/888	. . . . . Tungsten
2523/32	. . Manganese, technetium or rhenium	2523/889	. . . . Manganese, technetium or rhenium
2523/34	. . . Manganese	2523/89	. . combined with noble metals
2523/36	. . . Rhenium	<b>2525/00</b>	<b>Catalysts of the Raney type</b>
2523/38	. of noble metals	2525/02	. Raney nickel
2523/40	. . of the platinum group metals	<b>2527/00</b>	<b>Catalysts comprising the elements or compounds of halogens, sulfur, selenium, tellurium, phosphorus or nitrogen; Catalysts comprising carbon compounds</b>
2523/42	. . . Platinum		<b>NOTE</b>
2523/44	. . . Palladium		Metal catalysts or metal oxide catalysts activated or conditioned by halogens, sulfur or phosphorus, or compounds thereof are indexed in the appropriate groups for metal or metal oxide catalysts.
2523/46	. . . Ruthenium, rhodium, osmium or iridium		
2523/48	. . Silver or gold	2527/02	. Sulfur, selenium or tellurium; Compounds thereof
2523/50	. . . Silver	2527/03	. . Acids of sulfur other than sulfhydic acid or sulfuric acid, e.g. halosulfonic acids
2523/52	. . . Gold	2527/04	. . Sulfides
2523/54	. . combined with metals, oxides or hydroxides provided for in groups <a href="#">C07C 2523/02</a> - <a href="#">C07C 2523/36</a>	2527/043	. . . with iron group metals or platinum group metals
2523/56	. . . Platinum group metals	2527/045	. . . . Platinum group metals
2523/58	. . . . with alkali- or alkaline earth metals or beryllium	2527/047	. . . with chromium, molybdenum, tungsten or polonium
2523/60	. . . . with zinc, cadmium or mercury	2527/049	. . . . with iron group metals or platinum group metals
2523/62	. . . . with gallium, indium, thallium, germanium, tin or lead	2527/051	. . . . Molybdenum
2523/63	. . . . with rare earths or actinides	2527/053	. . Sulfates or other compounds comprising the anion (SnO <sub>3</sub> n+1) <sup>2-</sup>
2523/64	. . . . with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium	2527/054	. . . Sulfuric acid or other acids with the formula H <sub>2</sub> SnO <sub>3</sub> n+1
2523/644	. . . . . Arsenic, antimony or bismuth	2527/055	. . . with alkali metals, copper, gold or silver
2523/648	. . . . . Vanadium, niobium or tantalum	2527/057	. . Selenium or tellurium; Compounds thereof
2523/652	. . . . . Chromium, molybdenum or tungsten	2527/06	. Halogens; Compounds thereof
2523/656	. . . . . Manganese, technetium or rhenium	2527/08	. . Halides ( <a href="#">C07C 2527/122</a> - <a href="#">C07C 2527/138</a> take precedence)
2523/66	. . . Silver or gold	2527/10	. . . Chlorides
2523/68	. . . . with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium	2527/11	. . . . Hydrogen chloride
2523/70	. of the iron group metals or copper	2527/12	. . . Fluorides
2523/72	. . Copper	2527/1206	. . . . Hydrogen fluoride
2523/74	. . Iron group metals	2527/1213	. . . . Boron fluoride
2523/745	. . . Iron	2527/122	. . Compounds comprising a halogen and copper
2523/75	. . . Cobalt		
2523/755	. . . Nickel		
2523/76	. . combined with metals, oxides or hydroxides provided for in groups <a href="#">C07C 2523/02</a> - <a href="#">C07C 2523/36</a>		
2523/78	. . . with alkali- or alkaline earth metals or beryllium		
2523/80	. . . with zinc, cadmium or mercury		
2523/825	. . . with gallium, indium or thallium		



2527/125	. . Compounds comprising a halogen and scandium, yttrium, aluminium, gallium, indium or thallium	2529/08	. . . of the faujasite type, e.g. type X or Y
2527/126	. . . Aluminium chloride	2529/10	. . . . containing iron group metals, noble metals or copper
2527/128	. . Compounds comprising a halogen and an iron group metal or a platinum group metal	2529/12	. . . . . Noble metals
2527/13	. . . Platinum group metals	2529/14	. . . . . Iron group metals or copper
2527/132	. . Compounds comprising a halogen and chromium, molybdenum, tungsten or polonium	2529/16	. . . . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
2527/133	. . Compounds comprising a halogen and vanadium, niobium, tantalum, antimony or bismuth	2529/18	. . . of the mordenite type
2527/135	. . Compounds comprising a halogen and titanium, zirconium, hafnium, germanium, tin or lead	2529/20	. . . . containing iron group metals, noble metals or copper
2527/138	. . Compounds comprising a halogen and an alkaline earth metal, magnesium, beryllium, zinc, cadmium or mercury	2529/22	. . . . . Noble metals
2527/14	. Phosphorus; Compounds thereof	2529/24	. . . . . Iron group metals or copper
2527/16	. . containing oxygen	2529/26	. . . . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
2527/167	. . . Phosphates or other compounds comprising the anion $(\text{PnO}_{3n+1})_{(n+2)-}$	2529/40	. . . of the pentasil type, e.g. types ZSM-5, ZSM-8 or ZSM-11
2527/173	. . . . Phosphoric acid or other acids with the formula $\text{Hn}+2\text{PnO}_{3n+1}$	2529/42	. . . . containing iron group metals, noble metals or copper
2527/18	. . . with metals ( <a href="#">phosphates C07C 2527/167</a> )	2529/44	. . . . . Noble metals
2527/182	. . with silicon	2529/46	. . . . . Iron group metals or copper
2527/185	. . with iron group metals or platinum group metals	2529/48	. . . . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
2527/186	. . with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium	2529/50	. . . of the erionite or offretite type, e.g. zeolite T
2527/187	. . . with manganese, technetium or rhenium	2529/52	. . . . containing iron group metals, noble metals or copper
2527/188	. . . with chromium, molybdenum, tungsten or polonium	2529/54	. . . . . Noble metals
2527/19	. . . . Molybdenum	2529/56	. . . . . Iron group metals or copper
2527/192	. . . . . with bismuth	2529/58	. . . . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
2527/195	. . . with vanadium, niobium or tantalum	2529/60	. . . of the type L
2527/198	. . . . Vanadium	2529/61	. . . . containing iron group metals, noble metals or copper
2527/199	. . . . . with chromium, molybdenum, tungsten or polonium	2529/62	. . . . . Noble metals
2527/20	. Carbon compounds	2529/63	. . . . . Iron group metals or copper
2527/22	. . Carbides	2529/64	. . . . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
2527/224	. . . Silicon carbide	2529/65	. . . of the ferrierite type, e.g. types ZSM-21, ZSM-35 or ZSM-38
2527/228	. . . . with phosphorus, arsenic, antimony or bismuth	2529/66	. . . . containing iron group metals, noble metals or copper
2527/232	. . Carbonates	2529/67	. . . . . Noble metals
2527/236	. . . Hydroxy carbonates	2529/68	. . . . . Iron group metals or copper
2527/24	. Nitrogen compounds	2529/69	. . . . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
2527/25	. . Nitrates	2529/70	. . . of types characterised by their specific structure not provided for in groups <a href="#">C07C 2529/08</a> - <a href="#">C07C 2529/65</a>
2527/26	. . Cyanides	2529/72	. . . . containing iron group metals, noble metals or copper
<b>2529/00</b>	<b>Catalysts comprising molecular sieves</b>	2529/74	. . . . . Noble metals
2529/03	. not having base-exchange properties	2529/76	. . . . . Iron group metals or copper
2529/035	. . Crystalline silica polymorphs, e.g. silicalites		
2529/04	. having base-exchange properties, e.g. crystalline zeolites, pillared clays		
2529/05	. . Pillared clays		
2529/06	. . Crystalline aluminosilicate zeolites; Isomorphous compounds thereof		
2529/064	. . . containing iron group metals, noble metals or copper		
2529/068	. . . . Noble metals		
2529/072	. . . . Iron group metals or copper		
2529/076	. . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium		

2529/78	. . . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium	2602/04	. . One of the condensed rings being a six-membered aromatic ring
2529/80	. . . Mixtures of different zeolites	2602/06	. . . the other ring being four-membered
2529/82	. Phosphates	2602/08	. . . the other ring being five-membered, e.g. indane
2529/83	. . Aluminophosphates (APO compounds)	2602/10	. . . the other ring being six-membered, e.g. tetraline
2529/84	. . Aluminophosphates containing other elements, e.g. metals, boron	2602/12	. . . the other ring being at least seven-membered
2529/85	. . . Silicoaluminophosphates (SAPO compounds)	2602/14	. . All rings being cycloaliphatic
2529/86	. Borosilicates; Aluminoborosilicates	2602/16	. . . the ring system containing five carbon atoms
2529/87	. Gallosilicates; Aluminogallosilicates; Galloborosilicates	2602/18	. . . the ring system containing six carbon atoms
2529/88	. Ferrosilicates; Ferroaluminosilicates	2602/20	. . . the ring system containing seven carbon atoms
2529/89	. Silicates, aluminosilicates or borosilicates of titanium, zirconium or hafnium	2602/22	. . . the ring system containing eight carbon atoms, e.g. pentalene
<b>2531/00</b>	<b>Catalysts comprising hydrides, coordination complexes or organic compounds</b>	2602/24	. . . the ring system containing nine carbon atoms, e.g. perhydroindane
2531/02	. containing organic compounds or metal hydrides	2602/26	. . . the ring system containing ten carbon atoms
2531/025	. . Sulfonic acids	2602/28	. . . . Hydrogenated naphthalenes
2531/04	. . containing carboxylic acids or their salts	2602/30	. . . . Azulenes; Hydrogenated azulenes
2531/06	. . containing polymers	2602/32	. . . the ring system containing at least eleven carbon atoms
2531/08	. . . Ion-exchange resins	2602/34	. . . . Heptalenes; Hydrogenated heptalenes
2531/10	. . . . sulfonated	2602/36	. the rings having more than two atoms in common
2531/12	. . containing organo-metallic compounds or metal hydrides	2602/38	. . the bicyclo ring system containing five carbon atoms
2531/14	. . . of aluminium or boron	2602/40	. . the bicyclo ring system containing six carbon atoms
2531/16	. containing coordination complexes	2602/42	. . the bicyclo ring system containing seven carbon atoms
2531/18	. . containing nitrogen, phosphorus, arsenic or antimony	2602/44	. . the bicyclo ring system containing eight carbon atoms
2531/20	. . Carbonyls	2602/46	. . the bicyclo ring system containing nine carbon atoms
2531/22	. . Organic complexes	2602/48	. . the bicyclo ring system containing ten carbon atoms
2531/24	. . Phosphines	2602/50	. Spiro compounds
2531/26	. containing in addition, inorganic metal compounds not provided for in groups <a href="#">C07C 2531/02</a> - <a href="#">C07C 2531/24</a>	<b>2603/00</b>	<b>Systems containing at least three condensed rings</b>
2531/28	. . of the platinum group metals, iron group metals or copper	2603/02	. Ortho- or ortho- and peri-condensed systems
2531/30	. . . Halides	2603/04	. . containing three rings
2531/32	. . of manganese, technetium or rhenium	2603/06	. . . containing at least one ring with less than six ring members
2531/34	. . of chromium, molybdenum or tungsten	2603/08	. . . . containing three- or four-membered rings
2531/36	. . of vanadium, niobium or tantalum	2603/10	. . . . containing five-membered rings
2531/38	. . of titanium, zirconium or hafnium	2603/12	. . . . . only one five-membered ring
		2603/14	. . . . . Benz[f]indenes; Hydrogenated benz[f]indenes
		2603/16	. . . . . Benz[e]indenes; Hydrogenated benz[e]indenes
		2603/18	. . . . . Fluorenes; Hydrogenated fluorenes
		2603/20	. . . . . Acenaphthenes; Hydrogenated acenaphthenes
		2603/22	. . . containing only six-membered rings
		2603/24	. . . . Anthracenes; Hydrogenated anthracenes
		2603/26	. . . . Phenanthrenes; Hydrogenated phenanthrenes
		2603/28	. . . . Phenalenes; Hydrogenated phenalenes
		2603/30	. . . containing seven-membered rings
		2603/32	. . . . Dibenzocycloheptenes; Hydrogenated dibenzocycloheptenes
		2603/34	. . . . Benzoheptalenes; Hydrogenated benzoheptalenes
		2603/36	. . . containing eight-membered rings
		2603/38	. . . containing rings with at least nine members
		2603/40	. . containing four condensed rings
<b>2601/00</b>	<b>Systems containing only non-condensed rings</b>		
2601/02	. with a three-membered ring		
2601/04	. with a four-membered ring		
2601/06	. with a five-membered ring		
2601/08	. . the ring being saturated		
2601/10	. . the ring being unsaturated		
2601/12	. with a six-membered ring		
2601/14	. . The ring being saturated		
2601/16	. . the ring being unsaturated		
2601/18	. with a ring being at least seven-membered		
2601/20	. . the ring being twelve-membered		
<b>2602/00</b>	<b>Systems containing two condensed rings</b>		
2602/02	. the rings having only two atoms in common		

**Indexing scheme associated with groups**  
**[C07C 1/00](#) - [C07C 409/00](#), relating to carbocyclic rings or ring systems**

2603/42	. . .	containing only six-membered rings
2603/44	. . . .	Naphthalenes; Hydrogenated naphthalenes
2603/46	. . . . .	1,4,4a,5,5a,6,11,12a-Octahydronaphthalenes, e.g. tetracyclines
2603/48	. . . .	Chrysenes; Hydrogenated chrysenes
2603/50	. . . .	Pyrenes; Hydrogenated pyrenes
2603/52	. .	containing five condensed rings
2603/54	. .	containing more than five condensed rings
2603/56	.	Ring systems containing bridged rings
2603/58	. .	containing three rings
2603/60	. . .	containing at least one ring with less than six members
2603/62	. . . .	containing three- or four-membered rings
2603/64	. . . . .	having a tricyclo[2.2.1.0(2,6)]heptastucture
2603/66	. . . .	containing five-membered rings
2603/68	. . . . .	Dicyclopentadienes; Hydrogenated dicyclopentadienes
2603/70	. . .	containing only six-membered rings
2603/72	. . . .	Ethanonaphthalenes; Hydrogenated ethanonaphthalenes
2603/74	. . . .	Adamantanes
2603/76	. . .	containing at least one ring with more than six ring members
2603/78	. . . .	containing seven-membered rings
2603/80	. . . .	containing eight-membered rings
2603/82	. . . . .	having three condensed rings with in total fourteen carbon atoms and having a having a [5.4.3.0(1,8)] ring structure, e.g. pleuromutiline
2603/84	. . . .	containing rings with more than eight members
2603/86	. .	containing four rings
2603/88	. . .	Ethanoanthracenes; Hydrogenated ethanoanthracenes
2603/90	. .	containing more than four rings
2603/91	. . .	Polycyclopentadienes; Hydrogenated polycyclopentadienes
2603/92	.	with a condensed ring system consisting of at least two mutually uncondensed aromatic ring systems, linked by an annular structure formed by carbon chains on non-adjacent positions of the aromatic system, e.g. cyclophanes
2603/93	.	Spiro compounds
2603/94	. .	containing "free" spiro atoms
2603/95	. .	containing "not free" spiro atoms
2603/96	. . .	containing at least one ring with less than six members
2603/97	. . . .	containing five-membered rings
2603/98	. . .	containing at least one ring with more than six ring members
2603/99	. . . .	containing eight-membered rings
<b>2604/00</b>		<b>Fullerenes, e.g. C<sub>60</sub> buckminsterfullerene or C<sub>70</sub></b>