

# CPC COOPERATIVE PATENT CLASSIFICATION

## C CHEMISTRY; METALLURGY

(NOTES omitted)

### CHEMISTRY

## C07 ORGANIC CHEMISTRY

(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.

### WARNINGS

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

<a href="#">C07C 27/02</a>	covered by	<a href="#">C07C 29/00</a> , <a href="#">C07C 51/00</a>
<a href="#">C07C 47/042</a> , <a href="#">C07C 47/045</a> , <a href="#">C07C 47/048</a> , <a href="#">C07C 47/052</a> , <a href="#">C07C 47/055</a> , <a href="#">C07C 47/058</a>	covered by	<a href="#">C07C 47/04</a>
<a href="#">C07C 47/07</a> , <a href="#">C07C 47/09</a>	covered by	<a href="#">C07C 47/06</a>
<a href="#">C07C 53/04</a>	covered by	<a href="#">C07C 53/02</a>
<a href="#">C07C 57/045</a> , <a href="#">C07C 57/05</a> , <a href="#">C07C 57/055</a> , <a href="#">C07C 57/065</a> , <a href="#">C07C 57/07</a> , <a href="#">C07C 57/075</a> <a href="#">C07C 69/025</a> , <a href="#">C07C 69/03</a> , <a href="#">C07C 69/035</a>	covered by	<a href="#">C07C 69/003</a> - <a href="#">C07C 69/017</a> and <a href="#">C07C 69/02</a>
<a href="#">C07C 69/347</a> , <a href="#">C07C 69/353</a>	covered by	<a href="#">C07C 69/003</a> - <a href="#">C07C 69/017</a> and <a href="#">C07C 69/34</a>
<a href="#">C07C 69/527</a>	covered by	<a href="#">C07C 69/003</a> - <a href="#">C07C 69/017</a> and <a href="#">C07C 69/52</a>

C07C

(continued)

C07C 69/767, C07C 69/773  
C07C 69/83covered by  
covered byC07C 69/003 - C07C 69/017 and C07C 69/76  
C07C 69/003 - C07C 69/017 and C07C 69/82

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**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 aluminosilicates {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 C07E](#))}
- 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**

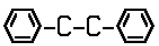
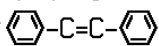
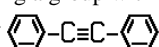
- 9/02 . with one to four carbon atoms ([liquefied petroleum gas C10L 3/12](#))
- 9/04 . . Methane ([production by treatment of sewage C02F 11/04](#); natural gas, synthetic natural gas [C10L 3/06](#))
- 9/06 . . Ethane
- 9/08 . . Propane
- 9/10 . . with four carbon atoms
- 9/12 . . . Iso-butane
- 9/14 . with five to fifteen carbon atoms
- 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

**11/00 Aliphatic unsaturated hydrocarbons**

- 11/02 . Alkenes
- 11/04 . . Ethylene
- 11/06 . . Propene



11/08	. . with four carbon atoms	13/39	. . . with a bicyclo ring system containing seven carbon atoms
11/09	. . . Isobutene	13/40	. . . . with a bicycloheptane ring structure
11/10	. . with five carbon atoms	13/42	. . . . with a bicycloheptene ring structure
11/107	. . with six carbon atoms	13/43	. . . . substituted by unsaturated acyclic hydrocarbon
11/113	. . . Methylpentenes	13/44	. . . with a bicyclo ring system containing eight carbon atoms
11/12	. Alkadienes	13/45	. . . with a bicyclo ring system containing nine carbon atoms
11/14	. . Allene	13/465	. . . . Indenes; Completely or partially hydrogenated indenes
11/16	. . with four carbon atoms	13/47	. . . with a bicyclo ring system containing ten carbon atoms
11/167	. . . 1, 3-Butadiene	13/48	. . . . Completely or partially hydrogenated naphthalenes
11/173	. . with five carbon atoms	13/50	. . . . . Decahydronaphthalenes
11/18	. . . Isoprene	13/52	. . . . . Azulenes; Completely or partially hydrogenated azulenes
11/20	. . . 1, 3-Pentadiene	13/54	. . . with three condensed rings
11/21	. Alkatrienes; Alkatetraenes; Other alkapolyenes	13/547	. . . . at least one ring not being six-membered, the other rings being at the most six-membered
11/22	. containing carbon-to-carbon triple bonds	13/553	. . . . . with an indacene or hydrogenated indacene ring system
11/24	. . Acetylene ( <a href="#">production of acetylene gas by wet methods C10H</a> )	13/567	. . . . . with a fluorene or hydrogenated fluorene ring system
11/28	. containing carbon-to-carbon double bonds and carbon-to-carbon triple bonds	13/573	. . . . . with three six-membered rings
11/30	. . Butenyne	13/58	. . . . . Completely or partially hydrogenated anthracenes
<b>13/00</b>	<b>Cyclic hydrocarbons containing rings other than, or in addition to, six-membered aromatic rings</b>	13/60	. . . . . Completely or partially hydrogenated phenanthrenes
13/02	. Monocyclic hydrocarbons or acyclic hydrocarbon derivatives thereof	13/605	. . . . . with a bridged ring system
13/04	. . with a three-membered ring	13/61	. . . . . with a bridged indene ring, e.g. dicyclopentadiene
13/06	. . with a four-membered ring	13/615	. . . . . with an adamantane ring
13/08	. . with a five-membered ring	13/62	. . . with more than three condensed rings
13/10	. . . with a cyclopentane ring	13/64	. . . . with a bridged ring system
13/11	. . . . substituted by unsaturated hydrocarbon groups	13/66	. . . . the condensed ring system contains only four rings
13/12	. . . with a cyclopentene ring	13/68	. . . . . with a bridged ring system
13/15	. . . with a cyclopentadiene 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
13/16	. . with a six-membered ring	13/72	. . . Spiro hydrocarbons
13/18	. . . with a cyclohexane ring	<b>15/00</b>	<b>Cyclic hydrocarbons containing only six-membered aromatic rings as cyclic parts</b>
13/19	. . . . substituted by unsaturated hydrocarbon groups	15/02	. Monocyclic hydrocarbons
13/20	. . . with a cyclohexene ring	15/04	. . Benzene
13/21	. . . . Menthadienes	15/06	. . Toluene
13/23	. . . with a cyclohexadiene ring	15/067	. . C <sub>8</sub> H <sub>10</sub> hydrocarbons
13/24	. . with a seven-membered ring	15/073	. . . Ethylbenzene
13/26	. . with an eight-membered ring	15/08	. . . Xylenes
13/263	. . . with a cyclo-octene or cyclo-octadiene ring	15/085	. . Isopropylbenzene
13/267	. . . with a cyclo-octatriene or cyclo-octatetraene ring	15/107	. . having saturated side-chain containing at least six carbon atoms, e.g. detergent alkylates
13/271	. . with a nine- to ten- membered ring	15/113	. . . having at least two saturated side-chains, each containing at least six carbon atoms
13/273	. . with a twelve-membered ring	15/12	. Polycyclic non-condensed hydrocarbons
13/275	. . . the twelve-membered ring being unsaturated	15/14	. . all phenyl groups being directly linked
13/277	. . . . with a cyclododecatriene ring	15/16	. . containing at least two phenyl groups linked by one single acyclic carbon atom
13/28	. Polycyclic hydrocarbons or acyclic hydrocarbon derivatives thereof		
<b>NOTE</b>			
Ring systems consisting only of condensed six-membered ring with maximum number of non-cumulative double bonds are classified in group <a href="#">C07C 15/00</a> .			
13/32	. . with condensed rings		
13/34	. . . with a bicyclo ring system containing four carbon atoms		
13/36	. . . with a bicyclo ring system containing five carbon atoms		
13/38	. . . with a bicyclo ring system containing six carbon atoms		

- 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
- 17/23 . 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
- 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

**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](#))

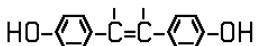
- 27/00 Processes involving the simultaneous production of more than one class of oxygen-containing compounds**
- 27/04 . by reduction of oxygen-containing compounds ([C07C 29/14 takes precedence](#))
- 27/06 . . by hydrogenation of oxides of carbon
- 27/08 . . . with moving catalysts
- 27/10 . by oxidation 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](#))
- 29/90 . . . using hydrogen only
- 29/92 . . . by a consecutive conversion and reconstruction
- 29/94 . . Use of additives, e.g. for stabilisation
- 31/00 Saturated compounds having hydroxy or O-metal groups bound to acyclic carbon atoms**
- 31/02 . Monohydroxylic acyclic alcohols
- 31/04 . . Methanol
- 31/08 . . Ethanol
- 31/10 . . containing three carbon atoms
- 31/12 . . containing four carbon atoms
- 31/125 . . containing five to twenty-two carbon atoms
- 31/13 . Monohydroxylic alcohols containing saturated rings



31/133	. . monocyclic	33/22	. . . Benzylalcohol; phenethyl alcohol
31/1333	. . . {with a three-membered ring}	33/24	. . polycyclic without condensed ring systems
31/1336	. . . {with a four-membered ring}	33/26	. Polyhydroxylic alcohols containing only six-membered aromatic rings as cyclic part
31/135	. . . with a five or six-membered rings; Naphthenic alcohols	33/28	. Alcohols containing only six-membered aromatic rings as cyclic part with unsaturation outside the aromatic rings
31/1355	. . . . {with a six-membered ring}	33/30	. . monocyclic
31/137	. . polycyclic with condensed ring systems	33/32	. . . Cinnamyl alcohol
31/18	. Polyhydroxylic acyclic alcohols	33/34	. Monohydroxylic alcohols containing six-membered aromatic rings and other rings
31/20	. . Dihydroxylic alcohols	33/36	. Polyhydroxylic alcohols containing six-membered aromatic rings and other rings
31/202	. . . {Ethylene glycol}	33/38	. Alcohols containing six-membered aromatic rings and other rings and having unsaturation outside the aromatic rings
31/205	. . . {1,3-Propanediol; 1,2-Propanediol}	33/40	. Halogenated unsaturated alcohols
31/207	. . . {1,4-Butanediol; 1,3-Butanediol; 1,2-Butanediol; 2,3-Butanediol}	33/42	. . acyclic
31/22	. . Trihydroxylic alcohols, e.g. glycerol	33/423	. . . {containing only double bonds as unsaturation}
31/225	. . . {Glycerol}	33/426	. . . {containing only triple bonds as unsaturation}
31/24	. . Tetrahydroxylic alcohols, e.g. pentaerythritol	33/44	. . containing rings other than six-membered aromatic rings
31/245	. . . {Pentaerythritol}	33/46	. . containing only six-membered aromatic rings as cyclic parts
31/26	. . Hexahydroxylic alcohols	33/48	. . . with unsaturation outside the aromatic rings
31/27	. Polyhydroxylic alcohols containing saturated rings	33/483	. . . . {Monocyclic}
31/272	. . {Monocyclic}	33/486	. . . . {Polycyclic}
31/274	. . . {with a three to five-membered ring}	33/50	. . containing six-membered aromatic rings and other rings
31/276	. . . {with a six-membered ring}		
31/278	. . {Polycyclic with condensed rings}	35/00	<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
33/00	<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>	35/20	. . containing a seven or eight-membered rings
	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	35/205	. . containing a nine to twelve-membered rings, e.g. cyclododecanols
33/02	. Acyclic alcohols with carbon-to-carbon double bonds	35/21	. polycyclic, at least one hydroxy group bound to a non-condensed ring
33/025	. . with only one double bond	35/22	. polycyclic, at least one hydroxy group bound to a condensed ring system
33/03	. . . in beta-position, e.g. allyl alcohol, methallyl alcohol	35/23	. . with hydroxy on a condensed ring system having two rings
33/035	. . . Alkenediols	35/24	. . . the condensed ring system containing five carbon atoms
33/04	. Acyclic alcohols with carbon-to-carbon triple bonds	35/26	. . . . Bicyclopentadienols
33/042	. . with only one triple bond	35/27	. . . the condensed ring system containing six carbon atoms
33/044	. . . Alkynediols	35/28	. . . the condensed ring system containing seven carbon atoms
33/046	. . . . Butynediols	35/29	. . . . being a (2.2.1) system
33/048	. . with double and triple bonds	35/30	. . . . Borneol; Isoborneol
33/05	. Alcohols containing rings other than six-membered aromatic rings	35/31	. . . the condensed ring system containing eight carbon atoms
33/12	. . containing five-membered rings		
33/14	. . containing six-membered rings		
33/16	. . containing rings with more than six ring members		
33/18	. Monohydroxylic alcohols containing only six-membered aromatic rings as cyclic part		
33/20	. . monocyclic		

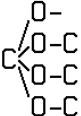
35/32	. . . the condensed ring system being a (4.3.0) system, e.g. indenols	37/18	. . by condensation involving halogen atoms of halogenated compounds
35/34	. . . the condensed ring system being a (5.3.0.) system, e.g. azulensols	37/20	. . using aldehydes or ketones
35/36	. . . the condensed ring system being a (4.4.0) system, e.g. naphols	37/48	. by exchange of hydrocarbon groups, which may be substituted, from the same of other compounds, e.g. transalkylation
35/37	. . with a hydroxy group on a condensed system having three rings	37/50	. by reactions decreasing the number of carbon atoms ( <a href="#">C07C 37/04</a> , <a href="#">C07C 37/045</a> , <a href="#">C07C 37/055</a> , <a href="#">C07C 37/08</a> take precedence)
35/38	. . . derived from the fluorene skeleton	37/52	. . by splitting polyaromatic compounds, e.g. polyphenolalkanes
35/40	. . . derived from the anthracene skeleton	37/54	. . . by hydrolysis of lignin or sulfite waste liquor
35/42	. . . derived from the phenanthrene skeleton	37/56	. . by replacing a carboxyl or aldehyde group by a hydroxy group
35/44	. . with a hydroxy group on a condensed ring system having more than three rings	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
35/46	. O-metal derivatives of the cyclically bound hydroxy groups	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
35/48	. Halogenated derivatives	37/62	. by introduction of halogen; by substitution of halogen atoms by other halogen atoms
35/50	. . Alcohols with at least two rings	37/64	. Preparation of O-metal compounds with O-metal group bound to a carbon atom belonging to a six-membered aromatic ring
35/52	. . Alcohols with a condensed ring system	37/66	. . by conversion of hydroxy groups to O-metal groups
<b>37/00</b>	<b>Preparation of compounds having hydroxy or O-metal groups bound to a carbon atom of a six-membered aromatic ring</b>	37/68	. Purification; separation; Use of additives, e.g. for stabilisation ( <a href="#">C07C 37/004</a> and <a href="#">C07C 37/005</a> take precedence)
37/001	. {by modification in a side chain}	37/685	. . {Processes comprising at least two steps in series}
37/002	. . {by transformation of a functional group, e.g. oxo, carboxyl}	37/70	. . by physical treatment
37/003	. . {by hydrogenation of an unsaturated part}	37/72	. . . by liquid-liquid treatment
37/004	. {by obtaining phenols from plant material or from animal material}	37/74	. . . by distillation
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}	37/76	. . . . by steam distillation
37/006	. . {from the petroleum industry}	37/78	. . . . by azeotropic distillation
37/007	. . {from the tar industry}	37/80	. . . . by extractive distillation
37/008	. . {from coke ovens}	37/82	. . . by solid-liquid treatment; by chemisorption
37/009	. . {from waste water (treatment of waste water <a href="#">C02F</a> )}	37/84	. . . by crystallisation
37/01	. by replacing functional groups bound to a six-membered aromatic ring by hydroxy groups, e.g. by hydrolysis	37/86	. . by treatment giving rise to a chemical modification ( <a href="#">chemisorption C07C 37/82</a> )
37/02	. . by substitution of halogen	37/88	. . Use of additives, e.g. for stabilisation
37/04	. . by substitution of SO <sub>3</sub> H groups or a derivative thereof	<b>39/00</b>	<b>Compounds having at least one hydroxy or O-metal group bound to a carbon atom of a six-membered aromatic ring</b>
37/045	. . by substitution of a group bound to the ring by nitrogen		<b>NOTE</b>
37/05	. . . by substitution of a NH <sub>2</sub> group		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.
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 <i>in situ</i> 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}	39/02	. monocyclic with no unsaturation outside the aromatic ring
37/14	. . by addition reactions, i.e. reactions involving at least one carbon-to-carbon unsaturated bond	39/04	. . Phenol
37/16	. . by condensation involving hydroxy groups of phenols or alcohols or the ether or mineral ester group derived therefrom	39/06	. . Alkylated phenols
		39/07	. . . containing only methyl groups, e.g. cresols, xylenols



- 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 , 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

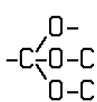
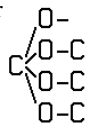


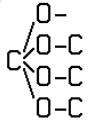

## Preparation of ethers; Preparation of compounds

having  groups,  groups

or  groups

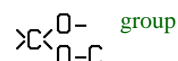
- 41/01 . Preparation of ethers
- 41/02 . . from oxiranes
- 41/03 . . . by reaction of oxirane rings with hydroxy groups
- 41/05 . . by addition of compounds to unsaturated compounds
- 41/06 . . . by addition of organic compounds only
- 41/08 . . . . to carbon-to-carbon triple bonds
- 41/09 . . by dehydration 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  groups
- 41/50 . . by reactions producing  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		43/1783	. . . . . {with hydroxy or -O-metal groups bound to the aromatic rings}
	groups or		43/1785	. . . . . {having more than one ether bound}
	groups		43/1786	. . . . . {containing halogen}
			43/1787	. . . . . {containing six-membered aromatic rings and having unsaturation outside the aromatic rings}
<b>43/00</b>	<b>Ethers; Compounds having</b>		43/1788	. . . . . {containing six-membered aromatic rings and other rings}
	groups,		43/18	. . having an ether-oxygen atom bound to a carbon atom of a ring other than a six-membered aromatic ring
	groups or		43/184	. . . to a carbon atom of a non-condensed ring
	groups		43/188	. . . Unsaturated ethers
43/02	. Ethers		43/192	. . . containing halogen
43/03	. . having all ether-oxygen atoms bound to acyclic carbon atoms		43/196	. . . containing hydroxy or O-metal groups
43/04	. . . Saturated ethers		43/20	. . having an ether-oxygen atom bound to a carbon atom of a six-membered aromatic ring
43/043	. . . . {Dimethyl ether}		43/202	. . . {the aromatic ring being a naphthalene}
43/046	. . . . {Alkyl tert-alkyl ether, e.g. CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>3</sub> }		43/205	. . . the aromatic ring being a non-condensed ring
43/06	. . . . Diethyl ether		43/2055	. . . . {containing more than one ether bond}
43/10	. . . . of polyhydroxy compounds		43/21	. . . containing rings other than six-membered aromatic rings
43/11	. . . . Polyethers containing —O—(C—C—O—) <sub>n</sub> units with ≤ 2 n ≤ 10		43/215	. . . having unsaturation outside the six-membered aromatic rings
43/115	. . . . containing carbocyclic rings		43/225	. . . containing halogen
43/12	. . . . containing halogen		43/23	. . . containing hydroxy or O-metal groups
43/123	. . . . . {both carbon chains are substituted by halogen atoms}		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
43/126	. . . . . {having more than one ether bond}		43/243	. . . having unsaturation outside the six-membered aromatic rings
43/13	. . . . containing hydroxy or O-metal groups (C07C 43/11 takes precedence)		43/247	. . . containing halogen
43/132	. . . . . {both carbon chains being substituted by hydroxy or O-metal groups}		43/253	. . . containing hydroxy or O-metal groups
43/135	. . . . . {having more than one ether bond}		43/257	. . having an ether-oxygen atom bound to carbon atoms both belonging to six-membered aromatic rings
43/137	. . . . . {containing halogen}		43/263	. . . the aromatic rings being non-condensed
43/14	. . . Unsaturated ethers		43/267	. . . containing other rings
43/15	. . . . containing only non-aromatic carbon-to-carbon double bonds		43/275	. . . having all ether-oxygen atoms bound to carbon atoms of six-membered aromatic rings
43/16	. . . . . Vinyl ethers		43/285	. . . having unsaturation outside the six-membered aromatic rings
43/162	. . . . containing rings other than six-membered aromatic rings		43/29	. . . containing halogen
43/164	. . . . containing six-membered aromatic rings		43/295	. . . containing hydroxy or O-metal groups
43/166	. . . . . having unsaturation outside the aromatic rings		43/30	. Compounds having  groups
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}			

**NOTE**

The acetal carbon atom is the carbon atom of the



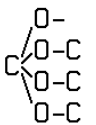


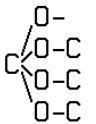


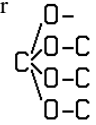


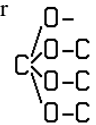














43/303	. . having acetal carbon atoms bound to acyclic carbon atoms
43/305	. . having acetal carbon atoms as rings members or bound to carbon atoms of rings other than six-membered aromatic rings
43/307	. . having acetal carbon atoms bound to carbon atoms of six-membered aromatic rings
43/313	. . containing halogen
43/315	. . containing oxygen atoms singly bound to carbon atoms not being acetal carbon atoms



- 43/317 . . having  $\begin{array}{c} \diagup \text{C} \diagdown \\ | \quad | \\ \text{O}-\text{X} \\ | \\ \text{O}-\text{C} \end{array}$  groups, X being hydrogen or metal
- 43/32 . Compounds having  $\begin{array}{c} \text{O}- \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \quad | \\ \text{O}-\text{C} \end{array}$  groups or  $\begin{array}{c} \text{O}- \\ | \\ \text{C}-\text{O}-\text{C} \\ | \quad | \\ \text{O}-\text{C} \end{array}$  groups
- 45/00 Preparation of compounds having  $>\text{C}=\text{O}$  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  $\text{CH}_x$ -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  $\text{CH}_x$ -moieties
- 45/34 . . . . in unsaturated compounds
- 45/35 . . . . . in propene or isobutene
- 45/36 . . . . . in compounds containing six-membered aromatic rings
- 45/37 . . . of  $>\text{C}-\text{O}$ -functional groups to  $>\text{C}=\text{O}$  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  $>\text{CX}_2$  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  $>\text{C}=\text{O}$  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  $>\text{C}=\text{O}$  groups}
- 45/517 . . {involving transformation of peroxy-compounds to  $>\text{C}=\text{O}$  groups}
- 45/518 . . {involving transformation of sulfur-containing compounds to  $>\text{C}=\text{O}$  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  $>\text{C}=\text{O}$  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  $>\text{C}=\text{O}$  groups with the same or other compounds containing  $>\text{C}=\text{O}$  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,  $\text{>C} \begin{array}{l} \text{O}- \\ \text{O}-\text{C} \end{array}$
- groups,  $\begin{array}{c} \text{O}- \\ \text{C} \begin{array}{l} \text{O}-\text{C} \\ \text{O}-\text{C} \end{array} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ \text{C} \begin{array}{l} \text{O}-\text{C} \\ \text{O}-\text{C} \\ \text{O}-\text{C} \end{array} \end{array}$  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,  $\text{>C} \begin{array}{l} \text{O}- \\ \text{O}-\text{C} \end{array}$
- groups,  $\begin{array}{c} \text{O}- \\ \text{C} \begin{array}{l} \text{O}-\text{C} \\ \text{O}-\text{C} \end{array} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ \text{C} \begin{array}{l} \text{O}-\text{C} \\ \text{O}-\text{C} \\ \text{O}-\text{C} \end{array} \end{array}$  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,  $\text{>C} \begin{array}{l} \text{O}- \\ \text{O}-\text{C} \end{array}$
- groups,  $\begin{array}{c} \text{O}- \\ \text{C} \begin{array}{l} \text{O}-\text{C} \\ \text{O}-\text{C} \end{array} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ \text{C} \begin{array}{l} \text{O}-\text{C} \\ \text{O}-\text{C} \\ \text{O}-\text{C} \end{array} \end{array}$  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,  $\text{>C} \begin{array}{l} \text{O}- \\ \text{O}-\text{C} \end{array}$
- groups,  $\begin{array}{c} \text{O}- \\ \text{C} \begin{array}{l} \text{O}-\text{C} \\ \text{O}-\text{C} \end{array} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ \text{C} \begin{array}{l} \text{O}-\text{C} \\ \text{O}-\text{C} \\ \text{O}-\text{C} \end{array} \end{array}$  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,  groups,  groups, or  groups
- 49/86 . . containing —CHO groups
- 49/88 . Ketenes; Dimeric ketenes
- 49/90 . Ketene, i.e. C<sub>2</sub>H<sub>2</sub>O

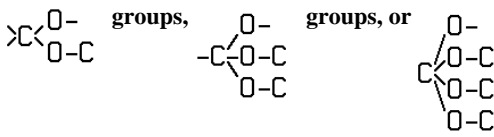
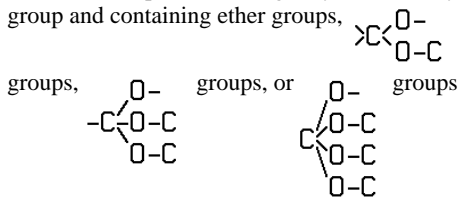
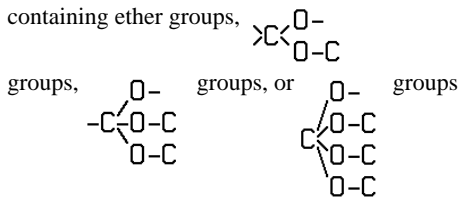
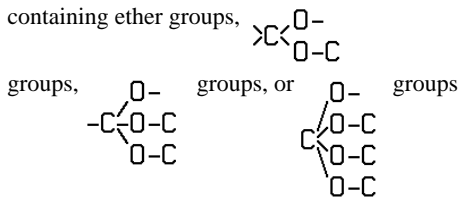
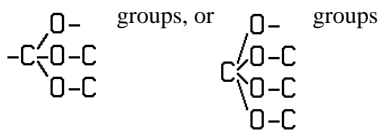
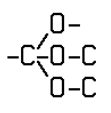
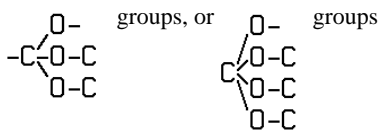
49/92	. Ketonic chelates	51/245	. . . . of keto groups or secondary alcohol groups
<b>50/00</b>	<b>Quinones</b> (for quinone methides, see unsaturated ketones with a keto group being part of a ring)	51/25	. . . of unsaturated compounds containing no six-membered aromatic ring
	<b>NOTE</b>	51/252	. . . . {of propene, butenes, acrolein or methacrolein}
	In this group, quinhydrone is classified according to their quinoid part.	51/255	. . . of compounds containing six-membered aromatic rings without ring-splitting
50/02	. with monocyclic quinoid structure	51/265	. . . . having alkyl side chains which are oxidised to carboxyl groups
50/04	. . Benzoquinones, i.e. $C_6H_4O_2$		
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. $C_{10}H_6O_2$		
50/14	. . with unsaturation outside the ring system, e.g. vitamin K <sub>1</sub>		
50/16	. the quinoid structure being part of a condensed ring system containing three rings	51/27	. . with oxides of nitrogen or nitrogen-containing mineral acids
50/18	. . Anthraquinones, i.e. $C_{14}H_8O_2$	51/275	. . . of hydrocarbyl groups
50/20	. . with unsaturation outside the ring system	51/285	. . with peroxy-compounds
50/22	. the quinoid structure being part of a condensed ring system containing four or more rings	51/29	. . with halogen-containing compounds which may be formed <i>in situ</i>
50/24	. containing halogen	51/295	. . with inorganic bases, e.g. by alkali fusion
50/26	. containing groups having oxygen atoms singly bound to carbon atoms	51/305	. . with sulfur or sulfur-containing compounds
50/28	. . with monocyclic quinoid structure	51/31	. . of cyclic compounds with ring-splitting
50/30	. . with polycyclic non-condensed quinoid structure	51/313	. . . {with molecular oxygen}
50/32	. . the quinoid structure being part of a condensed ring system having two rings	51/316	. . . {with oxides of nitrogen or nitrogen-containing mineral acids}
50/34	. . the quinoid structure being part of a condensed ring system having three rings	51/34	. by oxidation with ozone; by hydrolysis of ozonides
50/36	. . the quinoid structure being part of a condensed ring system having four or more rings	51/347	. by reactions not involving formation of carboxyl groups
50/38	. containing —CHO or non—quinoid keto groups	51/353	. . by isomerisation; by change of size of the carbon skeleton
<b>51/00</b>	<b>Preparation of carboxylic acids or their salts, halides or anhydrides</b> (of acids by hydrolysis of oils, fats or waxes C11C)	51/36	. . by hydrogenation of carbon-to-carbon unsaturated bonds
51/02	. from salts of carboxylic acids	51/363	. . by introduction of halogen; by substitution of halogen atoms by other halogen atoms
51/04	. from carboxylic acid halides	51/367	. . by introduction of functional groups containing oxygen only in singly bound form
51/06	. from carboxylic acid amides	51/373	. . by introduction of functional groups containing oxygen only in doubly bound form
51/08	. from nitriles	51/377	. . by splitting-off hydrogen or functional groups; by hydrogenolysis of functional groups {(C07C 51/36 - C07C 51/373 take precedence)}
51/083	. from carboxylic acid anhydrides		
51/087	. . by hydrolysis	51/38	. . . by decarboxylation
51/09	. from carboxylic acid esters or lactones	51/41	. Preparation of salts of carboxylic acids {(C07C 51/093 - C07C 51/34 take precedence) preparation of soap C11D}
51/093	. by hydrolysis of —CX <sub>3</sub> groups, X being halogen		
51/097	. from or via nitro-substituted organic compounds	51/412	. . {by conversion of the acids, their salts, esters or anhydrides with the same carboxylic acid part}
51/10	. by reaction with carbon monoxide	51/414	. . {Preparation of superbasic salts}
51/12	. . on an oxygen-containing group in organic compounds, e.g. alcohols	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}
51/14	. . on a carbon-to-carbon unsaturated bond in organic compounds		
51/145	. . with simultaneous oxidation	51/418	. . {Preparation of metal complexes containing carboxylic acid moieties}
51/15	. by reaction of organic compounds with carbon dioxide, e.g. Kolbe-Schmitt synthesis	51/42	. Separation; Purification; Stabilisation; Use of additives
51/16	. by oxidation (C07C 51/145 takes precedence)	51/43	. . by change of the physical state, e.g. crystallisation
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		

**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



- 51/44 . . . by distillation
- 51/445 . . . . {by steam distillation}
- 51/46 . . . . by azeotropic distillation
- 51/47 . . by solid-liquid treatment; by chemisorption
- 51/48 . . by liquid-liquid treatment
- 51/487 . . by treatment giving rise to chemical modification  
(by chemisorption C07C 51/47)
- 51/493 . . . whereby carboxylic acid esters are formed
- 51/50 . . Use of additives, e.g. for stabilisation
- 51/54 . . Preparation of carboxylic acid anhydrides (by  
oxidation C07C 51/16)
- 51/56 . . from organic acids, their salts, their esters {or  
their halides, e.g. by carboxylation}
- 51/567 . . by reactions not involving carboxylic acid  
anhydride groups
- 51/573 . . Separation; Purification; Stabilisation; Use of  
additives
- 51/58 . . Preparation of carboxylic acid halides
- 51/60 . . by conversion of carboxylic acids or their  
anhydrides {or esters, lactones, salts} into halides  
with the same carboxylic acid part
- 51/62 . . by reactions not involving the carboxylic acid  
halide group
- 51/64 . . Separation; Purification; Stabilisation; Use of  
additives
- 53/00 Saturated compounds having only one carboxyl  
group bound to an acyclic carbon atom or  
hydrogen**
- 53/02 . Formic acid
- 53/06 . . Salts thereof
- 53/08 . Acetic acid (pyroligneous acid C10C; preparation of  
vinegar C12J)
- 53/10 . . Salts thereof
- 53/12 . Acetic anhydride (ketene C07C 49/90)
- 53/122 . Propionic acid
- 53/124 . Acids containing four carbon atoms
- 53/126 . Acids containing more than four carbon atoms
- 53/128 . . the carboxylic group being bound to a carbon  
atom bound to at least two other carbon atoms,  
e.g. neo-acids
- 53/132 . containing rings
- 53/134 . . monocyclic
- 53/136 . . containing condensed ring systems
- 53/138 . . . containing an adamantane ring system
- 53/15 . containing halogen
- 53/16 . . Halogenated acetic acids
- 53/18 . . . containing fluorine
- 53/19 . . Acids containing three or more carbon atoms
- 53/21 . . . containing fluorine
- 53/23 . . containing rings
- 53/38 . Acyl halides
- 53/40 . . Acetyl halides
- 53/42 . . of acids containing three or more carbon atoms
- 53/44 . . containing rings
- 53/46 . . containing halogen outside the carbonyl halide  
group
- 53/48 . . . Halogenated acetyl halides
- 53/50 . . . of acids containing three or more carbon atoms
- 55/00 Saturated compounds having more than one  
carboxyl group bound to acyclic carbon atoms**
- 55/02 . Dicarboxylic acids
- 55/06 . . Oxalic acid
- 55/07 . . . Salts thereof
- 55/08 . . Malonic acid
- 55/10 . . Succinic acid
- 55/12 . . Glutaric acid
- 55/14 . . Adipic acid
- 55/16 . . Pimelic acid
- 55/18 . . Azelaic acid
- 55/20 . . Sebacic acid
- 55/21 . . Dicarboxylic acids containing twelve carbon  
atoms
- 55/22 . Tricarboxylic acids
- 55/24 . containing more than three carboxyl groups
- 55/26 . containing rings {other than aromatic rings}
- 55/28 . . monocyclic
- 55/30 . . containing condensed ring systems
- 55/32 . containing halogen
- 55/34 . . containing rings
- 55/36 . Acyl halides
- 55/38 . . containing rings
- 55/40 . . containing halogen outside the carboxyl halide  
group
- 57/00 Unsaturated compounds having carboxyl groups  
bound to acyclic carbon atoms**
- 57/02 . with only carbon-to-carbon double bonds as  
unsaturation
- 57/03 . . Monocarboxylic acids
- 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**
- 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, 
- 
- 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, 
- 
- 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, 
- 
- 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](#)

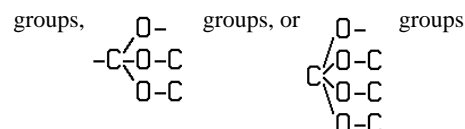
- 61/005 . {Naphthenic acids}
- 61/04 . Saturated compounds having a carboxyl group bound to a three or four-membered ring
- 61/06 . Saturated compounds having a carboxyl group bound to a five-membered ring
- 61/08 . Saturated compounds having a carboxyl group bound to a six-membered ring
- 61/09 . . 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,**

groups,  $\begin{array}{c} \text{O}- \\ | \\ -\text{C}-\text{O}-\text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ | \\ \text{C}-\text{O}-\text{C} \\ | \\ \text{O}-\text{C} \end{array}$  groups

- 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,  $\begin{array}{c} \text{O}- \\ | \\ >\text{C}-\text{O}-\text{C} \end{array}$  groups,  $\begin{array}{c} \text{O}- \\ | \\ -\text{C}-\text{O}-\text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ | \\ \text{C}-\text{O}-\text{C} \\ | \\ \text{O}-\text{C} \end{array}$  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,  $\begin{array}{c} \text{O}- \\ | \\ >\text{C}-\text{O}-\text{C} \end{array}$



- 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,  $\begin{array}{c} \text{O}- \\ | \\ \text{C} < \text{O}-\text{C} \end{array}$  groups,  $\begin{array}{c} \text{O}- \\ | \\ \text{C}-\text{O}-\text{C} \\ | \\ \text{O}-\text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ | \\ \text{C} < \text{O}-\text{C} \\ | \\ \text{O}-\text{C} \end{array}$  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,  $\begin{array}{c} \text{O}- \\ | \\ \text{C} < \text{O}-\text{C} \end{array}$  groups,  $\begin{array}{c} \text{O}- \\ | \\ \text{C}-\text{O}-\text{C} \\ | \\ \text{O}-\text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ | \\ \text{C} < \text{O}-\text{C} \\ | \\ \text{O}-\text{C} \end{array}$  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  $\begin{array}{c} \text{O} \\ || \\ \text{C}-\text{O}-\text{C}- \\ | \end{array}$  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  $\text{-COOC-}$  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**
- 68/01 . 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,  $\begin{array}{c} \diagup \text{C} \diagdown \\ \text{O}- \\ \text{O}-\text{C} \end{array}$  groups,  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \\ \text{O}-\text{C} \end{array}$  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 . . . Chrysanthemumic 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,  $\begin{array}{c} \diagup \text{C} \diagdown \\ \text{O}- \\ \text{O}-\text{C} \end{array}$  groups,  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \end{array}$  groups, or  $\begin{array}{c} \text{O}- \\ \diagup \text{C} \diagdown \\ \text{O}-\text{C} \\ \text{O}-\text{C} \end{array}$  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
- 201/12 . . by reactions not involving the formation of nitro groups
- 201/14 . . by formation of nitro groups together with reactions not involving the formation of nitro groups
- 201/16 . . Separation; Purification; Stabilisation; Use of additives

## 203/00 Esters of nitric or nitrous acid

- 203/02 . Esters of nitric acid
- 203/04 . . having nitrate groups bound to acyclic carbon atoms
- 203/06 . . . Glycerol trinitrate

203/08	. . having nitrate groups bound to carbon atoms of rings other than six-membered aromatic rings	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
203/10	. . having nitrate groups bound to carbon atoms of six-membered aromatic rings	205/31	. . . the carbon skeleton containing six-membered aromatic rings
<b>205/00</b>	<b>Compounds containing nitro groups bound to a carbon skeleton</b>	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
205/01	. having nitro groups bound to acyclic carbon atoms	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
205/02	. . of a saturated carbon skeleton	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
205/03	. . of an unsaturated carbon skeleton	205/35	. . having nitro groups and etherified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
205/04	. . . containing six-membered aromatic rings	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
205/05	. having nitro groups bound to carbon atoms of rings other than six-membered aromatic rings	205/37	. . . . the oxygen atom of at least one of the etherified hydroxy groups being further bound to an acyclic carbon atom
205/06	. having nitro groups bound to carbon atoms of 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
205/07	. the carbon skeleton being further substituted by halogen atoms	205/39	. the carbon skeleton being further substituted by esterified hydroxy groups
205/08	. . having nitro groups bound to acyclic carbon atoms	205/40	. . having nitro groups and esterified hydroxy groups bound to acyclic carbon atoms of the carbon skeleton
205/09	. . . of an unsaturated carbon skeleton	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
205/10	. . having nitro groups bound to carbon atoms of rings other than six-membered aromatic rings	205/42	. . having nitro groups or esterified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
205/11	. . having nitro groups bound to carbon atoms of six-membered aromatic rings	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
205/12	. . . the six-membered aromatic ring or a condensed ring system containing that ring being substituted by halogen atoms	205/44	. the carbon skeleton being further substituted by —CHO groups
205/13	. the carbon skeleton being further substituted by hydroxy groups	205/45	. the carbon skeleton being further substituted by at least one doubly—bound oxygen atom, not being part of a —CHO group
205/14	. . having nitro groups and hydroxy groups bound to acyclic carbon atoms	205/46	. . the carbon skeleton containing carbon atoms of quinone rings
205/15	. . . of a saturated carbon skeleton	205/47	. . . Anthraquinones containing nitro groups
205/16	. . . of a carbon skeleton containing six-membered aromatic rings	205/48	. . . . the carbon skeleton being further substituted by singly-bound oxygen atoms
205/17	. . having nitro groups bound to acyclic carbon atoms and hydroxy groups bound to carbon atoms of six-membered aromatic rings	205/49	. the carbon skeleton being further substituted by carboxyl groups
205/18	. . having nitro groups or hydroxy groups bound to carbon atoms of rings other than six-membered aromatic rings	205/50	. . having nitro groups and carboxyl groups bound to acyclic carbon atoms of the carbon skeleton
205/19	. . having nitro groups bound to carbon atoms of six-membered aromatic rings and hydroxy groups bound to acyclic carbon atoms	205/51	. . . the carbon skeleton being saturated
205/20	. . having nitro groups and hydroxy groups bound to carbon atoms of six-membered aromatic rings	205/52	. . . . Nitro-acetic acids
205/21	. . . having nitro groups and hydroxy groups bound to carbon atoms of the same non-condensed six-membered aromatic ring	205/53	. . . the carbon skeleton containing six-membered aromatic rings
205/22	. . . . having one nitro groups bound to the ring		
205/23	. . . . having two nitro groups bound to the ring		
205/24	. . . . having three, and only three, nitro groups bound to the ring		
205/25	. . . having nitro groups bound to carbon atoms of six-membered aromatic rings being part of a condensed ring system		
205/26	. . and being further substituted by halogen atoms		
205/27	. the carbon skeleton being further substituted by etherified hydroxy groups		
205/28	. . having nitro groups and etherified hydroxy groups bound to acyclic carbon atoms of the carbon skeleton		
205/29	. . . the carbon skeleton being saturated		

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	. . . { <a href="#">reduction by other means than indicated in C07C 209/34 or 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 { <a href="#">in presence of hydrogen-containing gases and a catalyst</a> }
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 { <a href="#">in presence of hydrogen-containing gases and a catalyst</a> }
205/57	. . having nitro groups and carboxyl groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton	209/365	. . . . { <a href="#">by reduction with preservation of halogen-atoms in compounds containing nitro groups and halogen atoms bound to the same carbon skeleton</a> }
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 oxyimino 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 takes precedence</a> )
<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 <a href="#">via</a> 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 takes precedence</a> )
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 <a href="#">via</a> 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
209/20	. . . with formation of quaternary ammonium compounds	209/74	. . by halogenation, hydrohalogenation, dehalogenation, or dehydrohalogenation
209/22	. . by substitution of other functional groups	209/76	. . by nitration
209/24	. by reductive alkylation of ammonia, amines or compounds having groups reducible to amino groups, with carbonyl compounds	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-diarylamines
209/26	. . by reduction with hydrogen	209/80	. by photochemical reactions; by using free radicals
209/28	. . by reduction with other reducing agents	209/82	. Purification; Separation; Stabilisation; Use of additives
209/30	. by reduction of nitrogen-to-oxygen or nitrogen-to-nitrogen bonds	209/84	. . Purification
209/32	. . by reduction of nitro groups	209/86	. . Separation
		209/88	. . . Separation of optical isomers
		209/90	. . Stabilisation; Use of additives

<b>211/00</b>	<b>Compounds containing amino groups bound to a carbon skeleton</b>	211/37	. . . being further substituted by halogen atoms or by nitro or nitroso groups
211/01	. having amino groups bound to acyclic carbon atoms	211/38	. . . containing condensed ring systems
211/02	. . of an acyclic saturated carbon skeleton	211/39	. . of an unsaturated carbon skeleton
211/03	. . . Monoamines	211/40	. . . containing only non-condensed rings
211/04	. . . . Mono-, di- or tri-methylamine	211/41	. . . containing condensed ring systems
211/05	. . . . Mono-, di- or tri-ethylamine	211/42	. . . . with six-membered aromatic rings being part of the condensed ring systems
211/06	. . . . containing only n- or iso-propyl groups	211/43	. having amino groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
211/07	. . . . containing one, two or three alkyl groups, each having the same number of carbon atoms in excess of three	211/44	. . having amino groups bound to only one six-membered aromatic ring
211/08	. . . . containing alkyl groups having a different number of carbon atoms	211/45	. . . Monoamines
211/09	. . . Diamines	211/46	. . . . Aniline
211/10	. . . . Diaminoethanes	211/47	. . . . Toluidines; Homologues thereof
211/11	. . . . Diaminopropanes	211/48	. . . . N-alkylated amines
211/12	. . . . 1,6-Diaminohexanes	211/49	. . . having at least two amino groups bound to the carbon skeleton
211/13	. . . Amines containing three or more amino groups bound to the carbon skeleton	211/50	. . . . with at least two amino groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
211/14	. . . Amines containing amino groups bound to at least two aminoalkyl groups, e.g. diethylenetriamines	211/51	. . . . . Phenylenediamines
211/15	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups	211/52	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups
211/16	. . of a saturated carbon skeleton containing rings other than six-membered aromatic rings	211/53	. . . having the nitrogen atom of at least one of the amino groups further bound to a hydrocarbon radical substituted by amino groups
211/17	. . . containing only non-condensed rings	211/54	. . having amino groups bound to two or three six-membered aromatic rings
211/18	. . . containing at least two amino groups bound to the carbon skeleton	211/55	. . . Diphenylamines
211/19	. . . containing condensed ring systems	211/56	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups
211/20	. . of an acyclic unsaturated carbon skeleton	211/57	. . having amino groups bound to carbon atoms of six-membered aromatic rings being part of condensed ring systems of the carbon skeleton
211/21	. . . Monoamines	211/58	. . . Naphthylamines; N-substituted derivatives thereof
211/22	. . . containing at least two amino groups bound to the carbon skeleton	211/59	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups
211/23	. . . the carbon skeleton containing carbon-to-carbon triple bonds	211/60	. . . containing a ring other than a six-membered aromatic ring forming part of at least one of the condensed ring systems
211/24	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups	211/61	. . . with at least one of the condensed ring systems formed by three or more rings
211/25	. . of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings	211/62	. Quaternary ammonium compounds
211/26	. . of an unsaturated carbon skeleton containing at least one six-membered aromatic ring	211/63	. . having quaternised nitrogen atoms bound to acyclic carbon atoms
211/27	. . . having amino groups linked to the six-membered aromatic ring by saturated carbon chains	211/64	. . having quaternised nitrogen atoms bound to carbon atoms of six-membered aromatic rings
211/28	. . . having amino groups linked to the six-membered aromatic ring by unsaturated carbon chains	211/65	. Metal complexes of amines
211/29	. . . the carbon skeleton being further substituted by halogen atoms or by nitro or nitroso groups	<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>
211/30	. . . the six-membered aromatic ring being part of a condensed ring system formed by two rings	213/02	. by reactions involving the formation of amino groups from compounds containing hydroxy groups or etherified or esterified hydroxy groups
211/31	. . . the six-membered aromatic ring being part of a condensed ring system formed by at least three rings	213/04	. by reaction of ammonia or amines with olefin oxides or halohydrins
211/32	. . . . containing dibenzocycloheptane or dibenzocycloheptene ring systems or condensed derivatives thereof	213/06	. from hydroxy amines by reactions involving the etherification or esterification of hydroxy groups
211/33	. having amino groups bound to carbon atoms of rings other than six-membered aromatic rings		
211/34	. . of a saturated carbon skeleton		
211/35	. . . containing only non-condensed rings		
211/36	. . . containing at least two amino groups bound to the carbon skeleton		

213/08	• by reactions not involving the formation of amino groups, hydroxy groups or etherified or esterified 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
213/10	• Separation; Purification; Stabilisation; Use of additives	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
<b>215/00</b>	<b>Compounds containing amino and hydroxy groups bound to the same carbon skeleton</b>	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
215/02	• having hydroxy groups and amino groups bound to acyclic carbon atoms of the same carbon skeleton	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
215/04	• • the carbon skeleton being saturated	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
215/06	• • • and acyclic	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
215/08	• • • • with only one hydroxy group and one amino group bound to the carbon skeleton	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
215/10	• • • • with one amino group and at least two hydroxy groups bound to the carbon skeleton	215/64	• • with rings other than six-membered aromatic rings being part of the carbon skeleton
215/12	• • • • the nitrogen atom of the amino group being further bound to hydrocarbon groups substituted by hydroxy groups	215/66	• • with quaternised amino groups bound to the carbon skeleton
215/14	• • • • the nitrogen atom of the amino group being further bound to hydrocarbon groups substituted by amino 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
215/16	• • • • the nitrogen atom of the amino group being further bound to carbon atoms of six-membered aromatic rings	215/70	• • with rings other than six-membered aromatic rings being part of the carbon skeleton
215/18	• • • • with hydroxy groups and at least two amino groups bound to the carbon skeleton	215/72	• • with quaternised amino groups bound to the carbon skeleton
215/20	• • • the carbon skeleton being saturated and containing rings	215/74	• having hydroxy groups and amino groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton
215/22	• • the carbon skeleton being unsaturated	215/76	• • of the same non-condensed six-membered aromatic ring
215/24	• • • and acyclic	215/78	• • • containing at least two hydroxy groups bound to the carbon skeleton
215/26	• • • and containing rings other than six-membered aromatic rings	215/80	• • • containing at least two amino groups bound to the carbon skeleton
215/28	• • • and containing 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
215/30	• • • • containing hydroxy groups and carbon atoms of six-membered aromatic rings bound to the same carbon atom of the carbon skeleton	215/84	• • having amino groups bound to carbon atoms of six-membered aromatic rings being part of condensed ring systems
215/32	• • • • • containing hydroxy groups and carbon atoms of two six-membered aromatic rings bound to the same carbon atom of the carbon skeleton	215/86	• • • being formed by two rings
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	215/88	• • • being formed by at least three rings
215/36	• • • • • 1-Aryl-2-amino-1,3-propane diols	215/90	• • with quaternised amino groups bound to the carbon skeleton
215/38	• • • • with rings other than six-membered aromatic rings being part of the carbon skeleton	<b>217/00</b>	<b>Compounds containing amino and etherified hydroxy groups bound to the same carbon skeleton</b>
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		
215/44	• • bound to carbon atoms of the same ring or condensed ring system		
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		
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		



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| 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 | • • • • having 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   |
| 217/36 | • • • • • • by carbon atoms having at least two bonds to oxygen atoms   | 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             |
| 217/38 | • • • • • the six-membered aromatic ring being part of a condensed ring system containing rings other than six-membered aromatic rings  | 217/78 | • having amino groups and etherified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the same 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 |        |   |

217/80	. . having amino groups and etherified hydroxy groups bound to carbon atoms of non-condensed six-membered aromatic rings	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
217/82	. . . of the same non-condensed six-membered aromatic ring	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
217/84	. . . . the oxygen atom of at least one of the etherified hydroxy groups being further bound to an acyclic carbon atom	219/28	. . having amino groups bound to acyclic carbon atoms of the carbon skeleton
217/86	. . . . . to an acyclic carbon atom of a hydrocarbon radical containing six-membered aromatic rings	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
217/88	. . . . 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	219/32	. 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
217/90	. . . . 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	219/34	. having amino groups and esterified hydroxy groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton
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	221/00	<b>Preparation of compounds containing amino groups and doubly-bound oxygen atoms bound to the same carbon skeleton</b>
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	223/00	<b>Compounds containing amino and —CHO groups bound to the same carbon skeleton</b>
219/00	<b>Compounds containing amino and esterified hydroxy groups bound to the same carbon skeleton</b>	223/02	. having amino groups bound to acyclic carbon atoms of the carbon skeleton
219/02	. having esterified hydroxy groups and amino groups bound to acyclic carbon atoms of the same carbon skeleton	223/04	. having amino groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
219/04	. . the carbon skeleton being acyclic and saturated	223/06	. having amino groups bound to carbon atoms of six-membered aromatic rings 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	225/00	<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>
219/08	. . . 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	225/02	. having amino groups bound to acyclic carbon atoms 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	225/04	. . the carbon skeleton being saturated
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	225/06	. . . and acyclic
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	225/08	. . . and containing rings
219/16	. . . having at least one of the hydroxy groups esterified by an inorganic acid or a derivative thereof	225/10	. . . . with doubly-bound oxygen atoms bound to carbon atoms not being part of rings
219/18	. . the carbon skeleton being saturated and containing rings	225/12	. . . . with doubly-bound oxygen atoms bound to carbon atoms being part of rings
219/20	. . the carbon skeleton being unsaturated	225/14	. . the carbon skeleton being unsaturated
219/22	. . . and containing six-membered aromatic rings	225/16	. . . and containing six-membered aromatic rings
		225/18	. . . . the carbon skeleton containing also rings other than six-membered aromatic rings
		225/20	. having amino groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
		225/22	. having amino groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
		225/24	. the carbon skeleton containing carbon atoms of quinone rings
		225/26	. . having amino groups bound to carbon atoms of quinone rings or of condensed ring systems containing quinone rings

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	229/52	. having amino and carboxyl groups bound to carbon atoms of six-membered aromatic rings of the same carbon skeleton
227/34	. . by separation of optical isomers	229/54	. . with amino and carboxyl groups bound to carbon atoms of the same non-condensed six-membered aromatic ring
227/36	. Racemisation of optical isomers	229/56	. . . with amino and carboxyl groups bound in ortho-position
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		
<b>229/00</b>	<b>Compounds containing amino and carboxyl groups bound to the same carbon skeleton</b>		
229/02	. having amino and carboxyl groups bound to acyclic carbon atoms of the same carbon skeleton		
229/04	. . the carbon skeleton being acyclic and saturated		
229/06	. . . having only one amino and one carboxyl group bound to the carbon skeleton		
229/08	. . . . the nitrogen atom of the amino group being further bound to hydrogen atoms		

- 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
- 233/23 . . . 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

233/24	. . . 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
233/40	. . . . having the carbon atom of the carboxamide group bound to an acyclic carbon atom of a carbon skeleton containing six-membered aromatic rings	233/58	. . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals
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	233/59	. . 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	233/81	• • 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
233/61	• • 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	233/82	• • • with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom
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	233/83	• • • • of an acyclic saturated carbon skeleton
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	233/84	• • • • of a saturated carbon skeleton containing rings
233/64	• having carbon atoms of carboxamide groups bound to carbon atoms of six-membered aromatic rings	233/85	• • • • of an acyclic unsaturated carbon skeleton
233/65	• • having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals	233/86	• • • • of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings
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	233/87	• • • • of a carbon skeleton containing six-membered aromatic rings
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	233/88	• 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
233/68	• • • with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom	233/89	• having nitrogen atoms of carboxamide groups quaternised
233/69	• • • • of an acyclic saturated carbon skeleton	233/90	• having nitrogen atoms of carboxamide groups further acylated
233/70	• • • • of a saturated carbon skeleton containing rings	233/91	• • with carbon atoms of the carboxamide groups bound to acyclic carbon atoms
233/71	• • • • of an acyclic unsaturated carbon skeleton	233/92	• • with at least one carbon atom of the carboxamide groups bound to a carbon atom of a six-membered aromatic ring
233/72	• • • • of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings	<b>235/00</b>	<b>Carboxylic acid amides, the carbon skeleton of the acid part being further substituted by oxygen atoms</b>
233/73	• • • • of a carbon skeleton containing six-membered aromatic rings	235/02	• having carbon atoms of carboxamide groups bound to acyclic carbon atoms and singly-bound oxygen atoms bound to the same carbon skeleton
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	235/04	• • the carbon skeleton being acyclic and saturated
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	235/06	• • • having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
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	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
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	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
233/78	• • • with the substituted hydrocarbon radical bound to the nitrogen atom of the carboxamide group by an acyclic carbon atom	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
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	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
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	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
		235/18	• • • 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
		235/20	• • • • 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
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	237/06	. . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
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	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
235/60	. . . . having the nitrogen atoms of the carboxamide groups bound to hydrogen atoms or to acyclic carbon 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
		237/12	. . . 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> )
		237/14	. . the carbon skeleton being saturated and containing rings
		237/16	. . the carbon skeleton being acyclic and unsaturated

237/18	<ul style="list-style-type: none"> <li>the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings</li> </ul>	239/08	<ul style="list-style-type: none"> <li>Hydroxylamino compounds or their ethers or esters</li> </ul>
237/20	<ul style="list-style-type: none"> <li>the carbon skeleton containing six-membered aromatic rings</li> </ul>	239/10	<ul style="list-style-type: none"> <li>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</li> </ul>
237/22	<ul style="list-style-type: none"> <li>having nitrogen atoms of amino groups bound to the carbon skeleton of the acid part, further acylated (<a href="#">peptides C07K</a>)</li> </ul>	239/12	<ul style="list-style-type: none"> <li>having nitrogen atoms of hydroxylamino groups further bound to carbon atoms of hydrocarbon radicals substituted by singly-bound oxygen atoms</li> </ul>
237/24	<ul style="list-style-type: none"> <li>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</li> </ul>	239/14	<ul style="list-style-type: none"> <li>having nitrogen atoms of hydroxylamino groups further bound to carbon atoms of hydrocarbon radicals substituted by doubly-bound oxygen atoms</li> </ul>
237/26	<ul style="list-style-type: none"> <li>of a ring being part of a condensed ring system formed by at least four rings, e.g. tetracycline</li> </ul>	239/16	<ul style="list-style-type: none"> <li>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</li> </ul>
237/28	<ul style="list-style-type: none"> <li>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</li> </ul>	239/18	<ul style="list-style-type: none"> <li>having nitrogen atoms of hydroxylamino groups further bound to carbon atoms of hydrocarbon radicals substituted by carboxyl groups</li> </ul>
237/30	<ul style="list-style-type: none"> <li>having the nitrogen atom of the carboxamide group bound to hydrogen atoms or to acyclic carbon atoms</li> </ul>	239/20	<ul style="list-style-type: none"> <li>having oxygen atoms of hydroxylamino groups etherified</li> </ul>
237/32	<ul style="list-style-type: none"> <li>having the nitrogen atom of the carboxamide group bound to an acyclic carbon atom of a hydrocarbon radical substituted by oxygen atoms</li> </ul>	239/22	<ul style="list-style-type: none"> <li>having oxygen atoms of hydroxylamino groups esterified</li> </ul>
237/34	<ul style="list-style-type: none"> <li>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</li> </ul>	<b>241/00</b>	<b>Preparation of compounds containing chains of nitrogen atoms singly-bound to each other, e.g. hydrazines, triazanes</b>
237/36	<ul style="list-style-type: none"> <li>having the nitrogen atom of the carboxamide group bound to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl groups</li> </ul>	241/02	<ul style="list-style-type: none"> <li>Preparation of hydrazines</li> </ul>
237/38	<ul style="list-style-type: none"> <li>having the nitrogen atom of the carboxamide group bound to a carbon atom of a ring other than a six-membered aromatic ring</li> </ul>	241/04	<ul style="list-style-type: none"> <li>Preparation of hydrazides</li> </ul>
237/40	<ul style="list-style-type: none"> <li>having the nitrogen atom of the carboxamide group bound to a carbon atom of a six-membered aromatic ring</li> </ul>	<b>243/00</b>	<b>Compounds containing chains of nitrogen atoms singly-bound to each other, e.g. hydrazines, triazanes</b>
237/42	<ul style="list-style-type: none"> <li>having nitrogen atoms of amino groups bound to the carbon skeleton of the acid part, further acylated</li> </ul>	243/02	<ul style="list-style-type: none"> <li>N-nitro compounds</li> </ul>
237/44	<ul style="list-style-type: none"> <li>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</li> </ul>	243/04	<ul style="list-style-type: none"> <li>N-nitroso compounds</li> </ul>
237/46	<ul style="list-style-type: none"> <li>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</li> </ul>	243/06	<ul style="list-style-type: none"> <li>N-nitroso-amines</li> </ul>
237/48	<ul style="list-style-type: none"> <li>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</li> </ul>	243/08	<ul style="list-style-type: none"> <li>N-nitroso-carboxamides</li> </ul>
237/50	<ul style="list-style-type: none"> <li>having the nitrogen atom of at least one of the carboxamide groups quaternised</li> </ul>	243/10	<ul style="list-style-type: none"> <li>Hydrazines</li> </ul>
237/52	<ul style="list-style-type: none"> <li>having the nitrogen atom of at least one of the carboxamide groups further acylated</li> </ul>	243/12	<ul style="list-style-type: none"> <li>having nitrogen atoms of hydrazine groups bound to acyclic carbon atoms</li> </ul>
<b>239/00</b>	<b>Compounds containing nitrogen-to-halogen bonds; Hydroxylamino compounds or ethers or esters thereof (<a href="#">oximes C07C 251/00</a>; <a href="#">hydroxamic acids or derivatives thereof C07C 259/00</a>)</b>	243/14	<ul style="list-style-type: none"> <li>of a saturated carbon skeleton</li> </ul>
239/02	<ul style="list-style-type: none"> <li>Compounds containing nitrogen-to-halogen bonds</li> </ul>	243/16	<ul style="list-style-type: none"> <li>of an unsaturated carbon skeleton</li> </ul>
239/04	<ul style="list-style-type: none"> <li>N-halogenated amines</li> </ul>	243/18	<ul style="list-style-type: none"> <li>containing rings</li> </ul>
239/06	<ul style="list-style-type: none"> <li>N-halogenated carboxamides</li> </ul>	243/20	<ul style="list-style-type: none"> <li>having nitrogen atoms of hydrazine groups bound to carbon atoms of rings other than six-membered aromatic rings</li> </ul>
		243/22	<ul style="list-style-type: none"> <li>having nitrogen atoms of hydrazine groups bound to carbon atoms of six-membered aromatic rings</li> </ul>
		243/24	<ul style="list-style-type: none"> <li>Hydrazines having nitrogen atoms of hydrazine groups acylated by carboxylic acids</li> </ul>
		243/26	<ul style="list-style-type: none"> <li>with acylating carboxyl groups bound to hydrogen atoms or to acyclic carbon atoms</li> </ul>
		243/28	<ul style="list-style-type: none"> <li>to hydrogen atoms or to carbon atoms of a saturated carbon skeleton</li> </ul>
		243/30	<ul style="list-style-type: none"> <li>to carbon atoms of an unsaturated carbon skeleton</li> </ul>
		243/32	<ul style="list-style-type: none"> <li>the carbon skeleton containing rings</li> </ul>
		243/34	<ul style="list-style-type: none"> <li>to carbon atoms of a carbon skeleton further substituted by nitrogen atoms</li> </ul>
		243/36	<ul style="list-style-type: none"> <li>with acylating carboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings</li> </ul>

243/38	. . with acylating carboxyl groups bound to carbon atoms of six-membered aromatic rings	249/04	. of oximes
243/40	. Hydrazines having nitrogen atoms of hydrazine groups being quaternised	249/06	. . by nitrosation of hydrocarbons or substituted hydrocarbons
243/42	. Hydrazines having nitrogen atoms of hydrazine groups further singly-bound to hetero atoms	249/08	. . by reaction of hydroxylamines with carbonyl compounds
<b>245/00</b>	<b>Compounds containing chains of at least two nitrogen atoms with at least one nitrogen-to-nitrogen multiple bond (<a href="#">azoxy compounds C07C 291/08</a>)</b>	249/10	. . from nitro compounds or salts thereof
245/02	. Azo compounds, i.e. compounds having the free valencies of —N=N— groups attached to different atoms, e.g. diazohydroxides	249/12	. . by reactions not involving the formation of oxyimino groups
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	249/14	. . Separation; Purification; Stabilisation; Use of additives
245/06	. . with nitrogen atoms of azo groups bound to carbon atoms of six-membered aromatic rings	249/16	. of hydrazones
245/08	. . . with the two nitrogen atoms of azo groups bound to carbon atoms of six-membered aromatic rings, e.g. azobenzene	<b>251/00</b>	<b>Compounds containing nitrogen atoms doubly-bound to a carbon skeleton (<a href="#">diaz compounds C07C 245/12</a>)</b>
245/10	. . . with nitrogen atoms of azo groups bound to carbon atoms of six-membered aromatic rings being part of condensed ring systems	251/02	. containing imino groups
245/12	. Diazo compounds, i.e. compounds having the free valencies of >N <sub>2</sub> groups attached to the same carbon atom	251/04	. . having carbon atoms of imino groups bound to hydrogen atoms or to acyclic carbon atoms
245/14	. . having diazo groups bound to acyclic carbon atoms of a carbon skeleton	251/06	. . . to carbon atoms of a saturated carbon skeleton
245/16	. . . Diazomethane	251/08	. . . . being acyclic
245/18	. . . the carbon skeleton being further substituted by carboxyl groups	251/10	. . . to carbon atoms of an unsaturated carbon skeleton
245/20	. Diazonium compounds	251/12	. . . . being acyclic
245/22	. containing chains of three or more nitrogen atoms with one or more nitrogen-to-nitrogen double bonds	251/14	. . . . containing rings other than six-membered aromatic rings
245/24	. . Chains of only three nitrogen atoms, e.g. diazoamines	251/16	. . . . containing six-membered aromatic rings
<b>247/00</b>	<b>Compounds containing azido groups</b>	251/18	. . having carbon atoms of imino groups bound to carbon atoms of rings other than six-membered aromatic rings
247/02	. with azido groups bound to acyclic carbon atoms of a carbon skeleton	251/20	. . having carbon atoms of imino groups being part of rings other than six-membered aromatic rings
247/04	. . being saturated	251/22	. . . Quinone imines
247/06	. . . and containing rings	251/24	. . having carbon atoms of imino groups bound to carbon atoms of six-membered aromatic rings
247/08	. . being unsaturated	251/26	. . having nitrogen atoms of imino groups further bound to halogen atoms
247/10	. . . and containing rings	251/28	. . having nitrogen atoms of imino groups acylated
247/12	. . being further substituted by carboxyl groups	251/30	. . having nitrogen atoms of imino groups quaternised
247/14	. with azido groups bound to carbon atoms of rings other than six-membered aromatic rings	251/32	. Oximes
247/16	. with azido groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton	251/34	. . with oxygen atoms of oxyimino groups bound to hydrogen atoms or to carbon atoms of unsubstituted hydrocarbon radicals
247/18	. . being further substituted by carboxyl groups	251/36	. . . with the carbon atoms of the oxyimino groups bound to hydrogen atoms or to acyclic carbon atoms
247/20	. with azido groups acylated by carboxylic acids	251/38	. . . . to carbon atoms of a saturated carbon skeleton
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	251/40	. . . . to carbon atoms of an unsaturated carbon skeleton
247/24	. . with at least one of the acylating carboxyl groups bound to a carbon atom of a six-membered aromatic ring	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
<b>249/00</b>	<b>Preparation of compounds containing nitrogen atoms doubly-bound to a carbon skeleton (<a href="#">of diazo compounds C07C 245/12</a>)</b>	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
249/02	. of compounds containing imino groups	251/46	. . . . Quinone oximes
		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
		251/50	. . having oxygen atoms of oxyimino groups bound to carbon atoms of substituted hydrocarbon radicals

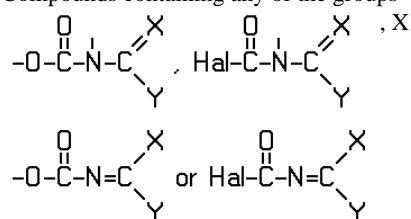
251/52	. . . of hydrocarbon radicals substituted by halogen atoms or by nitro or nitroso groups	253/22	. by reaction of ammonia with carboxylic acids with replacement of carboxyl groups by cyano groups
251/54	. . . of hydrocarbon radicals substituted by singly-bound oxygen atoms	253/24	. by ammoxidation 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
253/14	. by reaction of cyanides with halogen-containing compounds with replacement of halogen atoms by cyano groups	255/19	. . containing cyano groups and carboxyl groups, other than cyano groups, bound to the same saturated acyclic carbon skeleton
253/16	. by reaction of cyanides with lactones or compounds containing hydroxy groups or etherified or esterified hydroxy groups	255/20	. . . the carbon skeleton being further substituted by singly-bound oxygen atoms
253/18	. by reaction of ammonia or amines with compounds containing carbon-to-carbon multiple bonds other than in six-membered aromatic rings	255/21	. . . the carbon skeleton being further substituted by doubly-bound oxygen atoms
253/20	. by dehydration of carboxylic acid amides	255/22	. . . containing cyano groups and at least two carboxyl groups bound to the carbon skeleton
		255/23	. . containing cyano groups and carboxyl groups, other than cyano groups, bound to the same unsaturated acyclic carbon skeleton



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| <p>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</p> <p>255/25 . . . Aminoacetonitriles</p> <p>255/26 . . . containing cyano groups, amino groups and singly-bound oxygen atoms bound to the carbon skeleton</p> <p>255/27 . . . containing cyano groups, amino groups and doubly-bound oxygen atoms bound to the carbon skeleton</p> <p>255/28 . . . containing cyano groups, amino groups and carboxyl groups, other than cyano groups, bound to the carbon skeleton</p> <p>255/29 . . . containing cyano groups and acylated amino groups bound to the carbon skeleton</p> <p>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</p> <p>255/31 . . having cyano groups bound to acyclic carbon atoms of a carbon skeleton containing rings other than six-membered aromatic rings</p> <p>255/32 . . having cyano groups bound to acyclic carbon atoms of a carbon skeleton containing at least one six-membered aromatic ring</p> <p>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</p> <p>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</p> <p>255/35 . . . the carbon skeleton being further substituted by halogen atoms, or by nitro or nitroso groups</p> <p>255/36 . . . the carbon skeleton being further substituted by hydroxy groups</p> <p>255/37 . . . the carbon skeleton being further substituted by etherified hydroxy groups</p> <p>255/38 . . . the carbon skeleton being further substituted by esterified hydroxy groups</p> <p>255/39 . . . . with hydroxy groups esterified by derivatives of 2,2-dimethylcyclopropane carboxylic acids, e.g. of chrysanthemumic acids</p> <p>255/40 . . . the carbon skeleton being further substituted by doubly-bound oxygen atoms</p> <p>255/41 . . . the carbon skeleton being further substituted by carboxyl groups, other than cyano groups</p> <p>255/42 . . . the carbon skeleton being further substituted by singly-bound nitrogen atoms, not being further bound to other hetero atoms</p> <p>255/43 . . . . the carbon skeleton being further substituted by singly-bound oxygen atoms</p> <p>255/44 . . . . at least one of the singly-bound nitrogen atoms being acylated</p> <p>255/45 . having cyano groups bound to carbon atoms of rings other than six-membered aromatic rings</p> <p>255/46 . . to carbon atoms of non-condensed rings</p> <p>255/47 . . to carbon atoms of rings being part of condensed ring systems</p> <p>255/48 . . to carbon atoms of 2,2-dimethylcyclopropane rings, e.g. nitrile of chrysanthemumic acids</p> <p>255/49 . having cyano groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton</p> | <p>255/50 . . to carbon atoms of non-condensed six-membered aromatic rings</p> <p>255/51 . . . containing at least two cyano groups bound to the carbon skeleton</p> <p>255/52 . . to carbon atoms of six-membered aromatic rings being part of condensed ring systems</p> <p>255/53 . . containing cyano groups and hydroxy groups bound to the carbon skeleton</p> <p>255/54 . . containing cyano groups and etherified hydroxy groups bound to the carbon skeleton</p> <p>255/55 . . containing cyano groups and esterified hydroxy groups bound to the carbon skeleton</p> <p>255/56 . . containing cyano groups and doubly-bound oxygen atoms bound to the carbon skeleton</p> <p>255/57 . . containing cyano groups and carboxyl groups, other than cyano groups, bound to the carbon skeleton</p> <p>255/58 . . containing cyano groups and singly-bound nitrogen atoms, not being further bound to other hetero atoms, bound to the carbon skeleton</p> <p>255/59 . . . the carbon skeleton being further substituted by singly-bound oxygen atoms</p> <p>255/60 . . . at least one of the singly-bound nitrogen atoms being acylated</p> <p>255/61 . containing cyano groups and nitrogen atoms being part of imino groups bound to the same carbon skeleton</p> <p>255/62 . containing cyano groups and oxygen atoms being part of oxyimino groups bound to the same carbon skeleton</p> <p>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</p> <p>255/64 . . with the nitrogen atoms further bound to oxygen atoms</p> <p>255/65 . . with the nitrogen atoms further bound to nitrogen atoms</p> <p>255/66 . . . having cyano groups and nitrogen atoms being part of hydrazine or hydrazone groups bound to the same carbon skeleton</p> <p>255/67 . . . having cyano groups and azido groups bound to the same carbon skeleton</p> <p><b>257/00 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></p> <p>257/02 . with replacement of the other oxygen atom of the carboxyl group by halogen atoms, e.g. imino-halides</p> <p>257/04 . without replacement of the other oxygen atom of the carboxyl group, e.g. imino-ethers</p> <p>257/06 . . 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</p> <p>257/08 . . having carbon atoms of imino-carboxyl groups bound to carbon atoms of six-membered aromatic rings</p> <p>257/10 . with replacement of the other oxygen atom of the carboxyl group by nitrogen atoms, e.g. amidines</p> <p>257/12 . . having carbon atoms of amidino groups bound to hydrogen atoms</p> |
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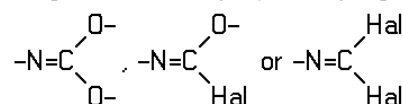
257/14	• • having carbon atoms of amidino groups bound to acyclic carbon atoms	263/18	• Separation; Purification; Stabilisation; Use of additives
257/16	• • having carbon atoms of amidino groups bound to carbon atoms of rings other than six-membered aromatic rings	263/20	• • Separation; Purification
257/18	• • having carbon atoms of amidino groups bound to carbon atoms of six-membered aromatic rings	<b>265/00</b>	<b>Derivatives of isocyanic acid</b>
257/20	• • having nitrogen atoms of amidino groups acylated	265/02	• having isocyanate groups bound to acyclic carbon atoms
257/22	• • having nitrogen atoms of amidino groups further bound to nitrogen atoms, e.g. hydrazidines	265/04	• • of a saturated carbon skeleton
<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	• • of an unsaturated carbon skeleton
259/02	• with replacement of the other oxygen atom of the carboxyl group by halogen atoms	265/08	• • • the carbon skeleton containing rings
259/04	• without replacement of the other oxygen atom of the carboxyl group, e.g. hydroxamic acids	265/10	• having isocyanate groups bound to carbon atoms of rings other than six-membered aromatic rings
259/06	• • having carbon atoms of hydroxamic groups bound to hydrogen atoms or to acyclic carbon atoms	265/12	• having isocyanate groups bound to carbon atoms of six-membered aromatic rings
259/08	• • having carbon atoms of hydroxamic groups bound to carbon atoms of rings other than six-membered aromatic rings	265/14	• containing at least two isocyanate groups bound to the same carbon skeleton
259/10	• • having carbon atoms of hydroxamic groups bound to carbon atoms of six-membered aromatic rings	265/16	• having isocyanate groups acylated
259/12	• with replacement of the other oxygen atom of the carboxyl group by nitrogen atoms, e.g. N-hydroxyamidines	<b>267/00</b>	<b>Carbodiimides</b>
259/14	• • having carbon atoms of hydroxamidine groups bound to hydrogen atoms or to acyclic carbon atoms	<b>269/00</b>	<b>Preparation of derivatives of carbamic acid, i.e. compounds containing any of the groups</b>
259/16	• • having carbon atoms of hydroxamidine groups bound to carbon atoms of rings other than six-membered aromatic rings		$\begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{C}-\text{O}- \\ \text{O}- \end{array}, \begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{C}-\text{Hal} \\ \text{O}- \end{array}, \begin{array}{c} \text{O}- \\ \parallel \\ -\text{N}=\text{C}-\text{O}- \end{array},$
259/18	• • having carbon atoms of hydroxamidine groups bound to carbon atoms of six-membered aromatic rings		$\begin{array}{c} \text{O}- \\ \parallel \\ -\text{N}=\text{C}-\text{Hal} \end{array} \text{ or } \begin{array}{c} \text{Hal} \\ \parallel \\ -\text{N}=\text{C}-\text{Hal} \end{array}$
259/20	• • with at least one nitrogen atom of hydroxamidine groups bound to another nitrogen atom	269/02	<b>nitrogen atom not being part of nitro or nitroso groups</b>
<b>261/00</b>	<b>Derivatives of cyanic acid</b>	269/04	• from isocyanates with formation of carbamate groups
261/02	• Cyanates	269/06	• from amines with formation of carbamate groups
261/04	• Cyanamides ( <a href="#">unsubstituted cyanamide C01C 3/16</a> )	269/08	• by reactions not involving the formation of carbamate groups
<b>263/00</b>	<b>Preparation of derivatives of isocyanic acid</b>	269/08	• Separation; Purification; Stabilisation; Use of additives
263/02	• by reaction of halides with isocyanic acid or its derivatives	<b>271/00</b>	<b>Derivatives of carbamic acids, i.e. compounds containing any of the groups</b>
263/04	• from or via carbamates or carbamoyl halides		$\begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{C}-\text{O}- \\ \text{O}- \end{array}, \begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{C}-\text{Hal} \\ \text{O}- \end{array}, \begin{array}{c} \text{O}- \\ \parallel \\ -\text{N}=\text{C}-\text{O}- \end{array},$
263/06	• from or via ureas		$\begin{array}{c} \text{O}- \\ \parallel \\ -\text{N}=\text{C}-\text{Hal} \end{array} \text{ or } \begin{array}{c} \text{Hal} \\ \parallel \\ -\text{N}=\text{C}-\text{Hal} \end{array}$
263/08	• from or via heterocyclic compounds, e.g. pyrolysis of furoxans	<b>nitrogen atom not being part of nitro or nitroso groups</b>	
263/10	• by reaction of amines with carbonyl halides, e.g. with phosgene	271/02	• Carbamic acids; Salts of carbamic acids ( <a href="#">unsubstituted carbamic acid or salts thereof C01B 21/12</a> )
263/12	• 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> )	271/04	• Carbamic acid halides
263/14	• by catalytic reaction of nitro compounds with carbon monoxide	271/06	• Esters of carbamic acids
263/16	• by reactions not involving the formation of isocyanate groups	271/08	• • having oxygen atoms of carbamate groups bound to acyclic carbon atoms
		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

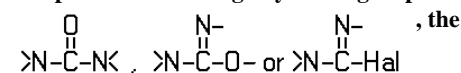


being a hetero atom, Y being any atom, e.g. N-acylcarbamates

- 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

**273/00**

**Preparation of urea or its derivatives, i.e. compounds containing any of the groups**

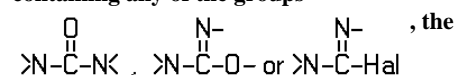


**nitrogen atoms not being part of nitro or nitroso groups**

- 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**

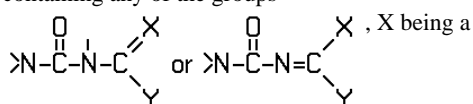
**Derivatives of urea, i.e. compounds containing any of the groups**



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

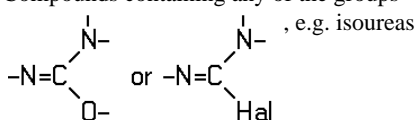
- 275/02 . Salts; Complexes; Addition compounds
- 275/04 . having nitrogen atoms of urea groups bound to acyclic carbon atoms
- 275/06 . . of an acyclic and saturated carbon skeleton
- 275/08 . . . being further substituted by halogen atoms, or by nitro or nitroso groups
- 275/10 . . . being further 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



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



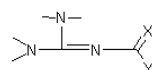
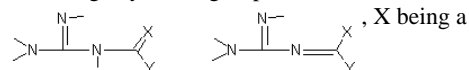
- 277/00 Preparation of guanidine or its derivatives, i.e. compounds containing the group**  $\begin{array}{c} \text{N-} \\ \parallel \\ \text{>N}-\text{C}-\text{N} \end{array}$ , the singly-bound nitrogen atoms not being part of nitro or nitroso groups

- 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

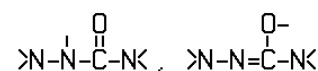
- 279/22 . . Y being a hydrogen or a carbon atom, e.g. benzoylguanidines
- 279/24 . . Y being a hetero atom
- 279/26 . . . X and Y being nitrogen atoms, i.e. biguanides
- 279/265 . . . {containing two or more biguanide groups}
- 279/28 . having nitrogen atoms of guanidine groups bound to cyano groups, 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

- 281/00 Derivatives of carbonic acid containing functional groups covered by groups C07C 269/00 - C07C 279/00 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**

- 281/02 . Compounds containing any of the groups  $\begin{array}{c} \text{O} \\ \parallel \\ \text{>N}-\text{N}-\text{C}-\text{O-} \end{array}$  or  $\begin{array}{c} \text{O-} \\ \parallel \\ \text{>N}-\text{N}=\text{C}-\text{O-} \end{array}$ , e.g. carbazates

- 281/04 . . the other nitrogen atom being further doubly-bound to a carbon atom

- 281/06 . Compounds containing any of the groups  $\begin{array}{c} \text{O} \\ \parallel \\ \text{>N}-\text{N}-\text{C}-\text{N} \end{array}$ , e.g.



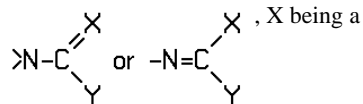
semicarbazides

281/08	. . the other nitrogen atom being further doubly-bound to a carbon atom, e.g. semicarbazones	303/18	. . by reaction of sulfides with compounds having functional groups with formation of sulfo or halosulfonyl groups
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	303/20	. . by addition of sulfurous acid or salts thereof to compounds having carbon-to-carbon multiple bonds
281/12	. . . the carbon atom being part of a ring other than a six-membered aromatic ring	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}
281/14	. . . the carbon atom being further bound to a carbon atom of a six-membered aromatic ring	303/24	. of esters of sulfuric acids
281/16	. Compounds containing any of the groups $\begin{array}{c} \text{N-} \\   \\ \text{>N-N-C-N<} \end{array} \text{ or } \begin{array}{c} \text{-N-} \\   \\ \text{>N-N=C-N<} \end{array}, \text{ e.g.}$ aminoguanidine	303/26	. of esters of sulfonic acids
281/18	. . the other nitrogen atom being further doubly-bound to a carbon atom, e.g. guanyldiazones	303/28	. . by reaction of hydroxy compounds with sulfonic acids or derivatives thereof
281/20	. the two nitrogen atoms of the functional groups being doubly-bound to each other, e.g. azoformamide	303/30	. . by reactions not involving the formation of esterified sulfo groups
<b>291/00</b>	<b>Compounds containing carbon and nitrogen and having functional groups not covered by groups C07C 201/00 - C07C 281/00</b>	303/32	. of salts of sulfonic acids
291/02	. containing nitrogen-oxide bonds	303/34	. of amides of sulfuric acids
291/04	. . containing amino-oxide bonds	303/36	. of amides of sulfonic acids
291/06	. . Nitrile oxides	303/38	. . by reaction of ammonia or amines with sulfonic acids, or with esters, anhydrides, or halides thereof
291/08	. . Azoxy compounds	303/40	. . by reactions not involving the formation of sulfonamide groups
291/10	. Isocyanides	303/42	. Separation; Purification; Stabilisation; Use of additives
291/12	. Fulminates	303/44	. . Separation; Purification
291/14	. containing at least one carbon atom bound to a nitro or nitroso group and doubly-bound to a hetero atom	303/46	. . . from by-products of refining mineral oils with sulfuric acid
<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; prostaglandins or derivatives thereof C07C 405/00; peroxy compounds C07C 407/00, C07C 409/00)</b>			
<b>301/00</b>	<b>Esters of sulfurous acid (cyclic esters C07D)</b>	<b>305/00</b>	<b>Esters of sulfuric acids (cyclic esters C07D)</b>
301/02	. having sulfite groups bound to carbon atoms of six-membered aromatic rings	305/02	. having oxygen atoms of sulfate groups bound to acyclic carbon atoms of a carbon skeleton
<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>	305/04	. . being acyclic and saturated
303/02	. of sulfonic acids or halides thereof	305/06	. . . Hydrogenosulfates
303/04	. . by substitution of hydrogen atoms by sulfo or halosulfonyl groups	305/08	. . . Dialkylsulfates; Substituted dialkylsulfates
303/06	. . . by reaction with sulfuric acid or sulfur trioxide	305/10	. . . being further substituted by singly-bound oxygen atoms
303/08	. . . by reaction with halogenosulfonic acids	305/12	. . being saturated and containing rings
303/10	. . . by reaction with sulfur dioxide and halogen or by reaction with sulfonyl halides	305/14	. . being acyclic and unsaturated
303/12	. . . by reaction with thionylhalides	305/16	. . being unsaturated and containing rings
303/14	. . by sulfoxidation, i.e. by reaction with sulfur dioxide and oxygen with formation of sulfo or halosulfonyl groups	305/18	. . . containing six-membered aromatic rings
303/16	. . by oxidation of thiols, sulfides, hydropolysulfides, or polysulfides with formation of sulfo or halosulfonyl groups	305/20	. having oxygen atoms of sulfate groups bound to carbon atoms of rings other than six-membered aromatic rings
		305/22	. having oxygen atoms of sulfate groups bound to carbon atoms of six-membered aromatic rings
		305/24	. . of non-condensed six-membered aromatic rings
		305/26	. Halogenosulfates, i.e. monoesters of halogenosulfuric acids
		<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>
		307/02	. Monoamides of sulfuric acids or esters thereof, e.g. sulfamic acids
		307/04	. Diamides of sulfuric acids
		307/06	. . having nitrogen atoms of the sulfamide groups bound to acyclic carbon atoms
		307/08	. . having nitrogen atoms of the sulfamide groups bound to carbon atoms of rings other than six-membered aromatic rings



307/10	. . having nitrogen atoms of the sulfamide groups bound to carbon atoms of six-membered aromatic rings	309/27	. . . containing carboxyl groups bound to the carbon skeleton
<b>309/00</b>	<b>Sulfonic acids; Halides, esters, or anhydrides thereof</b>	309/28	. . having sulfo groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton
309/01	. Sulfonic acids	309/29	. . . of non-condensed six-membered aromatic rings
309/02	. . having sulfo groups bound to acyclic carbon atoms	309/30	. . . . of six-membered aromatic rings substituted by alkyl groups
309/03	. . . of an acyclic saturated carbon skeleton	309/31	. . . . . by alkyl groups containing at least three carbon atoms
309/04	. . . . containing only one sulfo group	309/32	. . . . containing at least two non-condensed six-membered aromatic rings in the carbon skeleton
309/05	. . . . containing at least two sulfo groups bound to the carbon skeleton	309/33	. . . of six-membered aromatic rings being part of condensed ring systems
309/06	. . . . containing halogen atoms, or nitro or nitroso groups bound to the carbon skeleton	309/34	. . . . formed by two rings
309/07	. . . . containing oxygen atoms bound to the carbon skeleton	309/35	. . . . . Naphthalene sulfonic acids
309/08	. . . . . containing hydroxy groups bound to the carbon skeleton	309/36	. . . . . substituted by alkyl groups
309/09	. . . . . containing etherified hydroxy groups bound to the carbon skeleton	309/37	. . . . . by alkyl groups containing at least three carbon atoms
309/10	. . . . . with the oxygen atom of at least one of the etherified hydroxy groups further bound to an acyclic carbon atom	309/38	. . . . formed by at least three rings
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	309/39	. . . containing halogen atoms bound to the carbon skeleton
309/12	. . . . . containing esterified hydroxy groups bound to the carbon skeleton	309/40	. . . containing nitro or nitroso groups bound to the carbon skeleton
309/13	. . . . containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton	309/41	. . . containing singly-bound oxygen atoms bound to the carbon skeleton
309/14	. . . . . containing amino groups bound to the carbon skeleton	309/42	. . . . having the sulfo groups bound to carbon atoms of non-condensed six-membered aromatic rings
309/15	. . . . . the nitrogen atom of at least one of the amino groups being part of any of the groups $\begin{array}{c} \text{X} \\ \parallel \\ \text{>N}-\text{C}-\text{Y} \quad \text{or} \quad -\text{N}=\text{C} \begin{array}{l} \text{X} \\ \diagup \\ \text{Y} \end{array}, \text{X} \end{array}$ <p>being a hetero atom, Y being any atom</p>	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
309/16	. . . . . containing doubly-bound nitrogen atoms bound to the carbon skeleton	309/44	. . . containing doubly-bound oxygen atoms bound to the carbon skeleton
309/17	. . . . containing carboxyl groups bound to the carbon skeleton	309/45	. . . containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton
309/18	. . . . . containing amino groups bound to the same carbon skeleton	309/46	. . . . having the sulfo groups bound to carbon atoms of non-condensed six-membered aromatic rings
309/19	. . . of a saturated carbon skeleton containing 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
309/20	. . . of an acyclic unsaturated carbon skeleton	309/48	. . . . the carbon skeleton being further substituted by halogen atoms
309/21	. . . . containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton	309/49	. . . . the carbon skeleton being further substituted by singly-bound oxygen atoms
309/22	. . . . containing carboxyl groups bound to the carbon skeleton	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
309/23	. . . of an unsaturated carbon skeleton containing rings other than six-membered aromatic rings	309/51	. . . . . at least one of the nitrogen atoms being part of any of the groups $\begin{array}{c} \text{X} \\ \parallel \\ \text{>N}-\text{C} \begin{array}{l} \text{Y} \\ \diagdown \end{array} \quad \text{or} \quad -\text{N}=\text{C} \begin{array}{l} \text{X} \\ \diagup \\ \text{Y} \end{array}, \text{X being a hetero atom, Y being any atom} \end{array}$
309/24	. . . of a carbon skeleton containing six-membered aromatic rings	309/52	. . . . the carbon skeleton being further substituted by doubly-bound oxygen atoms
309/25	. . having sulfo groups bound to carbon atoms of rings other than six-membered aromatic rings of a carbon skeleton	309/53	. . . . . the carbon skeleton containing carbon atoms of quinone rings
309/26	. . . containing nitrogen atoms, not being part of nitro or nitroso groups, bound to the carbon skeleton		

- 309/54 . . . . . at least one of the nitrogen atoms being part of any of the groups



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  
 311/16 . . having the nitrogen atom of at least one of the sulfonamide groups bound to hydrogen atoms or to an acyclic carbon atom  
 311/17 . . . to an acyclic carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms  
 311/18 . . . to an acyclic carbon atom of a hydrocarbon radical substituted by nitrogen atoms, not being part of nitro or nitroso groups  
 311/19 . . . to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl 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
- 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
- 311/22 . Sulfonamides, the carbon skeleton of the acid part being further substituted by singly-bound oxygen atoms
- 311/23 . . having the sulfur atoms of the sulfonamide groups bound to acyclic carbon atoms
- 311/24 . . . of an acyclic saturated carbon skeleton
- 311/25 . . . of a saturated carbon skeleton containing rings
- 311/26 . . . of an acyclic unsaturated carbon skeleton
- 311/27 . . . of an unsaturated carbon skeleton containing rings
- 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
- 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
- 311/30 . Sulfonamides, the carbon skeleton of the acid part being further substituted by singly-bound nitrogen atoms, not being part of nitro or nitroso groups
- 311/31 . . having the sulfur atoms of the sulfonamide groups bound to acyclic carbon atoms
- 311/32 . . . of an acyclic saturated carbon skeleton
- 311/33 . . . of a saturated carbon skeleton containing rings
- 311/34 . . . of an acyclic unsaturated carbon skeleton
- 311/35 . . . of an unsaturated carbon skeleton containing 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
- 311/37 . . having the sulfur atom of at least one of the sulfonamide groups bound to a carbon atom of a six-membered aromatic ring
- 311/38 . . . having sulfur atoms of sulfonamide groups and amino groups bound to carbon atoms of six-membered rings of the same carbon skeleton
- 311/39 . . . . having the nitrogen atom of at least one of the sulfonamide groups bound to hydrogen atoms or to an acyclic carbon atom
- 311/40 . . . . to an acyclic carbon atom of a hydrocarbon radical substituted by singly-bound oxygen atoms
- 311/41 . . . . to an acyclic carbon atom of a hydrocarbon radical substituted by nitrogen atoms, not being part of nitro or nitroso groups
- 311/42 . . . . to an acyclic carbon atom of a hydrocarbon radical substituted by carboxyl groups
- 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
- 311/44 . . . . having the nitrogen atom of at least one of the sulfonamide groups bound to a carbon atom of a six-membered aromatic ring

- 311/45 . . at least one of the singly-bound nitrogen atoms being part of any of the groups
- $>\text{N}-\text{C}(\text{=X})-\text{Y}$  or  $-\text{N}=\text{C}(\text{X})-\text{Y}$

X being a hetero atom, Y being any atom, e.g. N-acylaminosulfonamides
- 311/46 . . . Y being a hydrogen or a carbon atom
- 311/47 . . . Y being a hetero atom
- 311/48 . having nitrogen atoms of sulfonamide groups further bound to another hetero atom
- 311/49 . . to nitrogen atoms
- 311/50 . Compounds containing any of the groups
- $\equiv\text{C}-\text{SO}_2-\text{N}-\text{C}(\text{=X})-\text{Y}$  or  $\equiv\text{C}-\text{SO}_2-\text{N}=\text{C}(\text{X})-\text{Y}$

X being a hetero atom, Y being any atom
- 311/51 . . Y being a hydrogen or a carbon atom
- 311/52 . . Y being a hetero atom
- 311/53 . . . X and Y not being nitrogen atoms, e.g. N-sulfonylcarbamic acid
- 311/54 . . . either X or Y, but not both, being nitrogen atoms, e.g. N-sulfonylurea
- 311/55 . . . . having sulfur atoms of the sulfonylurea groups bound to acyclic carbon atoms
- 311/56 . . . . having sulfur atoms of the sulfonylurea groups bound to carbon atoms of rings other than six-membered aromatic rings
- 311/57 . . . . having sulfur atoms of the sulfonylurea groups bound to carbon atoms of six-membered aromatic rings
- 311/58 . . . . . having nitrogen atoms of the sulfonylurea groups bound to hydrogen atoms or to acyclic carbon atoms
- 311/59 . . . . . having nitrogen atoms of the sulfonylurea groups bound to carbon atoms of rings other than six-membered aromatic rings
- 311/60 . . . . . having nitrogen atoms of the sulfonylurea groups bound to carbon atoms of six-membered aromatic rings
- 311/61 . . . . . having nitrogen atoms of the sulfonylurea groups further bound to another hetero atom
- 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
- 313/00 Sulfenic acids; Sulfinic 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**
- 313/02 . Sulfinic acids; Derivatives thereof
- 313/04 . . Sulfinic acids; Esters thereof
- 313/06 . . Sulfinamides
- 313/08 . Sulfenic acids; Derivatives thereof
- 313/10 . . Sulfenic acids; Esters thereof
- 313/12 . . . having sulfur atoms of sulfenic groups bound to acyclic carbon atoms

- 313/14 . . . having sulfur atoms of sulfenic groups bound to carbon atoms of rings other than six-membered aromatic rings
- 313/16 . . . having sulfur atoms of sulfenic groups bound to carbon atoms of six-membered aromatic rings
- 313/18 . . Sulfenamides
- 313/20 . . . having sulfur atoms of sulfenamide groups bound to acyclic carbon atoms
- 313/22 . . . having sulfur atoms of sulfenamide groups bound to carbon atoms of rings other than six-membered aromatic rings
- 313/24 . . . having sulfur atoms of sulfenamide groups bound to carbon atoms of six-membered aromatic rings
- 313/26 . . . Compounds containing any of the groups  

$$\begin{array}{c} \text{X} \\ \parallel \\ \equiv\text{C}-\text{S}-\text{N}-\text{C}-\text{Y} \text{ or } \equiv\text{C}-\text{S}-\text{N}=\text{C}-\text{Y} \end{array}$$
, X being a hetero atom, Y being any atom
- 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
- 315/00 Preparation of sulfones; Preparation of sulfoxides**
- 315/02 . by formation of sulfone or sulfoxide groups by oxidation of sulfides, or by formation of sulfone groups by oxidation of sulfoxides
- 315/04 . by reactions not involving the formation of sulfone or sulfoxide groups
- 315/06 . Separation; Purification; Stabilisation; Use of additives
- 317/00 Sulfones; Sulfoxides**
- 317/02 . having sulfone or sulfoxide groups bound to acyclic carbon atoms
- 317/04 . . of an acyclic saturated carbon skeleton
- 317/06 . . of a saturated carbon skeleton containing rings
- 317/08 . . of an acyclic unsaturated carbon skeleton
- 317/10 . . of an unsaturated carbon skeleton containing rings
- 317/12 . having sulfone or sulfoxide groups bound to carbon atoms of rings other than six-membered aromatic rings
- 317/14 . having sulfone or sulfoxide groups bound to carbon atoms of six-membered aromatic rings
- 317/16 . having sulfone or sulfoxide groups and singly-bound oxygen atoms bound to the same carbon skeleton
- 317/18 . . with sulfone or sulfoxide groups bound to acyclic carbon atoms of the carbon skeleton
- 317/20 . . with sulfone or sulfoxide groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
- 317/22 . . with sulfone or sulfoxide groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
- 317/24 . having sulfone or sulfoxide groups and doubly-bound oxygen atoms bound to the same carbon skeleton
- 317/26 . having sulfone or sulfoxide groups and nitrogen atoms, not being part of nitro or nitroso groups, bound to the same carbon skeleton
- 317/28 . . with sulfone or sulfoxide groups bound to acyclic carbon atoms of the carbon skeleton
- 317/30 . . with sulfone or sulfoxide groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton
- 317/32 . . with sulfone or sulfoxide groups bound to carbon atoms of six-membered aromatic rings of the carbon skeleton
- 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
- 317/36 . . . . with the nitrogen atoms of the amino groups bound to hydrogen atoms or to carbon atoms
- 317/38 . . . . with the nitrogen atom of at least one amino group being part of any of the groups  

$$\begin{array}{c} \text{X} \\ \parallel \\ >\text{N}-\text{C}-\text{Y} \text{ or } -\text{N}=\text{C}-\text{Y} \end{array}$$
, X being a hetero atom, Y being any atom, e.g. N-acylaminosulfones
- 317/40 . . . . . Y being a hydrogen or a carbon atom
- 317/42 . . . . . Y being a hetero atom
- 317/44 . having sulfone or sulfoxide groups and carboxyl groups bound to the same carbon skeleton
- 317/46 . . the carbon skeleton being further substituted by singly-bound oxygen atoms
- 317/48 . . the carbon skeleton being further substituted by singly-bound nitrogen atoms, not being part of nitro or nitroso groups
- 317/50 . . . at least one of the nitrogen atoms being part of any of the groups  

$$\begin{array}{c} \text{X} \\ \parallel \\ >\text{N}-\text{C}=\text{Y} \text{ or } -\text{N}=\text{C}-\text{Y} \end{array}$$
, X being a hetero atom, Y being any atom
- 319/00 Preparation of thiols, sulfides, hydropolysulfides or polysulfides**
- 319/02 . of thiols
- 319/04 . . by addition of hydrogen sulfide or its salts to unsaturated compounds
- 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
- 319/12 . . by reactions not involving the formation of mercapto groups
- 319/14 . of sulfides
- 319/16 . . by addition of hydrogen sulfide or its salts to unsaturated compounds
- 319/18 . . by addition of thiols to unsaturated compounds
- 319/20 . . by reactions not involving the formation of sulfide groups
- 319/22 . of hydropolysulfides or polysulfides
- 319/24 . . by reactions involving the formation of sulfur-to-sulfur bonds

319/26	• Separation; Purification; Stabilisation; Use of additives	323/14	• • • the carbon skeleton being acyclic and unsaturated
319/28	• • Separation; Purification	323/15	• • • the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings
319/30	• • • from the by-products of refining mineral oils		
<b>321/00</b>	<b>Thiols, sulfides, hydropolysulfides or polysulfides</b>	323/16	• • • the carbon skeleton containing six-membered aromatic rings
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	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
321/08	• • of an acyclic unsaturated carbon skeleton		
321/10	• • of an unsaturated carbon skeleton containing rings	323/19	• • • with singly-bound oxygen atoms bound to acyclic carbon atoms of the carbon skeleton
321/12	• Sulfides, hydropolysulfides, or polysulfides having thio groups bound to acyclic carbon atoms	323/20	• • • with singly-bound oxygen atoms bound to carbon atoms of the same non-condensed six-membered aromatic ring
321/14	• • of an acyclic saturated 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
321/16	• • of a saturated carbon skeleton containing rings	323/22	• containing thio groups and doubly-bound oxygen atoms bound to the same carbon skeleton
321/18	• • of an acyclic unsaturated carbon skeleton	323/23	• containing thio groups and nitrogen atoms, not being part of nitro or nitroso groups, bound to the same carbon skeleton
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	323/24	• • having the sulfur atoms of the thio groups bound to acyclic carbon atoms of the carbon skeleton
321/24	• Thiols, 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
321/26	• • Thiols	323/26	• • • the carbon skeleton being saturated and containing rings
321/28	• • Sulfides, hydropolysulfides, or polysulfides having thio groups bound to carbon atoms of six-membered aromatic rings	323/27	• • • the carbon skeleton being acyclic and unsaturated
321/30	• • • Sulfides having the sulfur atom of at least one thio group bound to two carbon atoms of six-membered aromatic rings	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	323/31	• • 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
323/04	• • • the carbon skeleton being saturated and containing rings	323/32	• • • having at least one of the nitrogen atoms bound to an acyclic carbon atom of the carbon skeleton
323/05	• • • the carbon skeleton being acyclic and unsaturated	323/33	• • • having at least one of the nitrogen atoms bound to a carbon atom of the same non-condensed six-membered aromatic ring
323/06	• • • the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings	323/34	• • • • the thio group being a mercapto group
323/07	• • • the carbon skeleton containing six-membered aromatic rings	323/35	• • • • the thio group being a sulfide group
323/08	• • having sulfur atoms of thio groups bound to carbon atoms of rings other than six-membered aromatic rings of the carbon skeleton	323/36	• • • • the sulfur atom of the sulfide group being further bound to an acyclic carbon atom
323/09	• • having sulfur atoms of thio groups bound to carbon atoms of six-membered aromatic rings of 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
323/10	• containing thio groups and singly-bound oxygen atoms bound to the same carbon skeleton		
323/11	• • having the sulfur atoms of the thio groups bound to acyclic carbon atoms of 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
323/12	• • • the carbon skeleton being acyclic and saturated		
323/13	• • • the carbon skeleton being saturated and containing rings		



- 323/39 . . at least one of the nitrogen atoms being part of any of the groups
- $$\begin{array}{c} \text{X} \\ \parallel \\ \text{N}-\text{C}-\text{Y} \end{array} \text{ or } \begin{array}{c} \text{X} \\ \diagup \\ -\text{N}=\text{C} \\ \diagdown \\ \text{Y} \end{array}, \text{X}$$
- being a hetero atom, Y being any atom
- 323/40 . . . Y being a hydrogen or a carbon atom
- 323/41 . . . . Y being a hydrogen or an acyclic carbon atom
- 323/42 . . . . Y being a carbon atom of a six-membered aromatic ring
- 323/43 . . . Y being a hetero atom
- 323/44 . . . . X or Y being nitrogen atoms
- 323/45 . . having at least one of the nitrogen atoms doubly-bound to the carbon skeleton
- 323/46 . . having at least one of the nitrogen atoms, not being part of nitro or nitroso groups, further bound to other hetero atoms
- 323/47 . . . to oxygen atoms
- 323/48 . . . to nitrogen atoms
- 323/49 . . . to sulfur atoms
- 323/50 . containing thio groups and carboxyl groups bound to the same carbon skeleton
- 323/51 . . having the sulfur atoms of the thio groups bound to acyclic carbon atoms of the carbon skeleton
- 323/52 . . . the carbon skeleton being acyclic and saturated
- 323/53 . . . the carbon skeleton being saturated and containing rings
- 323/54 . . . the carbon skeleton being acyclic and unsaturated
- 323/55 . . . the carbon skeleton being unsaturated and containing rings other than six-membered aromatic rings
- 323/56 . . . the carbon skeleton containing six-membered aromatic rings
- 323/57 . . . the carbon skeleton being further substituted by nitrogen atoms, not being part of nitro or nitroso groups
- 323/58 . . . . with amino groups bound to the carbon skeleton
- 323/59 . . . . with acylated amino groups bound to the carbon skeleton
- 323/60 . . . with the carbon atom of at least one of the carboxyl groups bound to nitrogen atoms
- 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
- 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
- 323/64 . containing thio groups and sulfur atoms, not being part of thio groups, bound to the same carbon skeleton
- 323/65 . . containing sulfur atoms of sulfone or sulfoxide groups bound to the carbon skeleton
- 323/66 . . containing sulfur atoms of sulfo, esterified sulfo or halosulfonyl groups, bound to the carbon skeleton
- 323/67 . . containing sulfur atoms of sulfonamide groups, bound to the carbon skeleton

**325/00 Thioaldehydes; Thioketones; Thioquinones; Oxides thereof**

- 325/02 . Thioketones; Oxides thereof
- 325/04 . Thioquinones; Oxides thereof

**327/00 Thiocarboxylic acids**

- 327/02 . Monothiocarboxylic acids
- 327/04 . . having carbon atoms of thiocarboxyl groups bound to hydrogen atoms or to acyclic carbon atoms
- 327/06 . . . to hydrogen atoms or to carbon atoms of an acyclic saturated carbon skeleton
- 327/08 . . . to carbon atoms of a saturated carbon skeleton containing rings
- 327/10 . . . to carbon atoms of an acyclic unsaturated carbon skeleton
- 327/12 . . . to carbon atoms of an unsaturated carbon skeleton containing rings
- 327/14 . . having carbon atoms of thiocarboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings
- 327/16 . . having carbon atoms of thiocarboxyl groups bound to carbon atoms of six-membered aromatic rings
- 327/18 . Dithiocarboxylic acids
- 327/20 . Esters of monothiocarboxylic acids
- 327/22 . . having carbon atoms of esterified thiocarboxyl groups bound to hydrogen atoms or to acyclic carbon atoms
- 327/24 . . having carbon atoms of esterified thiocarboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings
- 327/26 . . having carbon atoms of esterified thiocarboxyl groups bound to carbon atoms of 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
- 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
- 327/32 . . having sulfur atoms of esterified thiocarboxyl groups bound to carbon atoms of hydrocarbon radicals substituted by carboxyl groups
- 327/34 . . . with amino groups bound to the same hydrocarbon radicals
- 327/36 . Esters of dithiocarboxylic acids
- 327/38 . Amides of thiocarboxylic acids
- 327/40 . . having carbon atoms of thiocarboxamide groups bound to hydrogen atoms or to acyclic carbon atoms
- 327/42 . . . to hydrogen atoms or to carbon atoms of a saturated carbon skeleton
- 327/44 . . . to carbon atoms of an unsaturated carbon skeleton
- 327/46 . . having carbon atoms of thiocarboxamide groups bound to carbon atoms of rings other than six-membered aromatic rings
- 327/48 . . having carbon atoms of thiocarboxamide groups bound to carbon atoms of six-membered aromatic rings

327/50 . . Compounds containing any of the groups

$$\begin{array}{c} \text{S} \quad \text{X} \\ \parallel \quad | \\ -\text{C}-\text{N}-\text{C}-\text{Y} \end{array} \text{ or } \begin{array}{c} \text{S} \quad \text{X} \\ \parallel \quad \diagup \\ -\text{C}-\text{N}=\text{C} \end{array} \quad \text{X being a hetero}$$

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

$$\begin{array}{cc}
 \begin{array}{c} \text{O} \\ \parallel \\ -\text{S}-\text{C}-\text{N}-\text{C} \begin{array}{l} \nearrow \text{X} \\ \searrow \text{Y} \end{array} \end{array} & 
 \begin{array}{c} \text{S} \\ \parallel \\ -\text{O}-\text{C}-\text{N}-\text{C} \begin{array}{l} \nearrow \text{X} \\ \searrow \text{Y} \end{array} \end{array}, \text{X being} \\
 \\
 \begin{array}{c} \text{S} \\ \parallel \\ \text{Hal}-\text{C}-\text{N}-\text{C} \begin{array}{l} \nearrow \text{X} \\ \searrow \text{Y} \end{array} \end{array} & 
 \begin{array}{c} \text{O} \\ \parallel \\ -\text{S}-\text{C}-\text{N}=\text{C} \begin{array}{l} \nearrow \text{X} \\ \searrow \text{Y} \end{array} \end{array} \\
 \\
 \begin{array}{c} \text{S} \\ \parallel \\ -\text{O}-\text{C}-\text{N}=\text{C} \begin{array}{l} \nearrow \text{X} \\ \searrow \text{Y} \end{array} \end{array} & 
 \begin{array}{c} \text{S} \\ \parallel \\ \text{Hal}-\text{C}-\text{N}=\text{C} \begin{array}{l} \nearrow \text{X} \\ \searrow \text{Y} \end{array} \end{array}
 \end{array}$$

333/24 . . . having nitrogen atoms of dithiocarbamate groups bound to carbon atoms of six-membered aromatic rings

- 333/26 . . . containing any of the groups
- $$\begin{array}{c} \text{S} \\ \parallel \\ -\text{S}-\text{C}-\text{N}-\text{C}=\text{X} \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array} \quad \text{or} \quad \begin{array}{c} \text{S} \\ \parallel \\ -\text{S}-\text{C}-\text{N}=\text{C} \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}, \text{X being a hetero atom, Y being any atom, e.g. N-acyldithiocarbamates}$$
- 333/28 . . . having nitrogen atoms of dithiocarbamate groups bound to other hetero atoms
- 333/30 . . having sulfur atoms of dithiocarbamic groups bound to other sulfur atoms
- 333/32 . . . Thiuramsulfides; Thiurampolysulfides
- 335/00 Thioureas, i.e. compounds containing any of the groups**
- $$\begin{array}{c} \text{S} \\ \parallel \\ >\text{N}-\text{C}-\text{N}< \end{array} \quad \text{or} \quad \begin{array}{c} \text{S}- \\ | \\ >\text{N}-\text{C}-\text{N}< \end{array}, \text{the nitrogen atoms not being part of nitro or nitroso groups}$$
- 335/02 . Thiourea
- 335/04 . Derivatives of thiourea
- 335/06 . . having nitrogen atoms of thiourea groups bound to acyclic carbon atoms
- 335/08 . . . of a saturated carbon skeleton
- 335/10 . . . of an unsaturated carbon skeleton
- 335/12 . . . the carbon skeleton containing six-membered aromatic rings
- 335/14 . . having nitrogen atoms of thiourea groups bound to carbon atoms of rings other than six-membered aromatic rings
- 335/16 . . having nitrogen atoms of thiourea groups bound to carbon atoms of six-membered aromatic rings of a carbon skeleton
- 335/18 . . . being further substituted by singly-bound oxygen atoms
- 335/20 . . . being further substituted by nitrogen atoms, not being part of nitro or nitroso groups
- 335/22 . . . being further substituted by carboxyl groups
- 335/24 . . containing any of the groups
- $$\begin{array}{c} \text{S} \\ \parallel \\ >\text{N}-\text{C}-\text{N}-\text{C}=\text{X} \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array} \quad \text{or} \quad \begin{array}{c} \text{S} \\ \parallel \\ >\text{N}-\text{C}-\text{N}=\text{C} \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}, \text{X being a hetero atom, Y being any atom}$$
- 335/26 . . . Y being a hydrogen or a carbon atom, e.g. benzoylthioureas
- 335/28 . . . Y being a hetero atom, e.g. thiobiuret
- 335/30 . Isothioureas
- 335/32 . . having sulfur atoms of isothiourea groups bound to acyclic carbon atoms
- 335/34 . . having sulfur atoms of isothiourea groups bound to carbon atoms of rings other than six-membered aromatic rings
- 335/36 . . having sulfur atoms of isothiourea groups bound to carbon atoms of six-membered aromatic rings
- 335/38 . . containing any of the groups
- $$\begin{array}{c} \text{S}- \\ | \\ >\text{N}-\text{C}=\text{N}-\text{C}=\text{X} \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array} \quad \text{or} \quad \begin{array}{c} \text{S}- \\ | \\ >\text{N}=\text{C}-\text{N}=\text{C} \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}, \text{X being a hetero atom, Y being any atom}$$

- 335/40 . having nitrogen atoms of thiourea or isothiourea groups further bound to other hetero atoms
- 335/42 . . Sulfonylthioureas; Sulfonylisothioureas
- 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
- $$\begin{array}{c} \text{S} \\ \parallel \\ >\text{N}-\text{N}-\text{C}-\text{S}- \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}, \text{e.g.}$$
- $$\begin{array}{c} \text{S}- \\ | \\ >\text{N}-\text{N}=\text{C}-\text{S}- \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}$$
- $$\begin{array}{c} \text{S} \\ \parallel \\ >\text{N}-\text{N}-\text{C}-\text{O}- \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}, \text{e.g.}$$
- $$\begin{array}{c} \text{O} \\ \parallel \\ >\text{N}-\text{N}-\text{C}-\text{S}- \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}$$
- or
- $$\begin{array}{c} \text{S}- \\ | \\ >\text{N}-\text{N}=\text{C}-\text{O}- \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}$$
- thiocarbazates
- 337/04 . . the other nitrogen atom being further doubly-bound to a carbon atom
- 337/06 . Compounds containing any of the groups
- $$\begin{array}{c} \text{S} \\ \parallel \\ >\text{N}-\text{N}-\text{C}-\text{N}< \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}, \text{e.g.}$$
- $$\begin{array}{c} \text{S}- \\ | \\ >\text{N}-\text{N}=\text{C}-\text{N}< \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}$$
- or
- $$\begin{array}{c} \text{S}- \\ | \\ >\text{N}-\text{N}-\text{C}=\text{N}< \\ | \quad \quad | \\ \text{Y} \quad \quad \text{Y} \end{array}$$
- 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
- 395/00 Compounds containing tellurium**
- 401/00 Irradiation products of cholesterol or its derivatives; Vitamin D derivatives, 9,10-seco cyclopenta[a]phenanthrene or analogues obtained by chemical preparation without irradiation**

- 403/00** 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, e.g. vitamin A, beta-carotene, beta-ionone
- 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
- 405/00** 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}
- 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}
- 407/00** Preparation of peroxy compounds
- 407/003 . {Separation; Purification; Stabilisation; Use of additives}
- 407/006 . . {Stabilisation; Use of additives}
- 409/00** Peroxy compounds
- 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**

- 2521/00** Catalysts comprising the elements, oxides or hydroxides of magnesium, boron, aluminium, carbon, silicon, titanium, zirconium or hafnium
- 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
- 2523/00** Catalysts comprising metals or metal oxides or hydroxides, not provided for in group C07C 2521/00 (C07C 2521/16 takes precedence)
- 2523/02 . of the alkali- or alkaline earth metals or beryllium
- 2523/04 . . Alkali metals
- 2523/06 . of zinc, cadmium or mercury
- 2523/08 . of gallium, indium or thallium
- 2523/10 . of rare earths
- 2523/12 . of actinides

2523/14	. of germanium, tin or lead	2523/84	. . . with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
2523/16	. of arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium	2523/843	. . . . Arsenic, antimony or bismuth
2523/18	. . Arsenic, antimony or bismuth	2523/847	. . . . Vanadium, niobium or tantalum
2523/20	. . Vanadium, niobium or tantalum	2523/85	. . . . Chromium, molybdenum or tungsten
2523/22	. . . Vanadium	2523/86	. . . . . Chromium
2523/24	. . Chromium, molybdenum or tungsten	2523/88	. . . . . Molybdenum
2523/26	. . . Chromium	2523/881	. . . . . and iron
2523/28	. . . Molybdenum	2523/882	. . . . . and cobalt
2523/30	. . . Tungsten	2523/883	. . . . . and nickel
2523/31	. . . combined with bismuth	2523/885	. . . . . and copper
2523/32	. . Manganese, technetium or rhenium	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>
2523/34	. . . Manganese	2523/888	. . . . . Tungsten
2523/36	. . . Rhenium	2523/889	. . . . . Manganese, technetium or rhenium
2523/38	. of noble metals	2523/89	. . combined with noble metals
2523/40	. . of the platinum group metals	<b>2525/00</b>	<b>Catalysts of the Raney type</b>
2523/42	. . . Platinum	2525/02	. Raney nickel
2523/44	. . . Palladium	<b>2527/00</b>	<b>Catalysts comprising the elements or compounds of halogens, sulfur, selenium, tellurium, phosphorus or nitrogen; Catalysts comprising carbon compounds</b>
2523/46	. . . Ruthenium, rhodium, osmium or iridium		<b>NOTE</b>
2523/48	. . Silver or gold		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.
2523/50	. . . Silver	2527/02	. Sulfur, selenium or tellurium; Compounds thereof
2523/52	. . . Gold	2527/03	. . Acids of sulfur other than sulfhydic acid or sulfuric acid, e.g. halosulfonic acids
2523/54	. . combined with metals, oxides or hydroxides provided for in groups <a href="#">C07C 2523/02</a> - <a href="#">C07C 2523/36</a>	2527/04	. . Sulfides
2523/56	. . . Platinum group metals	2527/043	. . . with iron group metals or platinum group metals
2523/58	. . . . with alkali- or alkaline earth metals or beryllium	2527/045	. . . . Platinum group metals
2523/60	. . . . with zinc, cadmium or mercury	2527/047	. . . with chromium, molybdenum, tungsten or polonium
2523/62	. . . . with gallium, indium, thallium, germanium, tin or lead	2527/049	. . . . with iron group metals or platinum group metals
2523/63	. . . . with rare earths or actinides	2527/051	. . . . Molybdenum
2523/64	. . . . with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium	2527/053	. . Sulfates or other compounds comprising the anion (SnO <sub>3n+1</sub> ) <sup>2-</sup>
2523/644	. . . . . Arsenic, antimony or bismuth	2527/054	. . . Sulfuric acid or other acids with the formula H <sub>2</sub> SnO <sub>3n+1</sub>
2523/648	. . . . . Vanadium, niobium or tantalum	2527/055	. . . with alkali metals, copper, gold or silver
2523/652	. . . . . Chromium, molybdenum or tungsten	2527/057	. . Selenium or tellurium; Compounds thereof
2523/656	. . . . . Manganese, technetium or rhenium	2527/06	. Halogens; Compounds thereof
2523/66	. . . Silver or gold	2527/08	. . Halides ( <a href="#">C07C 2527/122</a> - <a href="#">C07C 2527/138</a> take precedence)
2523/68	. . . . with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium	2527/10	. . . Chlorides
2523/70	. of the iron group metals or copper	2527/11	. . . . Hydrogen chloride
2523/72	. . Copper	2527/12	. . . Fluorides
2523/74	. . Iron group metals	2527/1206	. . . . Hydrogen fluoride
2523/745	. . . Iron	2527/1213	. . . . Boron fluoride
2523/75	. . . Cobalt	2527/122	. . Compounds comprising a halogen and copper
2523/755	. . . Nickel	2527/125	. . Compounds comprising a halogen and scandium, yttrium, aluminium, gallium, indium or thallium
2523/76	. . combined with metals, oxides or hydroxides provided for in groups <a href="#">C07C 2523/02</a> - <a href="#">C07C 2523/36</a>	2527/126	. . . Aluminium chloride
2523/78	. . . with alkali- or alkaline earth metals or beryllium		
2523/80	. . . with zinc, cadmium or mercury		
2523/825	. . . with gallium, indium or thallium		
2523/83	. . . with rare earths or actinides		
2523/835	. . . with germanium, tin or lead		



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 erioinite 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	2529/78	. . . . . containing arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
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		
2529/08	. . . of the faujasite type, e.g. type X or Y		
2529/10	. . . containing iron group metals, noble metals or copper		

2529/80	. . . Mixtures of different zeolites	2602/10	. . . the other ring being six-membered, e.g. tetraline
2529/82	. Phosphates	2602/12	. . . the other ring being at least seven-membered
2529/83	. . Aluminophosphates (APO compounds)	2602/14	. . All rings being cycloaliphatic
2529/84	. . Aluminophosphates containing other elements, e.g. metals, boron	2602/16	. . . the ring system containing five carbon atoms
2529/85	. . . Silicoaluminophosphates (SAPO compounds)	2602/18	. . . the ring system containing six carbon atoms
2529/86	. Borosilicates; Aluminoborosilicates	2602/20	. . . the ring system containing seven carbon atoms
2529/87	. Gallosilicates; Aluminogallosilicates; Galloborosilicates	2602/22	. . . the ring system containing eight carbon atoms, e.g. pentalene
2529/88	. Ferrosilicates; Ferroaluminosilicates	2602/24	. . . the ring system containing nine carbon atoms, e.g. perhydroindane
2529/89	. Silicates, aluminosilicates or borosilicates of titanium, zirconium or hafnium	2602/26	. . . the ring system containing ten carbon atoms
<b>2531/00</b>	<b>Catalysts comprising hydrides, coordination complexes or organic compounds</b>	2602/28	. . . . Hydrogenated naphthalenes
2531/02	. containing organic compounds or metal hydrides	2602/30	. . . . Azulenes; Hydrogenated azulenes
2531/025	. . Sulfonic acids	2602/32	. . . the ring system containing at least eleven carbon atoms
2531/04	. . containing carboxylic acids or their salts	2602/34	. . . . Heptalenes; Hydrogenated heptalenes
2531/06	. . containing polymers	2602/36	. the rings having more than two atoms in common
2531/08	. . . Ion-exchange resins	2602/38	. . the bicyclo ring system containing five carbon atoms
2531/10	. . . . sulfonated	2602/40	. . the bicyclo ring system containing six carbon atoms
2531/12	. . containing organo-metallic compounds or metal hydrides	2602/42	. . the bicyclo ring system containing seven carbon atoms
2531/14	. . . of aluminium or boron	2602/44	. . the bicyclo ring system containing eight carbon atoms
2531/16	. containing coordination complexes	2602/46	. . the bicyclo ring system containing nine carbon atoms
2531/18	. . containing nitrogen, phosphorus, arsenic or antimony	2602/48	. . the bicyclo ring system containing ten carbon atoms
2531/20	. . Carbonyls	2602/50	. Spiro compounds
2531/22	. . Organic complexes	<b>2603/00</b>	<b>Systems containing at least three condensed rings</b>
2531/24	. . Phosphines	2603/02	. Ortho- or ortho- and peri-condensed systems
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>	2603/04	. . containing three rings
2531/28	. . of the platinum group metals, iron group metals or copper	2603/06	. . . containing at least one ring with less than six ring members
2531/30	. . . Halides	2603/08	. . . . containing three- or four-membered rings
2531/32	. . of manganese, technetium or rhenium	2603/10	. . . . containing five-membered rings
2531/34	. . of chromium, molybdenum or tungsten	2603/12	. . . . . only one five-membered ring
2531/36	. . of vanadium, niobium or tantalum	2603/14	. . . . . Benz[f]indenes; Hydrogenated benz[f]indenes
2531/38	. . of titanium, zirconium or hafnium	2603/16	. . . . . Benz[e]indenes; Hydrogenated benz[e]indenes
<b>Indexing scheme associated with groups <a href="#">C07C 1/00</a> - <a href="#">C07C 409/00</a>, relating to carbocyclic rings or ring systems</b>		2603/18	. . . . . Fluorenes; Hydrogenated fluorenes
<b>2601/00</b>	<b>Systems containing only non-condensed rings</b>	2603/20	. . . . . Acenaphthenes; Hydrogenated acenaphthenes
2601/02	. with a three-membered ring	2603/22	. . . containing only six-membered rings
2601/04	. with a four-membered ring	2603/24	. . . . Anthracenes; Hydrogenated anthracenes
2601/06	. with a five-membered ring	2603/26	. . . . Phenanthrenes; Hydrogenated phenanthrenes
2601/08	. . the ring being saturated	2603/28	. . . . Phenalenes; Hydrogenated phenalenes
2601/10	. . the ring being unsaturated	2603/30	. . . containing seven-membered rings
2601/12	. with a six-membered ring	2603/32	. . . . Dibenzocycloheptenes; Hydrogenated dibenzocycloheptenes
2601/14	. . The ring being saturated	2603/34	. . . . Benzoheptalenes; Hydrogenated benzoheptalenes
2601/16	. . the ring being unsaturated	2603/36	. . . containing eight-membered rings
2601/18	. with a ring being at least seven-membered	2603/38	. . . containing rings with at least nine members
2601/20	. . the ring being twelve-membered	2603/40	. . containing four condensed rings
<b>2602/00</b>	<b>Systems containing two condensed rings</b>	2603/42	. . . containing only six-membered rings
2602/02	. the rings having only two atoms in common	2603/44	. . . . Naphthacenes; Hydrogenated naphthacenes
2602/04	. . One of the condensed rings being a six-membered aromatic ring	2603/46	. . . . . 1,4,4a,5,5a,6,11,12a-Octahydronaphthacenes, e.g. tetracyclines
2602/06	. . . the other ring being four-membered		
2602/08	. . . the other ring being five-membered, e.g. indane		

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)]heptstructure
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 [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
2604/00	<b>Fullerenes, e.g. C<sub>60</sub> buckminsterfullerene or C<sub>70</sub></b>