CHEMISTRY; METALLURGY

CHEMISTRY

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

C07D  HETEROCYCLIC COMPOUNDS

NOTES
1. This subclass does not cover compounds containing saccharide radicals as defined in Note (3) following the title of subclass C07H, which are covered by subclass C07H.
2. In this subclass, in compounds containing a hetero ring covered by group C07D 295/00 and at least one other hetero ring, the hetero ring covered by group C07D 295/00 is considered as an acyclic chain containing nitrogen atoms.
3. In this subclass, the following terms or expressions are used with the meaning indicated:
   - "hetero ring" is a ring having at least one halogen, nitrogen, oxygen, sulfur, selenium or tellurium atom as a ring member;
   - "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 relevant rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;
   - "relevant rings" in a condensed ring system, i.e. the rings which taken together describe all the links between every atom of the ring system, are chosen according to the following criteria consecutively:
     a. lowest number of ring members;
     b. highest number of hetero atoms as ring members;
     c. lowest number of members shared with other rings;
     d. last place in the classification scheme.
4. Attention is drawn to Note (3) after class C07, which defines the last place priority rule applied in the range of subclasses C07C - C07K and within these subclasses.
5. Therapeutic activity of compounds is further classified in subclass A61P.
6. In this subclass, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary:
   a. compounds having only one hetero ring are classified in the last appropriate place in one of the groups C07D 203/00 - C07D 347/00. The same applies for compounds having more hetero rings covered by the same main group, neither condensed among themselves nor condensed with a common carbocyclic ring system;
   b. compounds having two or more hetero rings covered by different main groups neither condensed among themselves nor condensed with a common carbocyclic ring system are classified in the last appropriate place in one of the groups C07D 401/00 - C07D 421/00;
   c. compounds having two or more relevant hetero rings, covered by the same or by different main groups, which are condensed among themselves or condensed with a common carbocyclic ring system, are classified in the last appropriate place in one of the groups C07D 451/00 - C07D 519/00.
7. In this subclass:
   - where a compound may exist in tautomeric forms, it is classified as though existing in the form which is classified last in the system. Therefore, double bonds between ring members and non-ring members and double bonds between ring members themselves are considered equivalent in determining the degree of hydrogenation of the ring. Formulae are considered to be written in Kekule form;
   - hydrocarbon radicals containing a carbocyclic ring and an acyclic chain by which it is linked to the hetero ring and being substituted on both the carbocyclic ring and the acyclic chain by hetero atoms or by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, are classified according to the substituents on the acyclic chain. For example, the compound
Heterocyclic compounds having only nitrogen as ring hetero atom

C07D (continued)

\[
\begin{array}{c}
\text{N} \\
\text{H} \\
\text{CH}_2-\text{CH}_2-\text{CH}-
\end{array}
\]

is classified in group C07D 233/22,

and the compound

\[
\begin{array}{c}
\text{N} \\
\text{H} \\
\text{CH}_2-\text{CH}_2-\text{CH}_2-
\end{array}
\]

is classified in groups C07D 233/24 and C07D 233/26, where X — NH$_2$, — NHCOCH$_3$, or — COOCH$_3$.

**WARNING**

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.

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<th>Heterocyclic compounds having only nitrogen as ring hetero atom</th>
<th>201/00</th>
<th>Preparation, separation, purification or stabilisation of unsubstituted lactams</th>
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<tr>
<td>201/02</td>
<td>Preparation of lactams</td>
<td></td>
</tr>
<tr>
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<td>. . from or via oximes by Beckmann rearrangement</td>
<td></td>
</tr>
<tr>
<td>201/06</td>
<td>. . from ketones by simultaneous oxime formation and rearrangement</td>
<td></td>
</tr>
<tr>
<td>201/08</td>
<td>. . from carboxylic acids or derivatives thereof, e.g. hydroxy carboxylic acids, lactones, nitriles</td>
<td></td>
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<td>201/10</td>
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<td>201/14</td>
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<td>. Separation or purification (separation of inorganic salts C01)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Heterocyclic compounds containing four-membered rings with one nitrogen atom as the only ring hetero atom</th>
<th>205/00</th>
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</thead>
<tbody>
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<td>205/02</td>
<td>. not condensed with other rings</td>
</tr>
<tr>
<td>205/04</td>
<td>. . having no double bonds between ring members or between ring members and non-ring members</td>
</tr>
<tr>
<td>205/06</td>
<td>. . having one double bond between ring members or between a ring member and a non-ring member</td>
</tr>
<tr>
<td>205/08</td>
<td>. . . with one oxygen atom directly attached in position 2, e.g. beta-lactams</td>
</tr>
<tr>
<td>205/085</td>
<td>. . . . with a nitrogen atom directly attached in position 3</td>
</tr>
<tr>
<td>205/09</td>
<td>. . . . with a sulfur atom directly attached in position 4</td>
</tr>
<tr>
<td>205/095</td>
<td>. . . . . and with a nitrogen atom directly attached in position 3</td>
</tr>
<tr>
<td>205/10</td>
<td>. . having two double bonds between ring members or between ring members and non-ring members</td>
</tr>
<tr>
<td>205/12</td>
<td>. condensated with carbocyclic rings or ring systems</td>
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</table>

<table>
<thead>
<tr>
<th>Heterocyclic compounds containing five-membered rings not condensed with other rings, with one nitrogen atom as the only ring hetero atom</th>
<th>207/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>207/02</td>
<td>. with only hydrogen or carbon atoms directly attached to the ring nitrogen atom</td>
</tr>
<tr>
<td>207/04</td>
<td>. . having no double bonds between ring members or between ring members and non-ring members</td>
</tr>
<tr>
<td>207/06</td>
<td>. . with radicals, containing only hydrogen and carbon atoms, attached to ring carbon atoms</td>
</tr>
<tr>
<td>207/08</td>
<td>. . with hydrocarbon radicals, substituted by hetero atoms, attached to ring carbon atoms</td>
</tr>
<tr>
<td>207/09</td>
<td>. . . Radicals substituted by nitrogen atoms, not forming part of a nitro radical</td>
</tr>
<tr>
<td>207/10</td>
<td>. . . with hetero atoms or with carbon atoms having three bonds to hetero atoms, with at the most one to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms</td>
</tr>
<tr>
<td>207/12</td>
<td>. . . Oxygen or sulfur atoms</td>
</tr>
<tr>
<td>207/14</td>
<td>. . . Nitrogen atoms not forming part of a nitro radical</td>
</tr>
</tbody>
</table>

**NOTE**

Pyrrolidines having only hydrogen atoms attached to the ring carbon atoms are classified in C07D 295/00.

CPC - 2019.02
Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals

having one double bond between ring members or between a ring member and a non-ring member

with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

with hetero atoms or with carbon atoms having three bonds to hetero atoms, at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms

Oxygen or sulfur atoms

2-Pyrrolidones

with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to other ring carbon atoms

with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to the ring nitrogen atom

with substituted hydrocarbon radicals directly attached to the ring nitrogen atom

with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to other ring carbon atoms

Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals

2-Pyrrolidone-5- carboxylic acids; Functional derivatives thereof, e.g. esters, nitriles

having two double bonds between ring members or between ring members and non-ring members

with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to the ring nitrogen atom

with substituted hydrocarbon radicals directly attached to the ring nitrogen atom

Radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals

with substituted hydrocarbon radicals, directly attached to ring carbon atoms

Radicals substituted by oxygen or sulfur atoms

Radicals substituted by oxygen atoms

Radicals substituted by nitrogen atoms not forming part of a nitro radical

Radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals

with heteroatoms or with carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms

Oxygen or sulfur atoms

2-Pyrrolones

2,5-Pyrrolidine-diones

with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to other ring carbon atoms, e.g. succinimide

Radicals containing only hydrogen and carbon atoms

Acyclic radicals containing more than six carbon atoms

with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to other ring carbon atoms

Nitro radicals

having three double bonds between ring members or between ring members and non-ring members

having two doubly-bound oxygen atoms directly attached in positions 2 and 5

with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to other ring carbon atoms, e.g. maleimide

with hydrocarbon radicals, substituted by hetero atoms, directly attached to the ring nitrogen atom

with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to other ring carbon atoms

with hetero atoms directly attached to the ring nitrogen atom

Sulfur atoms

Nitrogen atoms

Heterocyclic compounds containing five-membered rings, condensed with other rings, with one nitrogen atom as the only ring hetero atom

condensed with one carbocyclic ring

Indoles; Hydrogenated indoles

Preparation of indole from coal-tar

with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to carbon atoms of the hetero ring

with substituted hydrocarbon radicals attached to carbon atoms of the hetero ring

Radicals substituted by oxygen atoms

Radicals substituted by nitrogen atoms, not forming part of a nitro radical

Tryptamines

Radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals

substituted additionally by nitrogen atoms, e.g. tryptophane

with an aralkyl radical attached to the ring nitrogen atom

with an alkyl or cycloalkyl radical attached to the ring nitrogen atom
209/26 . . . . with an acyl radical attached to the ring nitrogen atom
209/28 . . . . . . 1-(4-Chlorobenzoyl)-2-methyl-indolyl-3-acetic acid, substituted in position 5 by an oxygen or nitrogen atom; Esters thereof
209/30 . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, directly attached to carbon atoms of the hetero ring
209/32 . . . . Oxygen atoms
209/34 . . . . . . in position 2
209/36 . . . . . . in position 3, e.g. adrenochrome
209/38 . . . . . . in positions 2 and 3, e.g. isatin
209/40 . . . . Nitrogen atoms, not forming part of a nitro radical, e.g. isatin semicarbazone
209/42 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
209/43 . . . . with an —OCH₂CH(OH)CH₂NH₂ radical, which may be further substituted, attached in positions 4, 5, 6 or 7
209/44 . . . . Iso-indoles; Hydrogenated iso-indoles
209/46 . . . . with an oxygen atom in position 1
209/48 . . . . with oxygen atoms in positions 1 and 3, e.g. phthalimide
209/49 . . . . and having in the molecule an acyl radical containing a saturated three-membered ring, e.g. chrysanthemum acid esters
209/50 . . . . with oxygen and nitrogen atoms in positions 1 and 3
209/52 . . . . condensed with a ring other than six-membered
209/54 . . . . Spiro-condensed
209/56 . . . . Ring systems containing three or more rings
209/58 . . . . . . [b]- or [c]-condensed
209/60 . . . . Naphtho [b] pyroles; Hydrogenated naphtho [b] pyroles
209/64 . . . . with an oxygen atom in position 1
209/66 . . . . with oxygen atoms in positions 1 and 3
209/68 . . . . with oxygen and nitrogen atoms in positions 1 and 3
209/70 . . . . containing carbocyclic rings other than six-membered
209/72 . . . . 4,7-Endo-alkylene-iso-indoles
209/74 . . . . with an oxygen atom in position 1
209/76 . . . . with oxygen atoms in positions 1 and 3
209/78 . . . . with oxygen and nitrogen atoms in positions 1 and 3
209/80 . . . . . . [b, c]- or [b, d]-condensed
209/82 . . . . Carbazoles; Hydrogenated carbazoles
209/84 . . . . Separation, e.g. from tar; Purification
209/86 . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to carbon atoms of the ring system
209/88 . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to carbon atoms of the ring system
209/90 . . . . Benzo [c, d] indoles; Hydrogenated benzo [c, d] indoles
209/92 . . . . Naphthostyryls
209/94 . . . . containing carbocyclic rings other than six-membered
209/96 . . . . Spiro-condensed ring systems

211/00 Heterocyclic compounds containing hydrogenated pyridine rings, not condensed with other rings

NOTES
1. For the purpose of this group, the term “hydrogenated” means having less than three double bonds between ring members or between ring members and non-ring members;
2. Piperidines having only hydrogen atoms attached to the ring carbon atoms are classified in C07D 295/00

211/02 . . . . Preparation by ring-closure or hydrogenation
211/04 . . . . with only hydrogen or carbon atoms directly attached to the ring nitrogen atom
211/06 . . . . having no double bonds between ring members or between ring members and non-ring members
211/08 . . . . with hydrocarbon or substituted hydrocarbon radicals directly attached to ring carbon atoms
211/10 . . . . . . with radicals containing only carbon and hydrogen atoms attached to ring carbon atoms
211/12 . . . . with only hydrogen atoms attached to the ring nitrogen atom
211/14 . . . . . . with hydrocarbon or substituted hydrocarbon radicals attached to the ring nitrogen atom
211/16 . . . . . . with acylated ring nitrogen atom
211/18 . . . . with substituted hydrocarbon radicals attached to ring carbon atoms
211/20 . . . . . . with hydrocarbon radicals, substituted by singly bound oxygen or sulfur atoms (bound to the same carbon atom C07D 211/30)
211/22 . . . . . . by oxygen atoms
211/24 . . . . . . by sulfur atoms to which a second hetero atom is attached
211/26 . . . . with hydrocarbon radicals, substituted by nitrogen atoms
211/28 . . . . . . to which a second hetero atom is attached
211/30 . . . . with hydrocarbon radicals, substituted by doubly bound oxygen or sulfur atoms or by two oxygen or sulfur atoms singly bound to the same carbon atom
211/32 . . . . . . by oxygen atoms
211/34 . . . . . . with hydrocarbon radicals, substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
211/36 . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
211/38 . . . . Halogen atoms or nitrile radicals
211/40 . . . . Oxygen atoms
211/42 . . . . . . attached in position 3 or 5
211/44 . . . . . . attached in position 4
211/46 . . . . . . having a hydrogen atom as the second substituent in position 4
C07D

213/00

Heterocyclic compounds containing six-membered rings, not condensed with other rings, with one nitrogen atom as the only ring hetero atom and three or more double bonds between ring members or between ring members and non-ring members

213/02 . . . . having three double bonds between ring members or between ring members and non-ring members

213/04 . . . . having no bond between the ring nitrogen atom and a non-ring member or having only hydrogen or carbon atoms directly attached to the ring nitrogen atom

213/06 . . . . containing only hydrogen and carbon atoms in addition to the ring nitrogen atom

213/08 . . . . Preparation by ring-closure

213/09 . . . . involving the use of ammonia, amines, amine salts, or nitriles

213/10 . . . . from acetaldehyde or cyclic polymers thereof

213/12 . . . . from unsaturated compounds

213/133 . . . . Preparation from compounds containing pyridine rings

213/14 . . . . Preparation from compounds containing heterocyclic oxygen

213/16 . . . . containing only one pyridine ring

213/18 . . . . Salts thereof

213/20 . . . . Quaternary compounds thereof

213/22 . . . . containing two or more pyridine rings directly linked together, e.g. bipyridyl

213/24 . . . . with substituted hydrocarbon radicals attached to ring carbon atoms

213/26 . . . . Radicals substituted by halogen atoms or nitro radicals

213/28 . . . . Radicals substituted by singly-bound oxygen or sulfur atoms (bound to the same carbon atom C07D 213/44)

213/30 . . . . Oxygen atoms

213/32 . . . . Sulfur atoms

213/34 . . . . to which a second heteroatom is attached

213/36 . . . . Radicals substituted by singly-bound nitrogen atoms (nitro radicals C07D 213/26)

213/38 . . . . having only hydrogen, hydrocarbon radicals attached to the substituent nitrogen atom

213/40 . . . . Acylated substituent nitrogen atom

213/42 . . . . having hetero atoms attached to the substituent nitrogen atom (nitro radicals C07D 213/26)

213/44 . . . . Radicals substituted by doubly-bound oxygen, sulfur, or nitrogen atoms, or by two such atoms singly-bound to the same carbon atom

213/46 . . . . Oxygen atoms

213/48 . . . . Aldehyde radicals

213/50 . . . . Ketonic radicals

213/51 . . . . Acetal radicals

213/52 . . . . Sulfur atoms

213/53 . . . . Nitrogen atoms

213/54 . . . . Radicals substituted by carbon atoms having three bonds to heteroatoms, with at the most one to halogen, e.g. ester or nitrile radicals

213/55 . . . . Acids; Esters

213/56 . . . . Amides

213/57 . . . . Nitriles

213/58 . . . . Amidines

213/59 . . . . with at least one of the bonds being to sulfur

213/60 . . . . with heteroatoms or with carbon atoms having three bonds to hetero atoms, with at the most one to halogen, e.g. ester or nitride radicals, directly attached to ring carbon atoms

213/61 . . . . Halogen atoms or nitro radicals

213/62 . . . . Oxygen or sulfur atoms

213/63 . . . . One oxygen atom

213/64 . . . . attached in position 2 or 6
213/643 . . . . . 2-Phenoxypyridines; Derivatives thereof
213/647 . . . . . and having in the molecule an acyl radical containing a saturated three-membered ring, e.g. chrysanthemumic acid esters
213/65 . . . . . attached in position 3 or 5
213/66 . . . . . having in the molecule an oxygen atom and in each of the positions 4 and 5 a carbon atom bound to an oxygen, sulfur or nitrogen atom, e.g. pyridoxal
213/67 . . . . . 2-Methyl-3-hydroxy-4,5-bis(hydroxy-methyl)pyridine, i.e. pyridoxine
213/68 . . . . . attached in position 4
213/69 . . . . . Two or more oxygen atoms
213/70 . . . . . Sulfur atoms
213/71 . . . . . to which a second hetero atom is attached
213/72 . . . . . Nitrogen atoms (nitro radicals C07D 213/61)
213/73 . . . . . Unsubstituted amino or imino radicals
213/74 . . . . . Amino or imino radicals substituted by hydrocarbon or substituted hydrocarbon radicals
213/75 . . . . . Amino or imino radicals, acylated by carboxylic or carboxonic acids, or by sulfur or nitrogen analogues thereof, e.g. carbamates
213/76 . . . . . to which a second hetero atom is attached (nitro radicals C07D 213/61)
213/77 . . . . . Hydrazine radicals
213/78 . . . . . Carbon atoms having three bonds to hetero atoms, with at the most one to halogen, e.g. ester or nitrile radicals
213/79 . . . . . Acids; Esters
213/80 . . . . . in position 3
213/803 . . . . . Processes of preparation
213/807 . . . . . by oxidation of pyridines or condensed pyridines
213/81 . . . . . Amides; Imides
213/82 . . . . . in position 3
213/83 . . . . . Thioacids; Thioesters; Thioamides; Thioimides
213/84 . . . . . Nitriles
213/85 . . . . . in position 3
213/86 . . . . . Hydrazides; Thio or imino analogues thereof
213/87 . . . . . in position 3
213/88 . . . . . Nicotinoylhydrazones
213/89 . . . with hetero atoms directly attached to the ring nitrogen atom
213/90 . . . having more than three double bonds between ring members or between ring members and non-ring members

215/00 Heterocyclic compounds containing quinoline or hydrogenated quinoline ring systems

215/02 . . . having no bond between the ring nitrogen atom and a non-ring member or having only hydrogen atoms or carbon atoms directly attached to the ring nitrogen atom
215/04 . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to the ring carbon atoms
215/06 . . . having only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached to the ring nitrogen atom
215/08 . . . with acylated ring nitrogen atom
215/10 . . . Quaternary compounds
215/12 . . . with substituted hydrocarbon radicals attached to ring carbon atoms
215/14 . . . Radicals substituted by oxygen atoms
215/16 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
215/18 . . . Halogen atoms or nitro radicals
215/20 . . . Oxygen atoms (quinophthalones C09B 25/00)
215/22 . . . attached in position 2 or 4
215/27 . . . only one oxygen atom which is attached in position 2
215/233 . . . only one oxygen atom which is attached in position 4
215/24 . . . attached in position 8
215/26 . . . Alcohols; Ethers thereof
215/28 . . . with halogen atoms or nitro radicals in positions 5, 6 or 7
215/30 . . . Metal salts; Chelates
215/32 . . . Esters
215/34 . . . Carbamates
215/36 . . . Sulfur atoms (C07D 215/24 takes precedence)
215/38 . . . Nitrogen atoms (nitro radicals C07D 215/18)
215/40 . . . attached in position 8
215/42 . . . attached in position 4
215/44 . . . with aryl radicals attached to said nitrogen atoms
215/46 . . . with hydrocarbon radicals, substituted by nitrogen atoms, attached to said nitrogen atoms
215/48 . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
215/50 . . . attached in position 4
215/52 . . . with aryl radicals attached in position 2
215/54 . . . attached in position 3
215/56 . . . with oxygen atoms in position 4
215/58 . . . with hetero atoms directly attached to the ring nitrogen atom
215/60 . . . N-oxides

217/00 Heterocyclic compounds containing isoquinoline or hydrogenated isoquinoline ring systems

217/02 . . . with only hydrogen atoms or radicals containing only carbon and hydrogen atoms, directly attached to carbon atoms of the nitrogen-containing ring; Alkylene-bis-isoquinolines
217/04 . . . with hydrocarbon or substituted hydrocarbon radicals attached to the ring nitrogen atom
217/06 . . . with the ring nitrogen atom acylated by carboxylic or carboxonic acids, or with sulfur or nitrogen analogues thereof, e.g. carbamates
217/08 . . . with a hetero atom directly attached to the ring nitrogen atom
217/10 . . . Quaternary compounds
217/12 . . . with radicals, substituted by hetero atoms, attached to carbon atoms of the nitrogen-containing ring
217/14 . . . other than aralkyl radicals
217/16 . . . substituted by oxygen atoms
217/18 . . . Aralkyl radicals
NOTE only ring hetero atom
membered rings having one nitrogen atom as the
Heterocyclic compounds containing seven-


221/00

Heterocyclic compounds containing acridine or
hydrogenated acridine ring systems
221/02 . with only hydrogen, hydrocarbon or substituted hydrocarbon radicals, directly attached to carbon atoms of the ring system
221/04 . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to carbon atoms of the ring system
221/06 . Oxygen atoms
221/08 . Nitrogen atoms (acridine dyes C09B 15/00)
221/10 . attached in position 9
221/12 . Amino-alkyl-amino radicals attached in position 9
221/14 . with hydrocarbon radicals, substituted by nitrogen atoms, attached to the ring nitrogen atom
221/16 . with acyl radicals, substituted by nitrogen atoms, attached to the ring nitrogen atom
221/00

Heterocyclic compounds containing six-membered rings having one nitrogen atom as the only ring hetero atom, not provided for by groups C07D 211/00 - C07D 219/00
221/02 . condensed with carbocyclic rings or ring systems
221/04 . Ortho- or peri-condensed ring systems
221/06 . Ring systems of three rings
221/08 . Aza-anthracenes (acridine C07D 219/00)
221/10 . Aza-phenanthrenes
221/12 . Phenanthridines
221/14 . Aza-phenalenones, e.g. 1,8-naphthalimide
221/16 . containing carbocyclic rings other than six-membered
221/18 . Ring systems of four or more rings
221/20 . Spiro-condensed ring systems
221/22 . Bridged ring systems
221/24 . Camphidines
221/26 . Benzomorphans
221/28 . Morphinans
221/00

Heterocyclic compounds containing seven-
membered rings having one nitrogen atom as the only ring hetero atom

NOTE Hexamethylene imines or 3-aza-bicyclo [3.2.2] nonanes, having only hydrogen atoms attached to the ring carbon atoms, are classified in C07D 295/00
223/02 . not condensed with other rings
223/04 . with only hydrogen atoms, halogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
223/06 . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms (halogen atoms C07D 223/04)
223/08 . Oxygen atoms
223/10 . attached in position 2
223/12 . Nitrogen atoms not forming part of a nitro radical
223/14 . condensed with carbocyclic rings or ring systems
223/16 . Benzazepines; Hydrogenated benzazepines
223/18 . Dibenzazepines; Hydrogenated dibenzazepines
223/22 . Dibenzo [b, f] azepines; Hydrogenated dibenzo [b, f] azepines
223/24 . with hydrocarbon radicals, substituted by nitrogen atoms, attached to the ring nitrogen atom
223/26 . having a double bond between positions 10 and 11
223/28 . having a single bond between positions 10 and 11
223/30 . with hetero atoms directly attached to the ring nitrogen atom
223/32 . containing carbocyclic rings other than six-membered
225/00

Heterocyclic compounds containing rings of more than seven members having one nitrogen atom as the only ring hetero atom

NOTE Polymethylenimines with at least five ring members and having only hydrogen atoms attached to the ring carbon atoms are classified in group C07D 295/00
225/02 . not condensed with other rings
225/04 . condensed with carbocyclic rings or ring systems
225/06 . condensed with one six-membered ring
225/08 . condensed with two six-membered rings
227/00

Heterocyclic compounds containing rings having one nitrogen atom as the only ring hetero atom, according to more than one of groups C07D 203/00 - C07D 225/00

NOTE Polymethylenimines with at least five ring members and having only hydrogen atoms attached to the ring carbon atoms are classified in group C07D 295/00
227/02 . with only hydrogen or carbon atoms directly attached to the ring nitrogen atom
227/04 . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached to ring carbon atoms
227/06 . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
227/08 . Oxygen atoms
227/087 . One doubly-bound oxygen atom in position 2, e.g. lactams
227/093 Two doubly-bound oxygen atoms attached to the carbon atoms adjacent to the ring nitrogen atom, e.g. dicarboxylic acid imides
227/10 Nitrogen atoms not forming part of a nitro radical
227/12 with hetero atoms directly attached to the ring nitrogen atom

**229/00 Heterocyclic compounds containing rings of less than five members having two nitrogen atoms as the only ring hetero atoms**

229/02 containing three-membered rings

**231/00 Heterocyclic compounds containing 1,2-diazole or hydrogenated 1,2-diazole rings**

231/02 not condensed with other rings
231/04 having no double bonds between ring members or between ring members and non-ring members
231/06 having one double bond between ring members or between ring members and non-ring members
231/08 with oxygen or sulfur atoms directly attached to ring carbon atoms
231/10 having two or three double bonds between ring members or between ring members and non-ring members
231/12 with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
231/14 with hetero atoms or with carbon atoms having three bonds between hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
231/16 Halogen atoms or nitro radicals
231/18 One oxygen or sulfur atom
231/20 One oxygen atom attached in positions 3 or 5
231/22 with aryl radicals attached to ring nitrogen atoms
231/24 having sulfone or sulfonic acid radicals in the molecule
231/26 1-Phenyl-3-methyl-5- pyrazolones, unsubstituted or substituted on the phenyl ring
231/28 Two oxygen or sulfur atoms
231/30 attached in position 3 and 5
231/32 Oxygen atoms
231/34 with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, attached in position 4
231/36 with hydrocarbon radicals, substituted by hetero atoms, attached in position 4
231/38 Nitrogen atoms (nitro radicals C07D 231/16)
231/40 Acylated on said nitrogen atom
231/42 Benzene-sulfonamido pyrazoles
231/44 Oxygen and nitrogen or sulfur and nitrogen atoms
231/46 Oxygen atom in position 3 or 5 and nitrogen atom in position 4
231/48 with hydrocarbon radicals attached to said nitrogen atom
231/50 Acylated on said nitrogen atom
231/52 Oxygen atom in position 3 and nitrogen atom in position 3, or vice versa
231/54 condensed with carbocyclic rings or ring-systems

**233/00 Heterocyclic compounds containing 1,3-diazole or hydrogenated 1,3-diazole rings, not condensed with other rings**

233/02 having no double bonds between ring members or between ring members and non-ring members
233/04 having one double bond between ring members or between a ring member and a non-ring member
233/06 with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring carbon atoms
233/08 with alkyl radicals, containing more than four carbon atoms, directly attached to ring carbon atoms
233/10 with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring nitrogen atoms
233/12 with substituted hydrocarbon radicals attached to ring nitrogen atoms
233/14 Radicals substituted by oxygen atoms
233/16 Radicals substituted by nitrogen atoms
233/18 Radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one to halogen, e.g. ester or nitrile radicals
233/20 with substituted hydrocarbon radicals, directly attached to ring carbon atoms
233/22 Radicals substituted by oxygen atoms
233/24 Radicals substituted by nitrogen atoms not forming part of a nitro radical
233/26 Radicals substituted by carbon atoms having three bonds to hetero atoms
233/28 with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
233/30 Oxygen or sulfur atoms
233/32 One oxygen atom
233/34 Ethylene-urea
233/36 with hydrocarbon radicals, substituted by nitrogen atoms, attached to ring nitrogen atoms
233/38 with acyl radicals or hetero atoms directly attached to ring nitrogen atoms
233/40 Two or more oxygen atoms
233/42 Sulfur atoms
233/44 Nitrogen atoms not forming part of a nitro radical
233/46 with only hydrogen atoms forming part of a nitro radical
233/48 with acyclic hydrocarbon or substituted acyclic hydrocarbon radicals, attached to said nitrogen atoms
233/50 with carbocyclic radicals directly attached to said nitrogen atoms
233/52 with hetero atoms directly attached to said nitrogen atoms
233/54 having two double bonds between ring members or between ring members and non-ring members
233/56 with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, attached to ring carbon atoms
other rings hydrogenated 1,3-diazole rings, condensed with carbocyclic rings or ring systems between a ring member and a non-ring member having one double bond between ring members or between ring members and non-ring members having no double bonds between ring members or between ring members and non-ring members between a ring member and a non-ring member having three double bonds between ring members or between ring members and non-ring members

... Hydrogenated 1,2-diazine rings...

... Heterocyclic compounds containing 1,3-diazine or hydrogenated 1,3-diazole rings, condensed with other rings...

... Benzenediazoles; Hydrogenated benzenediazoles...

... with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring nitrogen atoms...
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239/08 . . . with heteroatoms directly attached in position 2
239/10 . . . Oxygen or sulfur atoms
239/12 . . . Nitrogen atoms not forming part of a nitro radical
239/14 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals attached to said nitrogen atoms
239/16 . . . acylated on said nitrogen atoms
239/18 . . . with hetero atoms attached to said nitrogen atoms, except nitro radicals, e.g. hydrazine radicals
239/20 . . . having two double bonds between ring members or between ring members and non-ring members
239/22 . . . with hetero atoms directly attached to ring carbon atoms
239/24 . . . having three or more double bonds between ring members or between ring members and non-ring members
239/26 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
239/28 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, directly attached to ring carbon atoms
239/30 . . . Halogen atoms or nitro radicals
239/32 . . . One oxygen, sulfur or nitrogen atom
239/34 . . . One oxygen atom
239/36 . . . . . . as doubly bound atom or as unsubstituted hydroxy radical
239/38 . . . One sulfur atom
239/40 . . . as doubly bound sulfur atom or as unsubstituted mercapto radical
239/42 . . . One nitrogen atom (nitro radicals C07D 239/30; benzenesulfonamido-pyrimidines C07D 239/69)
239/46 . . . Two or more oxygen, sulfur or nitrogen atoms (benzenesulfonamido-pyrimidines C07D 239/69)
239/47 . . . One nitrogen atom and one oxygen or sulfur atom, e.g. cytosine
239/48 . . . Two nitrogen atoms
239/49 . . . . . . with an aralkyl radical, or substituted aralkyl radical, attached in position 5, e.g. trimethoprim
239/50 . . . Three nitrogen atoms
239/52 . . . Two oxygen atoms
239/54 . . . . . . as doubly bound oxygen atoms or as unsubstituted hydroxy radicals
239/545 . . . . . . . with other hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, directly attached to ring carbon atoms
239/553 . . . . . . . with halogen atoms or nitro radicals directly attached to ring carbon atoms, e.g. fluorouracil
239/557 . . . . . . . with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, directly attached to ring carbon atoms, e.g. orotic acid
239/56 . . . One oxygen atom and one sulfur atom
239/58 . . . Two sulfur atoms

239/60 . . . . . . Three or more oxygen or sulfur atoms
239/62 . . . . . . Barbituric acids
239/64 . . . . . . Salts of organic bases; Organic double compounds
239/66 . . . . . . Thiobarbituric acids
239/68 . . . . . . Salts or organic bases; Organic double compounds
239/69 . . . . . . Benzenesulfonamido-pyrimidines
239/70 . . . . . condensed with carbocyclic rings or ring systems
239/72 . . . . . Quinazolines; Hydrogenated quinazolines
239/74 . . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached to ring carbon atoms of the hetero ring
239/76 . . . . . N-oxides
239/78 . . . . . with hetero atoms directly attached in position 2
239/80 . . . . . Oxygen atoms
239/82 . . . . . with an aryl radical attached in position 4
239/84 . . . . . Nitrogen atoms
239/86 . . . . . with hetero atoms directly attached in position 4
239/88 . . . . . Oxygen atoms
239/90 . . . . . with acyclic radicals attached in positions 2 or 3
239/91 . . . . . with aryl or aralkyl radicals attached in positions 2 or 3
239/92 . . . . . with hetero atoms directly attached to nitrogen atoms of the hetero ring
239/93 . . . . . Sulfur atoms
239/94 . . . . . Nitrogen atoms
239/95 . . . . . with hetero atoms directly attached in positions 2 and 4
239/96 . . . . . Two oxygen atoms

241/00 Heterocyclic compounds containing 1,4-diazine or hydrogenated 1,4-diazine rings

NOTE
Piperazines with only hydrogen atoms directly attached to ring carbon atoms are classified in group C07D 295/00

241/02 . . . not condensed with other rings
241/04 . . . having no double bonds between ring members or between ring members and non-ring members
241/06 . . . having one or two double bonds between ring members or between ring members and non-ring members
241/08 . . . with oxygen atoms directly attached to ring carbon atoms
241/10 . . . having three double bonds between ring members or between ring members and non-ring members
241/12 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
241/14 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
241/16 . . . . . Halogen atoms; Nitro radicals
241/18 . . . . . Oxygen or sulfur atoms
241/20 . . . . . Nitrogen atoms (nitro radicals C07D 241/16)
241/22 . . . . . Benzenesulfonamido pyrazines

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243/12 . . . 1,5-Benzodiazepines; Hydrogenated 1,5-
benzodiazepines
243/14 . . . 1,4-Benzodiazepines; Hydrogenated 1,4-
benzodiazepines
243/16 . . . substituted in position 5 by aryl radicals
243/18 . . . substituted in position 2 by nitrogen, 
oxigen or sulfur atoms
243/20 . . . . Nitrogen atoms
243/22 . . . . Sulfur atoms
243/24 . . . . Oxygen atoms
243/26 . . . . Preparation from compounds already 
containing the benzodiazepine skeleton
243/28 . . . . Preparation including building-up 
the benzodiazepine skeleton from 
compounds containing no hetero rings
243/30 . . . . Preparation including building-up 
the benzodiazepine skeleton from 
compounds already containing hetero 
rings
243/32 . . . . containing a phthalimide or 
hydrogenated phthalimide ring 
system
243/34 . . . . containing a quinazoline or 
hydrogenated quinazoline ring 
system
243/36 . . . . containing an indole or 
hydrogenated indole ring system
243/38 . . . [b, e]- or [b, f]-condensed with six-membered 
rings

245/00 Heterocyclic compounds containing rings of more 
than seven members having two nitrogen atoms as 
the only ring hetero atoms
245/02 . . . not condensed with other rings
245/04 . . . condensend with carbocyclic rings or ring systems
245/06 . . . condensend with one six-membered ring
247/00 Heterocyclic compounds containing rings having 
two nitrogen atoms as the only ring hetero 
rings, according to more than one of groups 
C07D 229/00 - C07D 245/00
247/02 . . . having the nitrogen atoms in positions 1 and 3
249/00 Heterocyclic compounds containing five-
membered rings having three nitrogen atoms as 
the only ring hetero atoms
249/02 . . . not condensed with other rings
249/04 . . . 1,2,3-Triazoles; Hydrogenated 1,2,3-triazoles
249/06 . . . with aryl radicals directly attached to ring 
atoms
249/08 . . . 1,2,4-Triazoles; Hydrogenated 1,2,4-triazoles
249/10 . . . with hetero atoms or with carbon atoms having 
three bonds to hetero atoms with at the most 
one bond to halogen, e.g. ester or nitrile 
radiads, directly attached to ring carbon 
atoms
249/12 . . . Oxygen or sulfur atoms
249/14 . . . Nitrogen atoms
249/16 . . . condensend with carbocyclic rings or ring systems
249/18 . . . Benzotriazoles
249/20 . . . with aryl radicals directly attached in position 2
249/22 . . . Naphthotriazoles
249/24 . . . with stilbene radicals attached in position 2
251/00 Heterocyclic compounds containing 1,3,5-triazine 
rings
251/02 . not condensed with other rings
251/04 . having no double bonds between ring members or between ring members and non-ring members
251/06 . with hetero atoms directly attached to ring nitrogen atoms
251/08 . having one double bond between ring members or between a ring member and a non-ring member
251/10 . having two double bonds between ring members or between ring members and non-ring members
251/12 . having three double bonds between ring members or between ring members and non-ring members
251/14 . with hydrogen or carbon atoms directly attached to at least one ring carbon atom
251/16 . to only one ring carbon atom
251/18 . with nitrogen atoms directly attached to the two other ring carbon atoms, e.g. guanamines
251/20 . with no nitrogen atoms directly attached to a ring carbon atom
251/22 . to two ring carbon atoms
251/24 . to three ring carbon atoms
251/26 . with only hetero atoms directly attached to ring carbon atoms
251/28 . Only halogen atoms, e.g. cyanuric chloride
251/30 . Only oxygen atoms
251/32 . Cyannic acid; Isocyannic acid
251/34 . Cyannic or isocyannic esters
251/36 . having halogen atoms directly attached to ring nitrogen atoms
251/38 . Sulfur atoms
251/40 . Nitrogen atoms
251/42 . One nitrogen atom
251/44 . with halogen atoms attached to the two other ring carbon atoms
251/46 . with oxygen or sulfur atoms attached to the two other ring carbon atoms
251/48 . Two nitrogen atoms
251/50 . with a halogen atom attached to the third ring carbon atom
251/52 . with an oxygen or sulfur atom attached to the third ring carbon atom
251/54 . Three nitrogen atoms
251/56 . Preparation of melamine
251/58 . from cyanamide, dicyanamide or calcium cyanamide
251/60 . from urea or from carbon dioxide and ammonia
251/62 . Purification of melamine
251/64 . Condensation products of melamine with aldehydes; Derivatives thereof (polycondensation products C08G)
251/66 . Derivatives of melamine in which a hetero atom is directly attached to a nitrogen atom of melamine
251/68 . Triazinylamino stilbenes
251/70 . Other substituted melamines
251/72 . condensed with carbocyclic rings or ring systems

253/00 Heterocyclic compounds containing six-membered rings having three nitrogen atoms as the only ring hetero atoms, not provided for by groups C07D 251/00

253/02 . not condensed with other rings
253/04 . 1,2,3-Triazines

253/06 . 1,2,4-Triazines
253/065 . having three double bonds between ring members or between ring members and non-ring members
253/07 . with hetero atoms, or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
253/075 . Two hetero atoms, in positions 3 and 5
253/08 . condensed with carbocyclic rings or ring systems
253/10 . Condensed 1, 2,4-triazines; Hydrogenated condensed 1,2,4-triazines

255/02 . not condensed with other rings
255/04 . condensed with carbocyclic rings or ring systems

257/00 Heterocyclic compounds containing rings having four nitrogen atoms as the only ring hetero atoms

257/02 . not condensed with other rings
257/04 . Five-membered rings
257/06 . with nitrogen atoms directly attached to the ring carbon atom
257/08 . Six-membered rings
257/10 . condensed with carbocyclic rings or ring systems
257/12 . Six-membered rings having four nitrogen atoms

259/00 Heterocyclic compounds containing rings having more than four nitrogen atoms as the only ring hetero atoms

Heterocyclic compounds having nitrogen and oxygen as the only ring hetero atoms

261/00 Heterocyclic compounds containing 1,2-oxazole or hydrogenated 1,2-oxazole rings
261/02 . not condensed with other rings
261/04 . having one double bond between ring members or between a ring member and a non-ring member
261/06 . having two or more double bonds between ring members or between ring members and non-ring members
261/08 . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
261/10 . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
261/12 . Oxygen atoms
261/14 . Nitrogen atoms
261/16 . Benzene-sulphonamido isoxazoles
261/18 . Carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen
261/20 . condensed with carbocyclic rings or ring systems

263/00 Heterocyclic compounds containing 1,3-oxazole or hydrogenated 1,3-oxazole rings
263/02 . not condensed with other rings
263/04 . having no double bonds between ring members or between ring members and non-ring members
Heterocyclic compounds having nitrogen and oxygen as the only ring hetero atoms

263/06 . . . with hydrocarbon radicals, substituted by oxygen atoms, attached to ring carbon atoms
263/08 . . . having one double bond between ring members or between a ring member and a non-ring member
263/10 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
263/12 . . . with radicals containing only hydrogen and carbon atoms
263/14 . . . with radicals substituted by oxygen atoms
263/16 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
263/18 . . . Oxygen atoms
263/20 . . . . . . attached in position 2
263/22 . . . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to other ring carbon atoms
263/24 . . . . . . with hydrocarbon radicals, substituted by oxygen atoms, attached to other ring carbon atoms
263/26 . . . . . . with hetero atoms or acyl radicals directly attached to the ring nitrogen atom
263/28 . . . Nitrogen atoms not forming part of a nitro radical
263/30 . . . having two or three double bonds between ring members or between ring members and non-ring members
263/32 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
263/34 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
263/36 . . . One oxygen atom
263/38 . . . . . . attached in position 2
263/40 . . . . . . attached in position 4
263/42 . . . . . . attached in position 5
263/44 . . . . . . Two oxygen atoms
263/46 . . . . . . Sulfur atoms
263/48 . . . . . . Nitrogen atoms not forming part of a nitro radical
263/50 . . . . . . Benzene-sulphonamido oxazoles
263/52 . . . condensed with carbocyclic rings or ring systems
263/54 . . . Benzoxazoles; Hydrogenated benzoxazoles
263/56 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached in position 2
263/57 . . . Aryl or substituted aryl radicals
263/58 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 2
263/60 . . . Naphthoxazoles; Hydrogenated naphthoxazoles
263/62 . . . having two or more ring systems containing condensed 1,3-oxazole rings
263/64 . . . linked in positions 2 and 2' by chains containing six-membered aromatic rings or ring systems containing such rings

265/00 Heterocyclic compounds containing six-membered rings having one nitrogen atom and one oxygen atom as the only ring hetero atoms

NOTE
Morpholines having only hydrogen atoms attached to the ring carbon atoms are classified in C07D 295/00

265/02 . . . 1,2-Oxazines; Hydrogenated 1,2-oxazines
265/04 . . . 1,3-Oxazines; Hydrogenated 1,3-oxazines
265/06 . . . not condensed with other rings
265/08 . . . having one double bond between ring members or between a ring member and a non-ring member

265/10 . . . with oxygen atoms directly attached to ring carbon atoms
265/12 . . . condensed with carbocyclic rings or ring systems
265/14 . . . condensed with one six-membered ring
265/16 . . . with only hydrogen or carbon atoms directly attached in positions 2 and 4
265/18 . . . with hetero atoms directly attached in position 2
265/20 . . . with hetero atoms directly attached in position 4
265/22 . . . . . . Oxygen atoms
265/24 . . . with hetero atoms directly attached in positions 2 and 4
265/26 . . . . . . Two oxygen atoms, e.g. isatoic anhydride
265/28 . . . 1,4-Oxazines; Hydrogenated 1,4-oxazines
265/30 . . . not condensed with other rings
265/32 . . . with oxygen atoms directly attached to ring carbon atoms
265/33 . . . Two oxygen atoms, in positions 3 and 5
265/34 . . . condensed with carbocyclic rings
265/36 . . . condensed with one six-membered ring
265/38 . . . [b, e]-condensed with two six-membered rings

267/00 Heterocyclic compounds containing rings of more than six members having one nitrogen atom and one oxygen atom as the only ring hetero atoms

267/02 . . . Seven-membered rings
267/04 . . . having the hetero atoms in positions 1 and 2
267/06 . . . having the hetero atoms in positions 1 and 3
267/08 . . . having the hetero atoms in positions 1 and 4
267/10 . . . not condensed with other rings
267/12 . . . condensed with carbocyclic rings or ring systems
267/14 . . . condensed with one six-membered ring
267/16 . . . condensed with two six-membered rings
267/18 . . . . . . [b, e]-condensed
267/20 . . . . . . [b, f]-condensed
267/22 . . . . . . Eight-membered rings

269/00 Heterocyclic compounds containing rings having one nitrogen atom and one oxygen atom as the only ring hetero atoms according to more than one of groups C07D 261/00 - C07D 267/00

269/02 . . . having the hetero atoms in positions 1 and 3

271/00 Heterocyclic compounds containing five-membered rings having two nitrogen atoms and one oxygen atom as the only ring hetero atoms

271/02 . . . not condensed with other rings
Heterocyclic compounds having nitrogen and oxygen as the only ring hetero atoms

271/04 . . . 1,2,3-Oxadiazoles; Hydrogenated 1,2,3-oxadiazoles
271/06 . . . 1,2,4-Oxadiazoles; Hydrogenated 1,2,4-oxadiazoles
271/07 . . . with oxygen, sulfur or nitrogen atoms, directly attached to ring carbon atoms, the nitrogen atoms not forming part of a nitro radical
271/08 . . . 1,2,5-Oxadiazoles; Hydrogenated 1,2,5-oxadiazoles
271/10 . . . 1,3,4-Oxadiazoles; Hydrogenated 1,3,4-oxadiazoles
271/107 . . . with two aryl or substituted aryl radicals attached in positions 2 and 5
271/113 . . . with oxygen, sulfur or nitrogen atoms, directly attached to ring carbon atoms, the nitrogen atoms not forming part of a nitro radical
271/12 . . . condensed with carbocyclic rings or ring systems

273/00 Heterocyclic compounds containing rings having nitrogen and oxygen atoms as the only ring hetero atoms, not provided for by groups C07D 261/00 - C07D 271/00
273/01 . . . having one nitrogen atom
273/02 . . . having two nitrogen atoms and only one oxygen atom
273/04 . . . Six-membered rings
273/06 . . . Seven-membered rings
273/08 . . . having two nitrogen atoms and more than one oxygen atom

Heterocyclic compounds having nitrogen and sulfur as the only ring hetero atoms

275/00 Heterocyclic compounds containing 1,2-thiazole or hydrogenated 1,2-thiazole rings
275/02 . . . not condensed with other rings
275/03 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
275/04 . . . condensed with carbocyclic rings or ring systems
275/06 . . . with hetero atoms directly attached to the ring sulfur atom

277/00 Heterocyclic compounds containing 1,3-thiazole or hydrogenated 1,3-thiazole rings
277/02 . . . not condensed with other rings
277/04 . . . having no double bonds between ring members or between ring members and non-ring members
277/06 . . . with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
277/08 . . . having one double bond between ring members or between a ring member and a non-ring member
277/10 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
277/12 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
277/14 . . . Oxygen atoms
277/16 . . . Sulfur atoms
277/18 . . . Nitrogen atoms
277/20 . . . having two or three double bonds between ring members or between ring members and non-ring members
277/22 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
277/24 . . . Radicals substituted by oxygen atoms
277/26 . . . Radicals substituted by sulfur atoms
277/28 . . . Radicals substituted by nitrogen atoms
277/30 . . . Radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
277/32 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
277/34 . . . Oxygen atoms
277/36 . . . Sulfur atoms
277/38 . . . Nitrogen atoms
277/40 . . . Unsubstituted amino or imino radicals
277/42 . . . Amino or imino radicals substituted by hydrocarbon or substituted hydrocarbon radicals
277/44 . . . Acylated amino or imino radicals
277/46 . . . by carboxylic acids, or sulfur or nitrogen analogues thereof
277/48 . . . by radicals derived from carboxonic acid, or sulfur or nitrogen analogues thereof, e.g. carbonylgluandines
277/50 . . . Nitrogen atoms bound to hetero atoms (nitro radicals C07D 277/58)
277/52 . . . to sulfur atoms, e.g. sulfonamides
277/54 . . . Nitrogen and either oxygen or sulfur atoms
277/56 . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
277/58 . . . Nitro radicals
277/587 . . . with aliphatic hydrocarbon radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms, said aliphatic radicals being substituted in the alpha-position to the ring by a hetero atom, e.g. \(-C=\text{CON}-[\text{CH}_n]^m\), with m
277/593 . . . Z being a singly or a doubly bound hetero atom
277/60 . . . condensed with carbocyclic rings or ring-systems
277/62 . . . Benzothiazoles
277/64 . . . with only hydrocarbon or substituted hydrocarbon radicals attached in position 2
277/66 . . . with aromatic rings or ring systems directly attached in position 2
277/68 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 2
277/70 . . . Sulfur atoms
277/72 . . . 2-Mercaptobenzothiazole
277/74 . . . Sulfur atoms substituted by carbon atoms
Heterocyclic compounds having nitrogen and sulfur as the only ring hetero atoms

277/76 . . . . . Sulfur atoms attached to a second hetero atom
277/78 . . . . . . to a sulfur atom
277/80 . . . . . . to a nitrogen atom
277/82 . . . . . . Nitrogen atoms
277/84 . . . . . Naphthothiazoles

279/00 Heterocyclic compounds containing six-membered rings having one nitrogen atom and one sulfur atom as the only ring hetero atoms

NOTE
Thiomorpholines having only hydrogen atoms attached to the ring carbon atoms are classified in C07D 295/00

279/02 . . . . . 1,2-Thiazines; Hydrogenated 1,2-thiazines
279/04 . . . . . 1,3-Thiazines; Hydrogenated 1,3-thiazines
279/06 . . . . . not condensed with other rings
279/08 . . . . . condensed with carbocyclic rings or ring systems
279/10 . . . . . 1,4-Thiazines; Hydrogenated 1,4-thiazines
279/12 . . . . . not condensed with other rings
279/14 . . . . . condensed with carbocyclic rings or ring systems
279/16 . . . . . condensed with one six-membered ring
279/18 . . . . . [b, e]-condensed with two six-membered rings
279/20 . . . . . with hydrogen atoms directly attached to the ring nitrogen atom
279/22 . . . . . with carbon atoms directly attached to the ring nitrogen atom
279/24 . . . . . with hydrocarbon radicals, substituted by amino radicals, attached to the ring nitrogen atom
279/26 . . . . . without other substituents attached to the ring system
279/28 . . . . . with other substituents attached to the ring system
279/30 . . . . . with acyl radicals attached to the ring nitrogen atom
279/32 . . . . . with hetero atoms directly attached to the ring nitrogen atom
279/34 . . . . . with hetero atoms directly attached to the ring sulfur atom
279/36 . . . . . [b, e]-condensed, at least one with a further condensed benzene ring

281/00 Heterocyclic compounds containing rings of more than six members having one nitrogen atom and one sulfur atom as the only ring hetero atoms

281/02 . Seven-membered rings
281/04 . . having the hetero atoms in positions 1 and 4
281/06 . . not condensed with other rings
281/08 . . condensed with carbocyclic rings or ring systems
281/10 . . . . . condensed with one six-membered ring
281/12 . . . . . condensed with two six-membered rings
281/14 . . . . . [b, e]-condensed
281/16 . . . . . [b, f]-condensed
281/18 . . Eight-membered rings

283/00 Heterocyclic compounds containing rings having one nitrogen atom and one sulfur atom as the only ring hetero atoms, according to more than one of groups C07D 275/00 - C07D 281/00

283/02 . having the hetero atoms in positions 1 and 3

285/00 Heterocyclic compounds containing rings having nitrogen and sulfur atoms as the only ring hetero atoms, not provided for by groups C07D 275/00 - C07D 283/00

285/01 . Five-membered rings
285/02 . . Thiadiazoles; Hydrogenated thiadiazoles
285/04 . . . not condensed with other rings
285/06 . . . 1,2,3-Thiadiazoles; Hydrogenated 1,2,3-thiadiazoles
285/08 . . . 1,2,4-Thiadiazoles; Hydrogenated 1,2,4-thiadiazoles
285/10 . . . 1,2,5-Thiadiazoles; Hydrogenated 1,2,5-thiadiazoles
285/12 . . . 1,3,4-Thiadiazoles; Hydrogenated 1,3,4-thiadiazoles
285/125 . . . . with oxygen, sulfur or nitrogen atoms, directly attached to ring carbon atoms, the nitrogen atoms not forming part of a nitro radical

285/13 . . . . Oxygen atoms
285/135 . . . . Nitrogen atoms
285/14 . . . . condensed with carbocyclic rings or ring systems
285/15 . . . . Six-membered rings
285/16 . . . . Thiadiazines; Hydrogenated thiadiazines
285/18 . . . . 1,2,4-Thiadiazines; Hydrogenated 1,2,4-thiadiazines
285/20 . . . . condensed with carbocyclic rings or ring systems
285/22 . . . . condensed with one six-membered ring
285/24 . . . . . with oxygen atoms directly attached to the ring sulfur atom
285/26 . . . . . substituted in position 6 or 7 by sulfamoyl or substituted sulfamoyl radicals
285/28 . . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached in position 3
285/30 . . . . . with hydrocarbon radicals, substituted by hetero atoms attached in position 3
285/32 . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 3

285/34 . . . . . 1,3,5-Thiadiazines; Hydrogenated 1,3,5-thiadiazines
285/36 . . . . Seven-membered rings
285/38 . . . . Eight-membered rings

291/00 Heterocyclic compounds containing rings having nitrogen, oxygen and sulfur atoms as the only ring hetero atoms

291/02 . not condensed with other rings
291/04 . . Five-membered rings
291/06 . . Six-membered rings
291/08 . . condensed with carbocyclic rings or ring systems

293/00 Heterocyclic compounds containing rings having nitrogen and selenium or nitrogen and tellurium, with or without oxygen or sulfur atoms, as the ring hetero atoms
Heterocyclic compounds having nitrogen and sulfur as the only ring hetero atoms

293/02 . . not condensed with other rings
293/04 . . Five-membered rings
293/06 . . . Selenazoles; Hydrogenated selenazoles
293/08 . . . Six-membered rings
293/10 . . condensed with carbocyclic rings or ring systems
293/12 . . . Selenazoles; Hydrogenated selenazoles

295/00 Heterocyclic compounds containing polymethylene-imine rings with at least five ring members, 3-azabicyclo [3.2.2] nonane, pipеразин, morphpoline or thiomorpholine rings, having only hydrogen atoms directly attached to the ring carbon atoms
295/02 . . containing only hydrogen and carbon atoms in addition to the ring hetero elements
295/023 . . . Preparation; Separation; Stabilisation; Use of additives
295/027 . . . containing only one hetero ring
295/03 . . . with the ring nitrogen atoms directly attached to acyclic carbon atoms
295/033 . . . with the ring nitrogen atoms directly attached to carbocyclic rings
295/037 . . . with quaternary ring nitrogen atoms
295/04 . . . with substituted hydrocarbon radicals attached to ring nitrogen atoms
295/06 . . . substituted by halogen atoms or nitro radicals
295/067 . . . with the ring nitrogen atoms and the substituents attached to the same carbon chain, which is not interrupted by carbocyclic rings
295/073 . . . with the ring nitrogen atoms and the substituents separated by carbocyclic rings or by carbon chains interrupted by carbocyclic rings
295/08 . . . substituted by singly bound oxygen or sulfur atoms
295/084 . . . with the ring nitrogen atoms and the oxygen or sulfur atoms attached to the same carbon chain, which is not interrupted by carbocyclic rings
295/088 . . . . to an acyclic saturated chain
295/092 . . . . with aromatic radicals attached to the chain
295/096 . . . . with the ring nitrogen atoms and the oxygen or sulfur atoms separated by carbocyclic rings or by carbon chains interrupted by carbocyclic rings
295/10 . . . substituted by doubly bound oxygen or sulfur atoms (acylated ring nitrogen atoms C07D 295/16)
295/104 . . . with the ring nitrogen atoms and the doubly bound oxygen or sulfur atoms attached to the same carbon chain, which is not interrupted by carbocyclic rings
295/108 . . . . to an acyclic saturated chain
295/112 . . . . with the ring nitrogen atoms and the doubly bound oxygen or sulfur atoms separated by carbocyclic rings or by carbon chains interrupted by carbocyclic rings
295/116 . . . . with the doubly bound oxygen or sulfur atoms directly attached to a carbocyclic ring
295/12 . . . . substituted by singly or doubly bound nitrogen atoms (nitro radicals C07D 295/06)
295/125 . . . . with the ring nitrogen atoms and the substituent nitrogen atoms attached to the same carbon chain, which is not interrupted by carbocyclic rings
295/13 . . . . to an acyclic saturated chain

295/135 . . . . with the ring nitrogen atoms and the substituent nitrogen atoms separated by carbocyclic rings or by carbon chains interrupted by carbocyclic rings
295/14 . . . substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
295/145 . . . . with the ring nitrogen atoms and the carbon atoms with three bonds to hetero atoms attached to the same carbon chain, which is not interrupted by carbocyclic rings
295/15 . . . . . to an acyclic saturated chain
295/155 . . . . . with the ring nitrogen atoms and the carbon atoms with three bonds to hetero atoms separated by carbocyclic rings or by carbon chains interrupted by carbocyclic rings
295/16 . . . . acylated on ring nitrogen atoms
295/18 . . . . by radicals derived from carboxylic acids, or sulfur or nitrogen analogues thereof
295/182 . . . . . Radicals derived from carboxylic acids
295/185 . . . . . from aliphatic carboxylic acids
295/192 . . . . . from aromatic carboxylic acids
295/194 . . . . . Radicals derived from thio- or thiono carboxylic acids
295/195 . . . . . Radicals derived from nitrogen analogues of carboxylic acids
295/20 . . . . by radicals derived from carbonic acid, or sulfur or nitrogen analogues thereof
295/205 . . . . Radicals derived from carbonic acid
295/21 . . . . Radicals derived from sulfur analogues of carbonic acid
295/215 . . . . Radicals derived from nitrogen analogues of carbonic acid
295/22 . . . with hetero atoms directly attached to ring nitrogen atoms
295/24 . . . Oxygen atoms
295/26 . . . Sulfur atoms
295/28 . . . Nitrogen atoms
295/30 . . . . non-acylated
295/32 . . . . acylated with carboxylic or carbonic acids, or their nitrogen or sulfur analogues

Heterocyclic compounds having oxygen atoms with or without sulfur, selenium or tellurium, as ring hetero atoms

301/00 Preparation of oxiranes
301/02 . . Synthesis of the oxirane ring
301/03 . . by oxidation of unsaturated compounds, or of mixtures of unsaturated and saturated compounds
301/04 . . . with air or molecular oxygen
301/06 . . . in the liquid phase
301/08 . . . in the gaseous phase
301/10 . . . . with catalysts containing silver or gold
301/12 . . . . with hydrogen peroxide or inorganic peroxides or peracids
301/14 . . . . with organic peracids, or salts, anhydrides or esters thereof
301/16 . . . . formed in situ, e.g. from carboxylic acids and hydrogen peroxide
301/18 . . . . from polybasic carboxylic acids
301/19 . . . . with organic hydroperoxides
301/22 . . . by oxidation of the saturated compounds with air or molecular oxygen (of mixtures of unsaturated compounds C07D 301/04)
Heterocyclic compounds having oxygen atoms with or without sulfur, selenium or tellurium, as ring hetero atoms

301/24 . . . by splitting off HAL—Y from compounds containing the radical HAL—C—C—OY
301/26 . . . Y being hydrogen
301/27 . . . Condensation of epihalohydrins or halohydrins with compounds containing active hydrogen atoms (macromolecular compounds C08)
301/28 . . . by reaction with hydroxyl radicals
301/30 . . . by reaction with carboxyl radicals
301/32 . . . Separation: Purification
301/36 . . . Use of additives, e.g. for stabilisation

303/00 Compounds containing three-membered rings having one oxygen atom as the only ring heteroatom

303/02 . . . Compounds containing oxirane rings
303/04 . . . containing only hydrogen and carbon atoms in addition to the ring oxygen atoms
303/06 . . . in which the oxirane rings are condensed with a carbocyclic ring system having three or more relevant rings
303/08 . . . with hydrocarbon radicals, substituted by halogen atoms, nitro radicals or nitroso radicals
303/10 . . . in which the oxirane rings are condensed with a carbocyclic ring system having three or more relevant rings (steroids C07J)
303/12 . . . with hydrocarbon radicals substituted by singly or doubly bound oxygen atoms
303/14 . . . by free hydroxyl radicals
303/16 . . . by esterified hydroxyl radicals
303/17 . . . containing oxirane rings condensed with carbocyclic ring systems having three or more relevant rings
303/18 . . . by etherified hydroxyl radicals
303/20 . . . Ethers with hydroxy compounds containing no oxirane rings
303/22 . . . . . . with monohydroxy compounds
303/23 . . . . . . OXiranymethyl ethers of compounds having one hydroxy group bound to a six-membered aromatic ring, the oxiranymethyl radical not being further substituted, i.e. \( \text{C}_n\text{H}_m\text{C}_m\text{H}_n\text{O}_r\text{Aryl} \)
303/24 . . . . . . with polyhydroxy compounds
303/26 . . . . . . having one or more free hydroxyl radicals
303/27 . . . . . . having all hydroxyl radicals etherified with oxirane containing compounds
303/28 . . . . . . Ethers with hydroxy compounds containing oxirane rings
303/30 . . . . . . Ethers of oxirane-containing polyhydroxy compounds in which all hydroxyl radicals are etherified with oxirane-containing hydroxy compounds
303/31 . . . . . . in which the oxirane rings are condensed with a carbocyclic ring system having three or more relevant rings
303/32 . . . . . . by aldehyde- or ketonic radicals
303/34 . . . . . . with hydrocarbon radicals substituted by sulfur, selenium or tellurium atoms
303/36 . . . . . . with hydrocarbon radicals substituted by nitrogen atoms (nitro, nitroso radicals C07D 303/08)

303/38 . . . with hydrocarbon radicals substituted by carbon atoms having three bonds to heteroatoms with at the most one bond to halogen, e.g. ester or nitrile radicals
303/40 . . . by ester radicals
303/42 . . . . . . Acrylic compounds having a chain of seven or more carbon atoms, e.g. epoxidised fats
303/44 . . . . . . Esterified with oxirane-containing hydroxy compounds
303/46 . . . . . . by amide or nitrile radicals
303/48 . . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms; with at the most one bond to halogen, directly attached to ring carbon atoms, e.g. ester or nitrile radicals

305/00 Heterocyclic compounds containing four-membered rings having one oxygen atom as the only ring hetero atom

305/02 . . . . . . not condensed with other rings
305/04 . . . . . . having no double bonds between ring members or between ring members and non-ring members
305/06 . . . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to the ring atoms
305/08 . . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring atoms
305/10 . . . . . . having one or more double bonds between ring members or between ring members and non-ring members
305/12 . . . . . . . Beta-lactones
305/14 . . . . . . . condensed with carbocyclic rings or ring systems

307/00 Heterocyclic compounds containing five-membered rings having one oxygen atom as the only ring hetero atom

307/02 . . . . . . not condensed with other rings
307/04 . . . . . . having no double bonds between ring members or between ring members and non-ring members
307/06 . . . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring carbon atoms
307/08 . . . . . . Preparation of tetrahydrofuran
307/10 . . . . . . with substituted hydrocarbon radicals attached to ring carbon atoms
307/12 . . . . . . Radicals substituted by oxygen atoms
307/14 . . . . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical
307/16 . . . . . . Radicals substituted by carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen, e.g. ester or nitrile radicals
307/18 . . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
307/20 . . . . . . Oxygen atoms
307/22 . . . . . . Nitrogen atoms not forming part of a nitro radical
307/24 . . . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
307/26 . . . . . . having one double bond between ring members or between a ring member and a non-ring member
Heterocyclic compounds having oxygen atoms with or without sulfur, selenium or tellurium, as ring hetero atoms

307/28 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
307/30 . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
307/32 . . . Oxygen atoms
307/33 . . . in position 2, the oxygen atom being in its keto or unsubstituted enol form
307/34 . . . having two or three double bonds between ring members or between ring members and non-ring members
307/36 . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring carbon atoms
307/38 . . . with substituted hydrocarbon radicals attached to ring carbon atoms
307/40 . . . Radicals substituted by oxygen atoms
307/42 . . . . . . Singly bound oxygen atoms (two oxygen atoms bound to the same carbon atom C07D 307/46)
307/44 . . . . . . . Furfuryl alcohol
307/45 . . . . . . . Oxygen atoms acylated by a cyclopropane containing carboxylic acyl radical, e.g. chrysanthemumates
307/46 . . . . . . . Doubly bound oxygen atoms, or two oxygen atoms singly bound to the same carbon atom
307/48 . . . . . . . Furfural
307/50 . . . . . . . Preparation from natural products
307/52 . . . . . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical
307/54 . . . . . . . Radicals substituted by carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen, e.g. ester or nitrile radicals
307/56 . . . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
307/58 . . . . . . . One oxygen atom, e.g. butenolide
307/60 . . . . . . . Two oxygen atoms, e.g. succinic anhydride
307/62 . . . . . . . Three oxygen atoms, e.g. ascorbic acid
307/64 . . . . . . . Sulfur atoms
307/66 . . . . . . . Nitrogen atoms (nitro radicals C07D 307/70)
307/68 . . . . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
307/70 . . . . . . . Nitro radicals
307/71 . . . . . . . attached in position 5
307/72 . . . . . . . with hydrocarbon radicals, substituted by nitrogen-containing radicals, attached in position 2
307/73 . . . . . . . by amino or imino, or substituted amino or imino radicals
307/74 . . . . . . . by hydrazino or hydrazono or such substituted radicals
307/75 . . . . . . . having carboxylic acyl radicals or their thio or nitrogen analogues directly attached to the hydrazino or hydrazono radical, e.g. hydrazides
307/76 . . . . . . . having carbonic acyl radicals or their thio or nitrogen analogues directly attached to the hydrazino or hydrazono radical, e.g. semicarbazides
307/77 . . . . . . . ortho- or peri-condensed with carbocyclic rings or ring systems
307/78 . . . . . . . Benzo [b] furans; Hydrogenated benzo [b] furans
307/79 . . . . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals directly attached to carbon atoms of the hetero ring
307/80 . . . . . . . Radicals substituted by oxygen atoms
307/81 . . . . . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical
307/82 . . . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to carbon atoms of the hetero ring
307/83 . . . . . . . Oxygen atoms
307/84 . . . . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
307/85 . . . . . . . attached in position 2
307/86 . . . . . . . with an oxygen atom directly attached in position 7
307/87 . . . . . . . Benzo [c] furans; Hydrogenated benzo [c] furans
307/88 . . . . . . . with one oxygen atom directly attached in position 1 or 3
307/885 . . . . . . . 3,3-Diphenylphthalides
307/89 . . . . . . . with two oxygen atoms directly attached in positions 1 and 3
307/90 . . . . . . . with an oxygen atom in position 1 and a nitrogen atom in position 3, or vice versa
307/91 . . . . . . . Dibenzo[a]furans; Hydrogenated dibenzo[a]furans
307/92 . . . . . . . Naphthofurans; Hydrogenated naphthofurans
307/93 . . . . . . . condensed with a ring other than six-membered
307/935 . . . . . . . Not further condensed cyclopenta [b] furans or hydrogenated cyclopenta [b] furans
307/937 . . . . . . . with hydrocarbon or substituted hydrocarbon radicals directly attached in position 2, e.g. prostacyclins
307/94 . . . . . . . spiro-condensed with carbocyclic rings or ring systems, e.g. griseofulvin

309/00 Heterocyclic compounds containing six-membered rings having one oxygen atom as the only ring hetero atom, not condensed with other rings
309/02 . . . . . . . having no double bonds between ring members or between ring members and non-ring members
309/04 . . . . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
309/06 . . . . . . . Radicals substituted by oxygen atoms
309/08 . . . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
309/10 . . . . . . . Oxygen atoms
309/12 . . . . . . . only hydrogen atoms and one oxygen atom directly attached to ring carbon atoms, e.g. tetrahydropyranyl ethers
309/14 . . . . . . . Nitrogen atoms not forming part of a nitro radical (nitro radical C07D 309/08)
309/16 . . . . . . . having one double bond between ring members or between a ring member and a non-ring member
Heterocyclic compounds having oxygen atoms with or without sulfur, selenium or tellurium, as ring hetero atoms

309/18 . . containing only hydrogen and carbon atoms in addition to the ring hetero atom
309/20 . . with hydrogen atoms and substituted hydrocarbon radicals directly attached to ring carbon atoms
309/22 . . Radicals substituted by oxygen atoms
309/24 . . Methylol radicals
309/26 . . Carboxaldehyde radicals
309/28 . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
309/30 . . Oxygen atoms, e.g. delta-lactones
309/32 . . having two double bonds between ring members or between ring members and non-ring members
309/34 . . having three or more double bonds between ring members or between ring members and non-ring members
309/36 . . with oxygen atoms directly attached to ring carbon atoms
309/38 . . one oxygen atom in position 2 or 4, e.g. pyrones
309/40 . . Oxygen atoms attached in positions 3 and 4, e.g. maltol

311/00 Heterocyclic compounds containing six-membered rings having one oxygen atom as the only hetero atom, condensed with other rings

311/02 . . ortho- or peri-condensed with carbocyclic rings or ring systems
311/04 . . Benzo[b]pyrans, not hydrogenated in the carbocyclic ring
311/06 . . with oxygen or sulfur atoms directly attached in position 2
311/08 . . not hydrogenated in the hetero ring
311/10 . . . . . . unsubstituted
311/12 . . . . . . substituted in position 3 and unsubstituted in position 7
311/14 . . . . . . substituted in position 6 and unsubstituted in position 7
311/16 . . . . . . substituted in position 7
311/18 . . . . . . substituted otherwise than in position 3 or 7 (substituted in position 4 by oxygen or sulfur C07D 311/42)
311/20 . . . . . . hydrogenated in the hetero ring
311/22 . . . . . . with oxygen or sulfur atoms directly attached in position 4
311/24 . . . . . . with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 2
311/26 . . . . . . with aromatic rings attached in position 2 or 3
311/28 . . . . . . with aromatic rings attached in position 2 only
311/30 . . . . . . not hydrogenated in the hetero ring, e.g. flavones
311/32 . . . . . . 2,3-Dihydro derivatives, e.g. flavanones
311/34 . . . . . . with aromatic rings attached in position 3 only
311/36 . . . . . . not hydrogenated in the hetero ring, e.g. isoflavones
311/38 . . . . . . 2,3-Dihydro derivated, e.g. isoflavonanes
311/40 . . . . . . Separation, e.g. from natural material; Purification
311/42 . . . . . . with oxygen or sulfur atoms in positions 2 and 4
311/44 . . . . . . with one hydrogen atom in position 3
311/46 . . . . . . unsubstituted in the carbocyclic ring
311/48 . . . . . . with two such benzopyran radicals linked together by a carbon chain
311/50 . . . . . . with elements other than carbon and hydrogen in position 3
311/52 . . . . . . Enol-esters or -ethers, or sulfur analogues thereof
311/54 . . . . . . substituted in the carbocyclic ring
311/56 . . . . . . without hydrogen atoms in position 3
311/58 . . . . . . other than with oxygen or sulfur atoms in positions 2 or 4
311/60 . . . . . . with aryl radicals attached in position 2
311/62 . . . . . . with oxygen atoms directly attached in position 3, e.g. anthocyanidins
311/64 . . . . . . with oxygen atoms directly attached in position 8
311/66 . . . . . . with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 2
311/68 . . . . . . with nitrogen atoms directly attached in position 4
311/70 . . . . . . with two hydrocarbon radicals attached in position 2 and elements other than carbon and hydrogen in position 6
311/72 . . . . . . 3,4-Dihydro-derivatives having in position 2 at least one methyl radical and in position 6 an oxygen atom, e.g. tocopherols
311/74 . . . . . . Benzo[b]pyrans, hydrogenated in the carbocyclic ring
311/76 . . . . . . Benzo[c]pyrans
311/78 . . . . . . Ring systems having three or more relevant rings
311/80 . . . . . . Dibenzopyrans; Hydrogenated dibenzopyrans
311/82 . . . . . . Xanthenes
311/84 . . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 9
311/86 . . . . . . Oxygen atoms, e.g. xanthones
311/88 . . . . . . Nitrogen atoms
311/90 . . . . . . with hydrocarbon radicals substituted by amino radicals, directly attached in position 9
311/92 . . . . . . Naphthopyrans; Hydrogenated naphthopyrans
311/94 . . . . . . condensed with rings other than six-membered
311/96 . . . . . . spiro-condensed with carbocyclic rings or ring systems

313/00 Heterocyclic compounds containing rings of more than six members having one oxygen atom as the only ring hetero atom

313/02 . . Seven-membered rings
313/04 . . not condensed with other rings
313/06 . . condensed with carbocyclic rings or ring systems
313/08 . . condensed with one six-membered ring
313/10 . . condensed with two six-membered rings
313/12 . . . . [b,c]-condensed
Heterocyclic compounds having oxygen atoms with or without sulfur, selenium or tellurium, as ring hetero atoms

317/00  Heterocyclic compounds containing five-membered rings having two oxygen atoms as the only ring hetero atoms

317/02  . having the hetero atoms in positions 1 and 2
317/04  . not condensed with other rings
317/06  . condensed with carbocyclic rings or ring systems
317/08  . having the hetero atoms in positions 1 and 3
317/10  . not condensed with other rings
317/12  . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring carbon atoms
317/14  . with substituted hydrocarbon radicals attached to ring carbon atoms
317/16  . Radicals substituted by halogen atoms or nitro radicals
317/18  . Radicals substituted by singly bound oxygen or sulfur atoms
317/20  . Free hydroxyl or mercaptan
317/22  . etherified
317/24  . esterified
317/26  . Radicals substituted by doubly bound oxygen or sulfur atoms or by two such atoms singly bound to the same carbon atom
317/28  . Radicals substituted by nitrogen atoms (by nitro radicals C07D 317/16)
317/30  . Radicals substituted by carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen, e.g. ester or nitrite radicals
317/32  . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrite radicals, directly attached to ring carbon atoms
317/34  . Oxygen atoms
317/36  . Alkylene carboxates; Substituted alkylene carbonates
317/38  . Ethylene carbonate
317/40  . Vinylene carbonate; Substituted vinylene carbonates
317/42  . Halogen atoms or nitro radicals
317/44  . ortho- or peri-condensed with carbocyclic rings or ring systems
317/46  . condensed with one six-membered ring
317/48  . Methylenedioxybenzenes or hydrogenated methylenedioxybenzenes unsubstituted on the hetero ring
317/50  . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to atoms of the carbocyclic ring
317/52  . Radicals substituted by halogen atoms or nitro radicals
317/54  . Radicals substituted by oxygen atoms
317/56  . Radicals substituted by sulfur atoms
317/58  . Radicals substituted by nitrogen atoms (by nitro radicals C07D 317/52)
Heterocyclic compounds having oxygen atoms with or without sulfur, selenium or tellurium, as ring hetero atoms

Heterocyclic compounds having sulfur, selenium or tellurium as the only ring hetero atoms

331/00  Heterocyclic compounds containing rings of less than five members, having one sulfur atom as the only ring hetero atom

331/02  . Three-membered rings
331/04  . Four-membered rings

333/00  Heterocyclic compounds containing five-membered rings having one sulfur atom as the only ring hetero atom

333/02  . not condensed with other rings
333/04  . not substituted on the ring sulfur
333/06  . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to the ring carbon atoms
333/08  . Hydrogen atoms or radicals containing only hydrogen and carbon atoms
333/10  . Thiophene
333/12  . Radicals substituted by halogen atoms or nitro or nitroso radicals
333/14  . Radicals substituted by singly bound hetero atoms other than halogen
333/16  . by oxygen atoms
333/18  . by sulfur atoms
333/20  . by nitrogen atoms (nitro, nitroso radicals [C07D 333/12])
333/22  . Radicals substituted by doubly bound hetero atoms, or by two hetero atoms other than halogen singly bound to the same carbon atom
333/24  . Radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
333/26  . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
333/28  . Halogen atoms
333/30  . Hetero atoms other than halogen
333/32  . Oxygen atoms
333/34  . Sulfur atoms
333/36  . Nitrogen atoms (nitro, nitroso radicals [C07D 333/42])
333/38  . Carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen, e.g. ester or nitrile radicals
333/40  . Thiophene-2-carboxylic acid [2]
333/42  . with nitro or nitroso radicals directly attached to ring carbon atoms
333/44  . attached in position 5
333/46  . substituted on the ring sulfur atom
333/48  . by oxygen atoms
333/50  . condensed with carbocyclic rings or ring systems

333/52  . . Benzo[b]thiophenes; Hydrogenated benzo[b]thiophenes
333/54  . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to carbon atoms of the hetero ring
333/56  . . Radicals substituted by oxygen atoms
333/58  . . Radicals substituted by nitrogen atoms
333/60  . . Radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
333/62  . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to carbon atoms of the hetero ring
333/64  . . Oxygen atoms
333/66  . . Nitrogen atoms not forming part of a nitro radical
333/68  . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to position 2
333/70  . . attached in position 2
333/72  . . Benzo[c]thiophenes; Hydrogenated benzo[c]thiophenes
333/74  . . Naphthothiophenes
333/76  . . Dibenzothiophenes
333/78  . . condensed with rings other than six-membered or with ring systems containing such rings
333/80  . . Seven-membered rings

335/00  Heterocyclic compounds containing six-membered rings having one sulfur atom as the only ring hetero atom

335/02  . not condensed with other rings
335/04  . condensed with carbocyclic rings or ring systems
335/06  . Benzo[b]thiophenes; Hydrogenated benzo[b]thiophenes
335/08  . Naphthothiophenes; Hydrogenated naphthothiophenes
335/10  . Dibenzothiophenes; Hydrogenated dibenzothiophenes
335/12  . Thiophanthenes
335/14  . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 9
335/16  . . Oxygen atoms, e.g. thioxanthenes
335/18  . . Nitrogen atoms
335/20  . . with hydrocarbon radicals, substituted by amino radicals, directly attached in position 9

337/00  Heterocyclic compounds containing rings of more than six members having one sulfur atom as the only ring hetero atom

337/02  . Seven-membered rings
337/04  . . not condensed with other rings
337/06  . condensed with carbocyclic rings or ring systems
337/08  . . condensed with one six-membered ring
337/10  . . condensed with two six-membered rings
337/12  . . [b,e]-condensed
337/14  . . [b,f]-condensed
337/16  . . Eight-membered rings

339/00  Heterocyclic compounds containing rings having two sulfur atoms as the only ring hetero atoms

339/02  . Five-membered rings
Heterocyclic compounds containing two or more hetero rings

403/00 Heterocyclic compounds containing two or more hetero rings, having nitrogen atoms as the only ring hetero atoms, not provided for by group C07D 407/00

403/02 . . containing two hetero rings
403/04 . . directly linked by a ring-member-to-ring-member bond
403/06 . . linked by a carbon chain containing only aliphatic carbon atoms
403/08 . . linked by a carbon chain containing alicyclic rings
403/10 . . linked by a carbon chain containing aromatic rings
403/12 . . linked by a chain containing hetero atoms as chain links
403/14 . . containing three or more hetero rings

401/00 Heterocyclic compounds containing two or more hetero rings, having nitrogen atoms as the only ring hetero atoms, at least one ring being a six-membered ring with only one nitrogen atom

NOTE
Groups C07D 401/00-C07D 421/00 cover compounds containing two or more relevant hetero rings at least two of which are covered by different main groups of groups C07D 203/00-C07D 347/00; neither condensed among themselves nor condensed with a common carbocyclic ring or ring system.

401/02 . containing two hetero rings
401/04 . directly linked by a ring-member-to-ring-member bond
401/06 . linked by a carbon chain containing only aliphatic carbon atoms
401/08 . linked by a carbon chain containing alicyclic rings
401/10 . linked by a carbon chain containing aromatic rings
401/12 . linked by a chain containing hetero atoms as chain links
401/14 . containing three or more hetero rings

405/00 Heterocyclic compounds containing both one or more hetero rings having oxygen atoms as the only ring hetero atoms, and one or more rings having nitrogen as the only ring hetero atom

405/02 . containing two hetero rings
405/04 . directly linked by a ring-member-to-ring-member bond
405/06 . linked by a carbon chain containing only aliphatic carbon atoms
405/08 . linked by a carbon chain containing alicyclic rings
405/10 . linked by a carbon chain containing aromatic rings
405/12 . linked by a chain containing hetero atoms as chain links
405/14 . containing three or more hetero rings

407/00 Heterocyclic compounds containing two or more hetero rings, at least one ring having oxygen atoms as the only ring hetero atom, not provided for by group C07D 405/00

407/02 . containing two hetero rings
407/04 . directly linked by a ring-member-to-ring-member bond
407/06 . linked by a carbon chain containing only aliphatic carbon atoms
407/08 . linked by a carbon chain containing alicyclic rings
407/10 . linked by a carbon chain containing aromatic rings
407/12 . linked by a chain containing hetero atoms as chain links
407/14 . containing three or more hetero rings

409/00 Heterocyclic compounds containing two or more hetero rings, at least one ring containing sulfur atoms as the only ring hetero atom

409/02 . containing two hetero rings
409/04 . directly linked by a ring-member-to-ring-member bond
409/06 . linked by a carbon chain containing only aliphatic carbon atoms
409/08 . linked by a carbon chain containing alicyclic rings
409/10 . linked by a carbon chain containing aromatic rings
409/12 . linked by a chain containing hetero atoms as chain links
409/14 . containing three or more hetero rings

411/00 Heterocyclic compounds containing two or more hetero rings, at least one ring having sulfur or tellurium as the only ring hetero atom

411/02 . containing two hetero rings
411/04 . directly linked by a ring-member-to-ring-member bond
411/06 . linked by a carbon chain containing only aliphatic carbon atoms
411/08 . linked by a carbon chain containing alicyclic rings
411/10 . linked by a carbon chain containing aromatic rings
411/12 . linked by a chain containing hetero atoms as chain links
411/14 . containing three or more hetero rings
Heterocyclic compounds containing two or more hetero rings

413/00 Heterocyclic compounds containing two or more hetero rings, at least one ring having nitrogen and oxygen atoms as the only ring hetero atoms

413/02 . containing two hetero rings
413/04 . . directly linked by a ring-member-to-ring-member bond
413/06 . . linked by a carbon chain containing only aliphatic carbon atoms
413/08 . . linked by a carbon chain containing alicyclic rings
413/10 . . linked by a carbon chain containing aromatic rings
413/12 . . linked by a chain containing hetero atoms as chain links
413/14 . containing three or more hetero rings

415/00 Heterocyclic compounds containing the thiamine skeleton

417/00 Heterocyclic compounds containing two or more hetero rings, at least one ring having nitrogen and sulfur atoms as the only ring hetero atoms, not provided for by group C07D 415/00

417/02 . containing two hetero rings
417/04 . . directly linked by a ring-member-to-ring-member bond
417/06 . . linked by a carbon chain containing only aliphatic carbon atoms
417/08 . . linked by a carbon chain containing alicyclic rings
417/10 . . linked by a carbon chain containing aromatic rings
417/12 . . linked by a chain containing hetero atoms as chain links
417/14 . containing three or more hetero rings

419/00 Heterocyclic compounds containing two or more hetero rings, at least one ring having nitrogen, oxygen, and sulfur atoms as the only ring hetero atoms

419/02 . containing two hetero rings
419/04 . . directly linked by a ring-member-to-ring-member bond
419/06 . . linked by a carbon chain containing only aliphatic carbon atoms
419/08 . . linked by a carbon chain containing alicyclic rings
419/10 . . linked by a carbon chain containing aromatic rings
419/12 . . linked by a chain containing hetero atoms as chain links
419/14 . containing three or more hetero rings

421/00 Heterocyclic compounds containing two or more hetero rings, at least one ring having selenium, tellurium, or halogen atoms as ring hetero atoms

421/02 . containing two hetero rings
421/04 . . directly linked by a ring-member-to-ring-member bond
421/06 . . linked by a carbon chain containing only aliphatic carbon atoms
421/08 . . linked by a carbon chain containing alicyclic rings
421/10 . . linked by a carbon chain containing aromatic rings

421/12 . . linked by a chain containing hetero atoms as chain links
421/14 . containing three or more hetero rings

Heterocyclic compounds containing condensed hetero ring systems

NOTES

1. C07D 451/00 - C07D 517/00 cover compounds containing one system of two or more relevant hetero rings condensed among themselves or condensed with a common carbocyclic ring system, with or without other non-condensed hetero rings.

2. For the purpose of classification in groups C07D 451/00 - C07D 519/00, the degree of hydrogenation of the ring system is not taken into consideration.

3. For the purpose of classification in groups C07D 451/00 - C07D 463/00, C07D 473/00 - C07D 477/00, C07D 489/00, C07D 499/00 - C07D 507/00, the wording of the groups has to be understood, in the absence of an indication to the contrary, as including ring systems further condensed with carbocyclic rings or ring systems, but excluding ring systems further condensed with other hetero rings, either directly or through a common carbocyclic ring system, e.g. sparteine is classified in group C07D 471/22, not in group C07D 455/02.

4. In groups C07D 471/00, C07D 487/00, C07D 491/00 - C07D 498/00 or C07D 513/00 - C07D 517/00, the subdivision is based on the number of relevant hetero rings.

451/00 Heterocyclic compounds containing 8-azabicyclo [3.2.1] octane, 9-azabicyclo [3.3.1] nonane, or 3-oxa-9-azatricyclo [3.3.1.0<2,4>] nonane ring systems, e.g. tropane or granatane alkaloids, scopolamine; Cyclic acetals thereof

451/02 . containing not further condensed 8-azabicyclo [3.2.1] octane or 3-oxa-9-azatricyclo [3.3.1.0<2,4>] nonane ring systems, e.g. tropane; Cyclic acetals thereof

451/04 . . with hetero atoms directly attached in position 3 of the 8-azabicyclo [3.2.1] octane or in position 7 of the 3-oxa-9-azatricyclo [3.3.1.0<2,4>] nonane ring system

451/06 . . . Oxygen atoms
451/08 . . . . Diarylmethoxy radicals
451/10 . . . . . acylated by aliphatic or arialiphatic carboxylic acids, e.g. atropine, scopolamine
451/12 . . . . . acylated by aromatic or heteroaromatic carboxylic acids, e.g. cocaine
451/14 . containing 9-azabicyclo [3.3.1] nonane ring systems, e.g. granatane, 2-aza-adamantane; Cyclic acetals thereof

453/00 Heterocyclic compounds containing quinuclidine or iso-quinuclidine ring systems, e.g. quinine alkaloids

453/02 . containing not further condensed quinuclidine ring systems
453/04 . . having a quinolyl-4, a substituted quinolyl-4 or a alkylenedioxy-quinolyl-4 radical linked through only one carbon atom, attached in position 2, e.g. quinine
453/06 . containing isoquinuclidine ring systems

455/00 Heterocyclic compounds containing quinolizine ring systems, e.g. emetine alkaloids, protoberberine; Alkylenedioxy derivatives of dibenzo [a, g] quinolizines, e.g. berberine
Heterocyclic compounds containing condensed hetero ring systems

C07D

453/00 Heterocyclic compounds containing 1-azabicyclo[4.2.0]octane ring systems, i.e. compounds containing a ring system of the formula:

\[
\begin{array}{c}
\text{N} \\
\text{C} \\
\text{C} \\
\text{C} \\
\text{N} \\
\end{array}
\]

e.g. carbacephalosporins; Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring

WARNING

The IPC subgroups of C07D 463/00, introduced in the CPC scheme in October 2007, might be temporarily incomplete as a number of documents presently classified in CPC subgroups of C07D 463/00 still needs reclassification to these IPC subgroups

457/00 Heterocyclic compounds containing indolo [4, 3-f, g] quinoline ring systems, e.g. derivatives of ergoline, of the formula:

\[
\begin{array}{c}
\text{N} \\
\text{C} \\
\text{C} \\
\text{C} \\
\text{N} \\
\end{array}
\]

Lysergic acid (compounds of the cyclic peptide type derived from ergotamane C07D 519/02)

457/02 . with hydrocarbon or substituted hydrocarbon radicals, attached in position 8
457/04 . with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 2
457/06 . Lysergic acid amides
457/08 . . . in which the amide nitrogen is a member of a heterocyclic ring
457/10 . with hetero atoms directly attached in position 8
457/12 . . Nitrogen atoms
457/14 . containing indolo [4, 3-f, g] quinoline ring systems condensed with carbocyclic rings or ring systems

459/00 Heterocyclic compounds containing benzo [g] indolo [2, 3-a] quinoline ring systems, e.g. yohimbine; 16, 18-lactones thereof, e.g. reserpic acid lactone

461/00 Heterocyclic compounds containing indolo [3,2,1-de] pyrido [3,2,1-j][1,5]naphthyridine ring systems, e.g. vincamine (dimeric indolo alkaloids C07D 519/04)

463/00 Heterocyclic compounds containing condensed quinolizine ring systems directly condensed with at least one six-membered carbocyclic ring, e.g. protoberberine; Alkylenedioxo derivatives of dibenzo [a, g] quinolizines, e.g. berberine

457/02 . containing not further condensed quinolizine ring systems
457/03 . containing quinolizine ring systems directly condensed with at least one six-membered carbocyclic ring, e.g. protoberberine; Alkylenedioxo derivatives of dibenzo [a, g] quinolizines, e.g. berberine

WARNING

Group C07D 455/03 is temporarily incomplete. See provisionally also other CPC subgroups of C07D 455/00

457/04 . . containing a quinolizine ring system condensed with only one six-membered carbocyclic ring, e.g. julolidine
457/06 . . . containing benzo [a] quinolizine ring systems
457/08 . . . having an isoquinolyl-1, a substituted isoquinolyl-1 or an alkylenedioxoisoquinolyl-1 radical linked through only one carbon atom, attached in position 2, e.g. emetine

457/00 Heterocyclic compounds containing indolo [4, 3-f, g] quinoline ring systems, e.g. derivatives of ergoline, of the formula:

\[
\begin{array}{c}
\text{N} \\
\text{C} \\
\text{C} \\
\text{C} \\
\text{N} \\
\end{array}
\]

Lysergic acid (compounds of the cyclic peptide type derived from ergotamane C07D 519/02)

457/02 . with hydrocarbon or substituted hydrocarbon radicals, attached in position 8
457/04 . with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 2
457/06 . Lysergic acid amides
457/08 . . . in which the amide nitrogen is a member of a heterocyclic ring
457/10 . with hetero atoms directly attached in position 8
457/12 . . Nitrogen atoms
457/14 . containing indolo [4, 3-f, g] quinoline ring systems condensed with carbocyclic rings or ring systems

457/00 Heterocyclic compounds containing indolo [4, 3-f, g] quinoline ring systems, e.g. derivatives of ergoline, of the formula:

\[
\begin{array}{c}
\text{N} \\
\text{C} \\
\text{C} \\
\text{C} \\
\text{N} \\
\end{array}
\]

Lysergic acid (compounds of the cyclic peptide type derived from ergotamane C07D 519/02)

457/02 . with hydrocarbon or substituted hydrocarbon radicals, attached in position 8
457/04 . with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 2
457/06 . Lysergic acid amides
457/08 . . . in which the amide nitrogen is a member of a heterocyclic ring
457/10 . with hetero atoms directly attached in position 8
457/12 . . Nitrogen atoms
457/14 . containing indolo [4, 3-f, g] quinoline ring systems condensed with carbocyclic rings or ring systems

457/00 Heterocyclic compounds containing indolo [4, 3-f, g] quinoline ring systems, e.g. derivatives of ergoline, of the formula:

\[
\begin{array}{c}
\text{N} \\
\text{C} \\
\text{C} \\
\text{C} \\
\text{N} \\
\end{array}
\]

Lysergic acid (compounds of the cyclic peptide type derived from ergotamane C07D 519/02)

457/02 . with hydrocarbon or substituted hydrocarbon radicals, attached in position 8
457/04 . with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached in position 2
457/06 . Lysergic acid amides
457/08 . . . in which the amide nitrogen is a member of a heterocyclic ring
457/10 . with hetero atoms directly attached in position 8
457/12 . . Nitrogen atoms
457/14 . containing indolo [4, 3-f, g] quinoline ring systems condensed with carbocyclic rings or ring systems

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Heterocyclic compounds containing condensed hetero ring systems

**473/00** Heterocyclic compounds containing purine ring systems
- with oxygen, sulfur or nitrogen atoms directly attached in positions 2 and 6
- two oxygen atoms
- with radicals containing only hydrogen and carbon atoms, attached in position 1 or 3
- with methyl radicals in positions 1 and 3, e.g. theophylline
- with methyl radicals in positions 3 and 7, e.g. theobromine
- with methyl radicals in positions 1, 3 and 7, e.g. caffeine
- with two methyl radicals in positions 1 and 3 and two methyl radicals in positions 7, 8 or 9
- two nitrogen atoms
- one oxygen and one nitrogen atom, e.g. guanine
- two sulfur atoms
- one oxygen and one sulfur atom
- one nitrogen and one sulfur atom
- with an oxygen, sulfur or nitrogen atom directly attached in position 2 or 6, but not in both
- Oxygen atom
- attached in position 6, e.g. hypoxanthine
- Sulfur atom
- attached in position 6, e.g. adenine
- Nitrogen atom
- attached in position 6
- Sulfur atom
- attached in position 6
- with halogen atoms or perhalogeno-alkyl radicals directly attached in positions 2 or 6

**477/00** Heterocyclic compounds containing pteridine ring systems
- with an oxygen atom directly attached in position 4
- with a nitrogen atom directly attached in position 2
- with a nitrogen atom directly attached in position 2
- with an aromatic or hetero-aromatic ring directly attached in position 2
- containing pteridine ring systems condensed with carbocyclic rings or ring systems
- Benz [g] pteridines, e.g. riboflavin

**477/00** Heterocyclic compounds containing 1-aza bicyclo[3.2.0] heptane ring systems, i.e. compounds containing a ring system of the formula:
- carbapenicillins, thienamycins;
- with hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached in position 4 and with a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 2
- with hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached in position 6
- with hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached in position 6
- with hetero atoms or carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 3
- Oxygen atoms
- Sulfur atoms
- Nitrogen atoms
- with hetero atoms or carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 6
- with hetero atoms or carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 4
- in which the condensed system contains two hetero rings
- Ortho-condensed systems (carbapenems, e.g. thienamycins, C07D 477/00)
- Peri-condensed systems
- Bridged systems
- Spiro-condensed systems
- in which the condensed system contains three hetero rings
- Ortho-condensed systems
- Peri-condensed systems
- Bridged systems
- Spiro-condensed systems
- in which the condensed system contains four or more hetero rings

**489/00** Heterocyclic compounds containing 4aH-8, 9 c-Iminoethano-phenanthro [4, 5-b, c, d] furan ring systems, e.g. derivatives of [4, 5-epoxy]-morphinan of the formula:
- with oxygen atoms attached in positions 3 and 6, e.g. morphine, morphinone
- Salts; Organic complexes
- with a hetero atom directly attached in position 14
- Oxygen atom
- containing 4aH-8, 9 c-Iminoethano-phenanthro [4, 5-b, c, d] furan ring systems condensed with carbocyclic rings or ring systems
- with a bridge between positions 6 and 14
Heterocyclic compounds containing condensed hetero ring systems

493/00  **Heterocyclic compounds containing in the condensed ring system both one or more rings having oxygen atoms as the only ring hetero atoms and one or more rings having nitrogen atoms as the only ring hetero atoms, not provided for by groups C07D 451/00 - C07D 459/00, C07D 463/00, C07D 477/00 or C07D 489/00**

493/02  .  in which the condensed system contains two hetero rings

493/04  .  Ortho-condensed systems

493/06  .  Peri-condensed systems

493/08  .  Bridged systems

493/10  .  Spiro-condensed systems

493/12  .  in which the condensed system contains three hetero rings

493/14  .  Ortho-condensed systems

493/16  .  Peri-condensed systems

493/18  .  Bridged systems

493/20  .  Spiro-condensed systems

493/22  .  in which the condensed system contains four or more hetero rings

495/00  **Heterocyclic compounds containing in the condensed system at least one hetero ring having sulfur atoms as the only ring hetero atoms**

495/02  .  in which the condensed system contains two hetero rings

495/04  .  Ortho-condensed systems

495/06  .  Peri-condensed systems

495/08  .  Bridged systems

495/10  .  Spiro-condensed systems

495/12  .  in which the condensed system contains three hetero rings

495/14  .  Ortho-condensed systems

495/16  .  Peri-condensed systems

495/18  .  Bridged systems

495/20  .  Spiro-condensed systems

495/22  .  in which the condensed system contains four or more hetero rings

497/00  **Heterocyclic compounds containing in the condensed system at least one hetero ring having oxygen and sulfur atoms as the only ring hetero atoms**

497/02  .  in which the condensed system contains two hetero rings

497/04  .  Ortho-condensed systems

497/06  .  Peri-condensed systems

497/08  .  Bridged systems

497/10  .  Spiro-condensed systems

497/12  .  in which the condensed system contains three hetero rings

497/14  .  Ortho-condensed systems

497/16  .  Peri-condensed systems

497/18  .  Bridged systems

497/20  .  Spiro-condensed systems

497/22  .  in which the condensed system contains four or more hetero rings

498/00  **Heterocyclic compounds containing in the condensed system at least one hetero ring having nitrogen and oxygen atoms as the only ring hetero atoms**

498/02  .  in which the condensed system contains two hetero rings

498/04  .  Ortho-condensed systems

498/06  .  Peri-condensed systems

498/08  .  Bridged systems

498/10  .  Spiro-condensed systems

498/12  .  in which the condensed system contains three hetero rings

498/14  .  Ortho-condensed systems

498/16  .  Peri-condensed systems

498/18  .  Bridged systems

498/20  .  Spiro-condensed systems

498/22  .  in which the condensed system contains four or more hetero rings
Heterocyclic compounds containing condensed hetero ring systems

499/00  Heterocyclic compounds containing 4-thia-1-azabicyclo[3.2.0]heptane ring systems, i.e. compounds containing a ring system of the formula: 

Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring

499/04  . Preparation
499/06  . . by forming the ring or condensed ring systems (by microbiological processes C12P 37/00)
499/08  . . Modification of a carboxyl radical directly attached in position 2, e.g. esterification
499/10  . . Modification of an amino radical directly attached in position 6
499/12  . . Acylation
499/14  . . Preparation of salts
499/16  . . . of alkali or alkaline earth metals
499/18  . . . Separation; Purification
499/20  . . . via salts with organic bases
499/21  . . with a nitrogen atom directly attached in position 6 and a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 2
499/22  . . Salts with organic bases; Complexes with organic compounds
499/24  . . . with acyclic or carbocyclic compounds containing amino radicals
499/26  . . . with heterocyclic compounds
499/28  . . . with modified 2-carboxyl group
499/30  . . . Acid anhydride
499/32  . . . Esters
499/34  . . . Thio-acid; Esters thereof
499/36  . . . . . O-esters
499/38  . . . . . S-esters
499/40  . . . Amides; Hydrazides; Azides
499/42  . . . Compounds with a free primary amino radical attached in position 6
499/44  . . . Compounds with an amino radical acylated by carboxylic acids, attached in position 6
499/46  . . . with acyclic hydrocarbon radicals or such radicals substituted by carboxyclic or heterocyclic rings, attached to the carboxamido radical
499/48  . . . with a carbon chain, substituted by hetero atoms or by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, attached to the carboxamido radical
499/50  . . . . . substituted in beta-position to the carboxamido radical
499/52  . . . . . by oxygen or sulfur atoms
499/54  . . . . . by nitrogen atoms
499/56  . . . . . by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
499/58  . . . . . substituted in alpha-position to the carboxamido radical
499/60  . . . . . by oxygen atoms
499/62  . . . . . by sulfur atoms
499/64  . . . . . by nitrogen atoms

499/66  . . . . . . with acyclic rings as additional substituents on the carbon chain
499/68  . . . . . . with aromatic rings as additional substituents on the carbon chain
499/70  . . . . . . with hetero rings as additional substituents on the carbon chain
499/72  . . . . . . by carbon atoms having three bonds to hetero atoms
499/74  . . . . . . with carbocyclic rings directly attached to the carboxamido radical
499/76  . . . . . . with hetero rings directly attached to the carboxamido radical
499/78  . . . Compounds with an amino radical, acylated by carboxylic acid, or by nitrogen or sulfur analogues thereof, attached in position 6
499/80  . . . Compounds with a nitrogen-containing hetero ring, attached with the ring nitrogen atom in position 6
499/86  . . . with only atoms other than nitrogen atoms directly attached in position 6 and a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 2
499/861  . . . with a hydrocarbon radical or a substituted hydrocarbon radical, directly attached in position 6
499/865  . . . . . with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 6
499/87  . . . Compounds being unsubstituted in position 3 or with substituents other than only two methyl radicals attached in position 3, and with a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 2
499/88  . . . Compounds with a double bond between positions 2 and 3 and a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 2
499/881  . . . with a hydrogen atom or an unsubstituted hydrocarbon radical, attached in position 3
499/883  . . . with a substituted hydrocarbon radical attached in position 3
499/887  . . . with a hetero atom or a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 3
499/893  . . . with a hetero ring or a condensed hetero ring system, directly attached in position 3
499/897  . . . Compounds with substituents other than a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, directly attached in position 2
499/90  . . . further condensed with carbocyclic rings or ring systems
Heterocyclic compounds containing condensed hetero ring systems

501/00 Heterocyclic compounds containing 5-thia-1-azabicyclo[4.2.0]octane ring systems, i.e. compounds containing a ring system of the formula: \[
\begin{array}{c}
\text{C} \quad \text{N} \\
\text{O} \\
\text{C}
\end{array}
\]
e.g. cephalosporins;

Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring

501/02 . Preparation
501/04 . . from compounds already containing the ring or condensed ring systems, e.g. by dehydrogenation of the ring, by introduction, elimination or modification of substituents
501/06 . . . Acylation of 7-aminopenicillosporanic acid
501/08 . . by forming the ring or condensed ring systems (by microbiological processes C12P 35/00)
501/10 . . . from compounds containing the penicillin ring system
501/12 . . . Separation; Purification
501/14 . . . Compounds having a nitrogen atom directly attached in position 7
501/16 . . . with a double bond between positions 2 and 3
501/18 . . . 7-Aminopenicillosporanic or substituted 7-aminopenicillosporanic acids
501/20 . . . 7-Acylaminopenicillosporanic or substituted 7-acylaminopenicillosporanic acids in which the acyl radicals are derived from carboxylic acids
501/22 . . . . with radicals containing only hydrogen and carbon atoms, attached in position 3
501/24 . . . with hydrocarbon radicals, substituted by hetero atoms or hetero rings, attached in position 3
501/26 . . . . Methylene radicals, substituted by oxygen atoms; Lactones thereof with the 2-carboxyl group
501/28 . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted by hetero atoms
501/30 . . . . with the 7-amino-radical acylated by an aliphatic carboxylic acid
501/32 . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted on the aliphatic radical by hetero atoms
501/34 . . . . with the 7-amino radical acylated by carboxylic acids containing hetero rings
501/36 . . . . Methylene radicals, substituted by sulfur atoms
501/38 . . . . Methylene radicals, substituted by nitrogen atoms; Lactams thereof with the 2-carboxyl group; Methylene radicals substituted by nitrogen-containing hetero rings attached by the ring nitrogen atom; Quaternary compounds thereof
501/40 . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted by hetero atoms
501/42 . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid
501/44 . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted on the aliphatic radical by hetero atoms
501/46 . . . . with the 7-amino radical acylated by carboxylic acids containing hetero rings
501/50 . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted by hetero atoms
501/52 . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid
501/54 . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted on the aliphatic radical by hetero atoms
501/56 . . . . with the 7-amino radical acylated by carboxylic acids containing hetero rings
501/57 . . . . with a further substituent in position 7, e.g. cephamycines
501/58 . . . . with a nitrogen atom, which is a member of a hetero ring, attached in position 7
501/59 . . . . with hetero atoms directly attached in position 3
501/60 . . . . with a double bond between positions 3 and 4
501/62 . . . . Compounds further condensed with a carbocyclic ring or ring system

503/00 Heterocyclic compounds containing 4-oxa-1-azabicyclo[3.2.0]heptane ring systems, i.e. compounds containing a ring system of the formula: \[
\begin{array}{c}
\text{C} \quad \text{N} \\
\text{O} \\
\text{C}
\end{array}
\]
clavulanic acid derivatives; Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring

503/02 . Preparation (by microbiological processes C12P 17/18)
503/04 . . by forming the ring or condensed ring systems
503/06 . . . from compounds already containing the ring or condensed ring systems, e.g. by dehydrogenation of the ring, by introduction, elimination or modification of substituents
503/08 . . . Modification of a carboxyl group directly attached in position 2, e.g. esterification
503/10 . . . with a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 2
503/12 . . . unsubstituted in position 6
503/14 . . . with hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, other than a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, attached in position 3
503/16 . . . Radicals substituted by hetero atoms or by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical
503/18 . . . . by oxygen atoms
503/20 . . . . by sulfur atoms
503/22 . . . . by nitrogen atoms
Heterocyclic compounds containing condensed hetero ring systems

505/00 Heterocyclic compounds containing 5-oxa-1-azabicyclo [4.2.0] octane ring systems, i.e. compounds containing a ring system of the formula: \( \text{C}_7 \text{H}_6 \text{N}_1 \text{O}_1 \), e.g. oxacephalosporins;

Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring

505/02 . Preparation (by microbiological processes C12P 17/18)
505/04 . by forming the ring or condensed ring systems
505/06 . from compounds already containing the ring or condensed ring systems, e.g. by dehydrogenation of the ring, by introduction, elimination or modification of substituents
505/08 . Modification of a carboxyl group directly attached in position 2, e.g. esterification
505/10 . with a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 2
505/12 . substituted in position 7
505/14 . with hetero atoms directly attached in position 7
505/16 . Nitrogen atoms
505/18 . further acylated by radicals derived from carboxylic acids or by nitrogen or sulfur analogues thereof
505/20 . with the acylating radicals further substituted by hetero atoms or by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
505/22 . further substituted by singly-bound nitrogen atoms
505/24 . further substituted by doubly-bound nitrogen atoms

507/00 Heterocyclic compounds containing a condensed beta-lactam ring system, not provided for by groups C07D 463/00, C07D 477/00 or C07D 499/00 - C07D 507/00; Such ring systems being further condensed

507/02 . containing 3-oxa-1-azabicyclo [3.2.0] heptane ring systems
507/04 . containing 2-oxa-1-azabicyclo [4.2.0] octane ring systems
507/06 . containing 3-oxa-1-azabicyclo [4.2.0] octane ring systems
507/08 . containing 4-oxa-1-azabicyclo [4.2.0] octane ring systems

513/00 Heterocyclic compounds containing in the condensed system at least one hetero ring having nitrogen and sulfur atoms as the only ring hetero atoms, not provided for in groups C07D 463/00, C07D 477/00 or C07D 499/00 - C07D 507/00

513/02 . in which the condensed system contains two hetero rings
513/04 . Ortho-condensed systems
513/06 . Peri-condensed systems
513/08 . Bridged systems
513/10 . Spiro-condensed systems

513/12 . in which the condensed system contains three hetero rings
513/14 . Ortho-condensed systems
513/16 . Peri-condensed systems
513/18 . Bridged systems
513/20 . Spiro-condensed systems
513/22 . in which the condensed system contains four or more hetero rings

515/00 Heterocyclic compounds containing in the condensed system at least one hetero ring having nitrogen, oxygen, and sulfur atoms as the only ring hetero atoms, not provided for in groups C07D 463/00, C07D 477/00 or C07D 499/00 - C07D 507/00

515/02 . in which the condensed system contains two hetero rings
515/04 . Ortho-condensed systems
515/06 . Peri-condensed systems
515/08 . Bridged systems
515/10 . Spiro-condensed systems
515/12 . in which the condensed system contains three hetero rings
515/14 . Ortho-condensed systems
515/16 . Peri-condensed systems
515/18 . Bridged systems
515/20 . Spiro-condensed systems
515/22 . in which the condensed system contains four or more hetero rings

517/00 Heterocyclic compounds containing in the condensed system at least one hetero ring having selenium, tellurium or halogen atoms as ring hetero atoms

517/02 . in which the condensed system contains two hetero rings
517/04 . Ortho-condensed systems
517/06 . Peri-condensed systems
517/08 . Bridged systems
517/10 . Spiro-condensed systems
517/12 . in which the condensed system contains three hetero rings
517/14 . Ortho-condensed systems
517/16 . Peri-condensed systems
517/18 . Bridged systems
517/20 . Spiro-condensed systems
517/22 . in which the condensed system contains four or more hetero rings

519/00 Heterocyclic compounds containing more than one system of two or more relevant hetero rings condensed among themselves or condensed with a common carbocyclic ring system not provided for in groups C07D 453/00 or C07D 455/00

519/02 . Ergot alkaloids of the cyclic peptide type
519/04 . Dimeric indole alkaloids, e.g. vincaleucoblastine
519/06 . containing at least one condensed beta-lactam ring system, provided for by groups C07D 463/00, C07D 477/00 or C07D 499/00 - C07D 507/00, e.g. a penem or a cepham system
521/00  Heterocyclic compounds containing unspecified hetero rings

**NOTE**

This group is only used for the classification of heterocyclic compounds the chemical structure of which is not specified, i.e. only in those cases where the heterocyclic compounds cannot be classified in any of groups C07D 201/00 - C07D 519/00.