# ECLA EUROPEAN CLASSIFICATION

## C07D HETEROCYCLIC COMPOUNDS

**Guide heading:** **Heterocyclic compounds having only nitrogen as ring hetero atom**

**C07D201/00** **Preparation, separation, purification or stabilisation of unsubstituted lactams**

C07D201/02 . Preparation of lactams
C07D201/04 . . from or via oximes by Beckmann rearrangement
C07D201/06 . . . from ketones by simultaneous oxime formation and rearrangement
C07D201/08 . . from carboxylic acids or derivatives thereof, e.g. hydroxycarboxylic acids, lactones, nitriles
C07D201/10 . . from cycloaliphatic compounds by simultaneous nitrosylation and rearrangement
C07D201/12 . . by depolymerising polyamides

C07D201/14 . Preparation of salts or adducts of lactams

C07D201/16 . Separation or purification (separation of inorganic salts C01)

C07D201/18 . Stabilisation

**Guide heading:** **Heterocyclic compounds having only nitrogen as ring hetero atom**

**C07D203/00** **Heterocyclic compounds containing three-membered rings with one nitrogen atom as the only ring hetero atom**

C07D203/02 . Preparation by ring-closure

C07D203/04 . not condensed with other rings
C07D203/06 . . having no double bonds between ring members or between ring members and non-ring members
C07D203/08 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to the ring nitrogen atom
C07D203/10 . . . . Radicals substituted by singly bound oxygen atoms
C07D203/12 . . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical
C07D203/14 . . . . with carbocyclic rings directly attached to the ring nitrogen atom
C07D203/16 . . . with acylated ring nitrogen atoms
C07D203/18 . . . . by carboxylic acids, or by sulfur or nitrogen analogues thereof
C07D203/20 . . . . by carbonic acid, or by sulfur or nitrogen analogues thereof, e.g. carbamates
C07D203/22 . . . with hetero atoms directly attached to the ring nitrogen atom
C07D203/24 . . . . Sulfur atoms

C07D203/26 . condensed with carbocyclic rings or ring systems

**C07D205/00** **Heterocyclic compounds containing four-membered rings with one nitrogen atom as the only ring hetero atom**

C07D205/02 . not condensed with other rings
C07D205/04 . . having no double bonds between ring members or between ring members and non-ring members
C07D205/06 . . having one double bond between ring members or between a ring member and a non-ring member
C07D205/08 . . . with one oxygen atom directly attached in position 2, e.g. beta-lactams
C07D205/085 . . . . with a nitrogen atom directly attached in position 3
C07D205/09 . . . . with a sulfur atom directly attached in position 4
C07D205/095 . . . . . and with a nitrogen atom directly attached in position 3
C07D205/10 . . having two double bonds between ring members or between ring members and non-ring members

C07D205/12 . condensed with carbocyclic rings or ring systems

**C07D207/00** **Heterocyclic compounds containing five-membered rings not condensed with other rings, with one nitrogen atom as the only ring hetero atom**

[N: **Notes**[N0907]
Pyrrolidines having only hydrogen atoms attached to the ring carbon atoms are classified in C07D295/00
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C07D207/02 . with only hydrogen or carbon atoms directly attached to the ring nitrogen atom
C07D207/04 . . having no double bonds between ring members or between ring members and non-ring members
C07D207/06 . . . with radicals, containing only hydrogen and carbon atoms, attached to ring carbon atoms
C07D207/08 . . . with hydrocarbon radicals, substituted by hetero atoms, attached to ring carbon atoms
C07D207/09 . . . . Radicals substituted by nitrogen atoms, not forming part of a nitro radical
C07D207/10 . . . 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
C07D207/12 . . . . Oxygen or sulfur atoms
C07D207/14 . . . . Nitrogen atoms not forming part of a nitro radical
C07D207/16 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
C07D207/18 . . having one double bond between ring members or between a ring member and a non-ring member
C07D207/20 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
C07D207/22 . . . 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
C07D207/24 . . . . Oxygen or sulfur atoms

C07D207/26 . . . . . 2-Pyrrolidones

C07D207/263 . . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to other ring carbon atoms [N0710]

C07D207/267 . . . . . {7 dots} with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to the ring nitrogen atom [N0710]

C07D207/27 . . . . . {7 dots} with substituted hydrocarbon radicals directly attached to the ring nitrogen atom [N0710]

C07D207/273 . . . . . 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 [N0710]

C07D207/277 . . . . . {7 dots} Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals [N0710]

C07D207/28 . . . . . {8 dots} 2-Pyrrolidone-5- carboxylic acids; Functional derivatives thereof, e.g. esters, nitriles [N0805]

C07D207/30 . . having two double bonds between ring members or between ring members and non-ring members

C07D207/32 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D207/323 . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to the ring nitrogen atoms [N0710]

C07D207/325 . . . . with substituted hydrocarbon radicals directly attached to the ring nitrogen atom [N0710]

C07D207/327 . . . . . 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 [N0710]

C07D207/33 . . . . with substituted hydrocarbon radicals, directly attached to ring carbon atoms [N0710]

C07D207/333 . . . . . Radicals substituted by oxygen or sulfur atoms [N0710]

C07D207/335 . . . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical [N0710]

C07D207/337 . . . . . 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 [N0710]

C07D207/34 . . . 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

C07D207/36 . . . . Oxygen or sulfur atoms

C07D207/38 . . . . . 2-Pyrrolones

C07D207/40 . . . . . 2,5-Pyrrolidine-diones

C07D207/404 . . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to other ring carbon atoms, e.g. succinimide [N0710]

C07D207/408 . . . . . {7 dots} Radicals containing only hydrogen and carbon atoms attached to ring carbon atoms [N0710]

C07D207/412 . . . . . {8 dots} Acyclic radicals containing more than six carbon atoms [N0710]

C07D207/416 . . . . . 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 [N0710]

C07D207/42 . . . . Nitro radicals

C07D207/44 . . having three double bonds between ring members or between ring members and non-ring members

C07D207/444 . . . having two doubly-bound oxygen atoms directly attached in positions 2 and 5 [N0710]

C07D207/448 . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms directly attached to other ring carbon atoms, e.g. maleimide [N0710]

C07D207/452 . . . . . with hydrocarbon radicals, substituted by hetero atoms, directly attached to the ring nitrogen atom [N0710]

C07D207/456 . . . . 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 [N0710]

C07D207/46 . with hetero atoms directly attached to the ring nitrogen atom

C07D207/48 . . Sulfur atoms

C07D207/50 . . Nitrogen atoms

**C07D209/00 Heterocyclic compounds containing five-membered rings, condensed with other rings, with one nitrogen atom as the only ring hetero atom**

C07D209/02 . condensed with one carbocyclic ring

C07D209/04 . . Indoles; Hydrogenated indoles

C07D209/06 . . . Preparation of indole from coal-tar

C07D209/08 . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to carbon atoms of the hetero ring

C07D209/10 . . . with substituted hydrocarbon radicals attached to carbon atoms of the hetero ring [C9409]

C07D209/12 . . . . Radicals substituted by oxygen atoms

C07D209/14 . . . . Radicals substituted by nitrogen atoms, not forming part of a nitro radical

C07D209/16 . . . . . Tryptamines

C07D209/18 . . . . 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

C07D209/20 . . . . . substituted additionally by nitrogen atoms, e.g. tryptophane

C07D209/22 . . . . . with an aralkyl radical attached to the ring nitrogen atom

C07D209/24 . . . . . with an alkyl or cycloalkyl radical attached to the ring nitrogen atom

C07D209/26 . . . . . with an acyl radical attached to the ring nitrogen atom

C07D209/28 . . . . . 1-(4-Chlorobenzoyl)-2-methyl-indolyl-3-acetic acid, substituted in position 5 by an oxygen or nitrogen atom; Esters thereof

C07D209/30 . . . 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

C07D209/32 . . . . Oxygen atoms

C07D209/34 . . . . . in position 2

C07D209/36 . . . . . in position 3, e.g. adrenochrome

C07D209/38 . . . . . in position 2 and 3, e.g. isatin

C07D209/40 . . . . Nitrogen atoms, not forming part of a nitro radical, e.g. isatin semicarbazone

C07D209/42 . . . . Carbon atoms having three bonds to hetero atoms with at the most one

bond to halogen, e.g. ester or nitrile radicals

C07D209/43 . . . with an -OCH2CH(OH)CH2NH2 radical, which may be further substituted, attached in positions 4, 5, 6 or 7 [N0710]

C07D209/44 . . Iso-indoles; Hydrogenated iso-indoles

C07D209/46 . . . with an oxygen atom in position 1

C07D209/48 . . . with oxygen atoms in positions 1 and 3, e.g. phthalimide

C07D209/49 . . . . and having in the molecule an acyl radical containing a saturated three-membered ring, e.g. chrysanthemumic acid esters [N0710]

C07D209/50 . . . . with oxygen and nitrogen atoms in positions 1 and 3

C07D209/52 . . condensed with a ring other than six-membered

C07D209/54 . . Spiro-condensed

C07D209/56 . Ring systems containing three or more rings

C07D209/58 . . [b]- or [c]-condensed

C07D209/60 . . . Naphtho [b] pyrroles; Hydrogenated naphtho [b] pyrroles

C07D209/62 . . . Naphtho [c] pyrroles; Hydrogenated naphtho [c] pyrroles

C07D209/64 . . . . with an oxygen atom in position 1

C07D209/66 . . . . with oxygen atoms in positions 1 and 3

C07D209/68 . . . . with oxygen and nitrogen atoms in positions 1 and 3

C07D209/70 . . . containing carbocyclic rings other than six-membered

C07D209/72 . . . 4,7-Endo-alkylene-iso-indoles

C07D209/74 . . . . with an oxygen atom in position 1

C07D209/76 . . . . with oxygen atoms in positions 1 and 3

C07D209/78 . . . . with oxygen and nitrogen atoms in positions 1 and 3

C07D209/80 . . [b, c]- or [b, d]-condensed

C07D209/82 . . . Carbazoles; Hydrogenated carbazoles

C07D209/84 . . . . Separation, e.g. from tar; Purification

C07D209/86 . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to carbon atoms of the ring system

C07D209/88 . . . . 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

C07D209/90 . . . Benzo [c, d] indoles; Hydrogenated benzo [c, d] indoles

C07D209/92 . . . . Naphthostyrils

C07D209/94 . . containing carbocyclic rings other than six-membered

C07D209/96 . . Spiro-condensed ring systems

**C07D211/00 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 C07D295/00

C07D211/02 . Preparation by ring-closure or hydrogenation

C07D211/04 . with only hydrogen or carbon atoms directly attached to the ring nitrogen atom

C07D211/06 . . having no double bonds between ring members or between ring members and non-ring members

C07D211/08 . . . with hydrocarbon or substituted hydrocarbon radicals directly attached to ring carbon atoms

C07D211/10 . . . . with radicals containing only carbon and hydrogen atoms attached to ring carbon atoms

C07D211/12 . . . . . with only hydrogen atoms attached to the ring nitrogen atom

C07D211/14 . . . . . with hydrocarbon or substituted hydrocarbon radicals attached to the ring nitrogen atom

C07D211/16 . . . . . with acylated ring nitrogen atom

C07D211/18 . . . . with substituted hydrocarbon radicals attached to ring carbon atoms [C9409]

C07D211/20 . . . . . with hydrocarbon radicals, substituted by singly bound oxygen or sulfur atoms (bound to the same carbon atom C07D211/30)

C07D211/22 . . . . . by oxygen atoms

C07D211/24 . . . . . by sulfur atoms to which a second hetero atom is attached

C07D211/26 . . . . . with hydrocarbon radicals, substituted by nitrogen atoms

C07D211/28 . . . . . to which a second hetero atom is attached

C07D211/30 . . . . . 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

C07D211/32 . . . . . by oxygen atoms

C07D211/34 . . . . . 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

C07D211/36 . . . 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

C07D211/38 . . . . Halogen atoms or nitro radicals

C07D211/40 . . . . Oxygen atoms

C07D211/42 . . . . . attached in position 3 or 5

C07D211/44 . . . . . attached in position 4

C07D211/46 . . . . . having a hydrogen atom as the second substituent in position 4

C07D211/48 . . . . . having an acyclic carbon atom attached in position 4

C07D211/50 . . . . . {7 dots} Aroyl radical

C07D211/52 . . . . . having an aryl radical as the second substituent in position 4

C07D211/54 . . . . Sulfur atoms

C07D211/56 . . . . Nitrogen atoms (nitro radicals C07D211/38)

C07D211/58 . . . . . attached in position 4

C07D211/60 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals

C07D211/62 . . . . . attached in position 4

C07D211/64 . . . . . having an aryl radical as the second substituent in position 4

C07D211/66 . . . . . having a hetero atom as the second substituent in position 4

C07D211/68 . . having one double bond between ring members or between a ring member and a non-ring member

C07D211/70 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D211/72 . . . 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

C07D211/74 . . . . Oxygen atoms

C07D211/76 . . . . . attached in position 2 or 6

C07D211/78 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

C07D211/80 . . having two double bonds between ring members or between ring members and non-ring members

C07D211/82 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D211/84 . . . 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

C07D211/86 . . . . Oxygen atoms

C07D211/88 . . . . . attached in positions 2 and 6, e.g. glutarimide

C07D211/90 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

C07D211/92 . with a hetero atom directly attached to the ring nitrogen atom

C07D211/94 . . Oxygen atom, e.g. piperidine N-oxide

C07D211/96 . . Sulfur atom

C07D211/98 . . Nitrogen atom

**C07D213/00 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**

C07D213/02 . having three double bonds between ring members or between ring members and non-ring members

C07D213/04 . . 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

C07D213/06 . . . containing only hydrogen and carbon atoms in addition to the ring nitrogen atom

C07D213/08 . . . . Preparation by ring-closure

C07D213/09 . . . . . involving the use of ammonia, amines, amine salts, or nitriles [N0710]

C07D213/10 . . . . . from acetaldehyde or cyclic polymers thereof

C07D213/12 . . . . . from unsaturated compounds

C07D213/127 . . . . Preparation from compounds containing pyridine rings [N0710]

C07D213/133 . . . . Preparation by dehydrogenation of hydrogenated pyridine compounds [N0710]
C07D213/14 . . . . Preparation from compounds containing heterocyclic oxygen
C07D213/16 . . . . Containing only one pyridine ring
C07D213/18 . . . . . Salts thereof
C07D213/20 . . . . . Quaternary compounds thereof
C07D213/22 . . . . containing two or more pyridine rings directly linked together, e.g. bipyridyl
C07D213/24 . . . with substituted hydrocarbon radicals attached to ring carbon atoms
C07D213/26 . . . . Radicals substituted by halogen atoms or nitro radicals
C07D213/28 . . . . Radicals substituted by singly-bound oxygen or sulfur atoms (bound to the same carbon atom C07D213/44)
C07D213/30 . . . . . Oxygen atoms
C07D213/32 . . . . . Sulfur atoms
C07D213/34 . . . . . to which a second heteroatom is attached
C07D213/36 . . . . Radicals substituted by singly-bound nitrogen atoms (nitro radicals C07D213/26)
C07D213/38 . . . . . having only hydrogen, hydrocarbon radicals attached to the substituent nitrogen atom
C07D213/40 . . . . . Acylated substituent nitrogen atom
C07D213/42 . . . . . having hetero atoms attached to the substituent nitrogen atom (nitro radicals C07D213/26)
C07D213/44 . . . . Radicals substituted by doubly-bound oxygen, sulfur, or nitrogen atoms, or by two such atoms singly-bound to the same carbon atom
C07D213/46 . . . . . Oxygen atoms
C07D213/48 . . . . . Aldehydo radicals
C07D213/50 . . . . . Ketonic radicals
C07D213/51 . . . . . Acetal radicals
C07D213/52 . . . . . Sulfur atoms
C07D213/53 . . . . . Nitrogen atoms
C07D213/54 . . . . Radicals substituted by carbon atoms having three bonds to heteroatoms, with at the most one to halogen, e.g. ester or nitrile radicals
C07D213/55 . . . . . Acids; Esters
C07D213/56 . . . . . Amides [C0905]
C07D213/57 . . . . . Nitriles [C0905]
C07D213/58 . . . . . Amidines [C0905]
C07D213/59 . . . . . with at least one of the bonds being to sulfur
C07D213/60 . . . with heteroatoms 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
C07D213/61 . . . . Halogen atoms or nitro radicals
C07D213/62 . . . . Oxygen or sulfur atoms
C07D213/63 . . . . . One oxygen atom
C07D213/64 . . . . . attached in position 2 or 6
C07D213/643 . . . . . {7 dots} 2-Phenoxypyridines; Derivatives thereof [N0710]
C07D213/647 . . . . . {7 dots} and having in the molecule an acyl radical containing a

urated three-membered ring, e.g. chrysanthemumic acid esters [N0710]

C07D213/65 . . . . . attached in position 3 or 5

C07D213/66 . . . . . {7 dots} having in position 3 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

C07D213/67 . . . . . {8 dots} 2-Methyl-3-hydroxy-4,5-bis(hydroxy-methyl)pyridine, i.e. pyridoxine

C07D213/68 . . . . . attached in position 4

C07D213/69 . . . . . Two or more oxygen atoms

C07D213/70 . . . . Sulfur atoms

C07D213/71 . . . . . to which a second hetero atom is attached

C07D213/72 . . . . Nitrogen atoms (nitro radicals C07D213/61)

C07D213/73 . . . . . Unsubstituted amino or imino radicals

C07D213/74 . . . . . Amino or imino radicals substituted by hydrocarbon or substituted hydrocarbon radicals

C07D213/75 . . . . . Amino or imino radicals, acylated by carboxylic or carbonic acids, or by sulfur or nitrogen analogues thereof, e.g. carbamates

C07D213/76 . . . . . to which a second hetero atom is attached (nitro radicals C07D213/61)

C07D213/77 . . . . . Hydrazine radicals

C07D213/78 . . . . Carbon atoms having three bonds to hetero atoms, with at the most one to halogen, e.g. ester or nitrile radicals

C07D213/79 . . . . . Acids; Esters

C07D213/80 . . . . . in position 3

C07D213/803 . . . . . Processes of preparation [N0710]

C07D213/807 . . . . . {7 dots} Processes of preparation [N0710]

C07D213/81 . . . . . Amides; Imides

C07D213/82 . . . . . in position 3

C07D213/83 . . . . . Thio-acids; Thio-esters; Thio-amides; Thio-imides

C07D213/84 . . . . . Nitriles

C07D213/85 . . . . . in position 3

C07D213/86 . . . . . Hydrazides; Thio or imino analogues thereof

C07D213/87 . . . . . in position 3

C07D213/88 . . . . . Nicotinoylhydrazones

C07D213/89 . . with hetero atoms directly attached to the ring nitrogen atom

C07D213/90 . having more than three double bonds between ring members or between ring members and non-ring members

**C07D215/00 Heterocyclic compounds containing quinoline or hydrogenated quinoline ring systems**

C07D215/02 . 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

C07D215/04 . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to the ring carbon atoms

C07D215/06 . . . having only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached to the ring nitrogen atom

C07D215/08 . . . with acylated ring nitrogen atom

C07D215/10 . . . Quaternary compounds

C07D215/12 . . with substituted hydrocarbon radicals attached to ring carbon atoms

C07D215/14 . . . Radicals substituted by oxygen atoms

C07D215/16 . . 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

C07D215/18 . . . Halogen atoms or nitro radicals

C07D215/20 . . . Oxygen atoms (quinophthalones C09B25/00)

C07D215/22 . . . . attached in position 2 or 4

C07D215/227 . . . . . only one oxygen atom which is attached in position 2 [N0710]

C07D215/233 . . . . . only one oxygen atom which is attached in position 4 [N0710]

C07D215/24 . . . . attached in position 8

C07D215/26 . . . . . Alcohols; Ethers thereof

C07D215/28 . . . . . with halogen atoms or nitro radicals in positions 5, 6 or 7

C07D215/30 . . . . . Metal salts; Chelates

C07D215/32 . . . . . Esters

C07D215/34 . . . . . {7 dots} Carbamates

C07D215/36 . . . Sulfur atoms (C07D215/24 takes precedence)

C07D215/38 . . . Nitrogen atoms (nitro radicals C07D215/18)

C07D215/40 . . . . attached in position 8

C07D215/42 . . . . attached in position 4

C07D215/44 . . . . . with aryl radicals attached to said nitrogen atoms

C07D215/46 . . . . . with hydrocarbon radicals, substituted by nitrogen atoms, attached to said nitrogen atoms

C07D215/48 . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

C07D215/50 . . . . attached in position 4

C07D215/52 . . . . . with aryl radicals attached in position 2

C07D215/54 . . . . attached in position 3

C07D215/56 . . . . . with oxygen atoms in position 4

C07D215/58 . with hetero atoms directly attached to the ring nitrogen atom

C07D215/60 . . N-oxides

**C07D217/00 Heterocyclic compounds containing isoquinoline or hydrogenated isoquinoline ring systems**

C07D217/02 . 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

C07D217/04 . . with hydrocarbon or substituted hydrocarbon radicals attached to the ring nitrogen atom

C07D217/06 . . with the ring nitrogen atom acylated by carboxylic or carbonic acids, or with sulfur or nitrogen analogues thereof, e.g. carbamates

C07D217/08 . . with a hetero atom directly attached to the ring nitrogen atom

C07D217/10 . . Quaternary compounds

C07D217/12 . with radicals, substituted by hetero atoms, attached to carbon atoms of the nitrogen-containing ring

C07D217/14 . . other than aralkyl radicals

C07D217/16 . . . substituted by oxygen atoms

C07D217/18 . . Aralkyl radicals

C07D217/20 . . . with oxygen atoms directly attached to the aromatic ring of said aralkyl radical, e.g. papaverine

C07D217/22 . 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 nitrogen-containing ring

C07D217/24 . . Oxygen atoms

C07D217/26 . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

**C07D219/00 Heterocyclic compounds containing acridine or hydrogenated acridine ring systems**

C07D219/02 . with only hydrogen, hydrocarbon or substituted hydrocarbon radicals, directly attached to carbon atoms of the ring system

C07D219/04 . 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

C07D219/06 . . Oxygen atoms

C07D219/08 . . Nitrogen atoms (acridine dyes C09B15/00)

C07D219/10 . . . attached in position 9

C07D219/12 . . . . Amino-alkyl-amino radicals attached in position 9

C07D219/14 . with hydrocarbon radicals, substituted by nitrogen atoms, attached to the ring nitrogen atom

C07D219/16 . with acyl radicals, substituted by nitrogen atoms, attached to the ring nitrogen atom

**C07D221/00 Heterocyclic compounds containing six-membered rings having one nitrogen atom as the only ring hetero atom, not provided for by groups C07D211/00 to C07D219/00**

C07D221/02 . condensed with carbocyclic rings or ring systems

C07D221/04 . . ortho- or peri-condensed ring systems

C07D221/06 . . . Ring systems of three rings

C07D221/08 . . . . Aza-anthracenes (acridine C07D219/00)

C07D221/10 . . . . Aza-phenanthrenes

C07D221/12 . . . . . Phenanthridines
C07D221/14 . . . . Aza-phenalenes, e.g. 1,8-naphthalimide
C07D221/16 . . . . containing carbocyclic rings other than six-membered
C07D221/18 . . . Ring systems of four or more rings
C07D221/20 . . Spiro-condensed ring systems
C07D221/22 . . Bridged ring systems
C07D221/24 . . . Camphidines
C07D221/26 . . . Benzomorphans
C07D221/28 . . . Morphinans

**C07D223/00** **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 C07D295/00

C07D223/02 . not condensed with other rings
C07D223/04 . . with only hydrogen atoms, halogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
C07D223/06 . . 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 C07D223/04)
C07D223/08 . . . Oxygen atoms
C07D223/10 . . . . attached in position 2
C07D223/12 . . . Nitrogen atoms not forming part of a nitro radical

C07D223/14 . condensed with carbocyclic rings or ring systems
C07D223/16 . . Benzazepines; Hydrogenated benzazepines
C07D223/18 . . Dibenzazepines; Hydrogenated dibenzazepines
C07D223/20 . . . Dibenz [b, e] azepines; Hydrogenated dibenz [b, e] azepines
C07D223/22 . . . Dibenz [b, f] azepines; Hydrogenated dibenz [b, f] azepines
C07D223/24 . . . . with hydrocarbon radicals, substituted by nitrogen atoms, attached to the ring nitrogen atom
C07D223/26 . . . . . having a double bond between positions 10 and 11
C07D223/28 . . . . . having a single bond between positions 10 and 11
C07D223/30 . . . . with hetero atoms directly attached to the ring nitrogen atom
C07D223/32 . . containing carbocyclic rings other than six-membered

**C07D225/00** **Heterocyclic compounds containing rings of more than seven members having one nitrogen atom as the only ring hetero atom**

[N: **Notes**[N0908]
Polymethyleneimines with at least five ring members and having only hydrogen atoms attached to the ring carbon atoms are classified in group C07D295/00
]

C07D225/02 . not condensed with other rings

C07D225/04 . condensed with carbocyclic rings or ring systems

C07D225/06 . . condensed with one six-membered ring

C07D225/08 . . condensed with two six-membered rings

**C07D227/00** **Heterocyclic compounds containing rings having one nitrogen atom as the only ring hetero atom, according to more than one of groups C07D203/00 to C07D225/00**

[N: **Notes** [N0908]
Polymethyleneimines with at least five ring members and having only hydrogen atoms attached to the ring carbon atoms are classified in group C07D295/00
]

C07D227/02 . with only hydrogen or carbon atoms directly attached to the ring nitrogen atom

C07D227/04 . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached to ring carbon atoms

C07D227/06 . . 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

C07D227/08 . . . Oxygen atoms

C07D227/087 . . . . One doubly-bound oxygen atom in position 2, e.g. lactams

C07D227/093 . . . . Two doubly-bound oxygen atoms attached to the carbon atoms adjacent to the ring nitrogen atom, e.g. dicarboxylic acid imides

C07D227/10 . . . Nitrogen atoms not forming part of a nitro radical

C07D227/12 . with hetero atoms directly attached to the ring nitrogen atom

**C07D229/00** **Heterocyclic compounds containing rings of less than five members having two nitrogen atoms as the only ring hetero atoms**

C07D229/02 . containing three-membered rings [N0710]

**C07D231/00** **Heterocyclic compounds containing 1,2-diazole or hydrogenated 1,2-diazole rings**

C07D231/02 . not condensed with other rings

C07D231/04 . . having no double bonds between ring members or between ring members and non-ring members

C07D231/06 . . having one double bond between ring members or between ring members and non-ring members

C07D231/08 . . . with oxygen or sulfur atoms directly attached to ring carbon atoms [C9511]

C07D231/10 . . having two or three double bonds between ring members or between ring members and non-ring members

C07D231/12 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms [C0410]

C07D231/14 . . . 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

C07D231/16 . . . . Halogen atoms or nitro radicals

C07D231/18 . . . . One oxygen or sulfur atom
C07D231/20 . . . . . One oxygen atom attached in positions 3 or 5
C07D231/22 . . . . . with aryl radicals attached to ring nitrogen atoms
C07D231/24 . . . . . {7 dots} having sulfone or sulfonic acid radicals in the molecule
C07D231/26 . . . . . {7 dots} 1-Phenyl-3-methyl-5- pyrazolones, unsubstituted or substituted on the phenyl ring
C07D231/28 . . . . Two oxygen or sulfur atoms
C07D231/30 . . . . . attached in position 3 and 5
C07D231/32 . . . . . Oxygen atoms
C07D231/34 . . . . . {7 dots} with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, attached in position 4
C07D231/36 . . . . . {7 dots} with hydrocarbon radicals, substituted by hetero atoms, attached in position 4
C07D231/38 . . . . Nitrogen atoms (nitro radicals C07D231/16) [C9504]
C07D231/40 . . . . . Acylated on said nitrogen atom
C07D231/42 . . . . . Benzene-sulfonamido pyrazoles
C07D231/44 . . . . Oxygen and nitrogen or sulfur and nitrogen atoms
C07D231/46 . . . . . Oxygen atom in position 3 or 5 and nitrogen atom in position 4
C07D231/48 . . . . . with hydrocarbon radicals attached to said nitrogen atom
C07D231/50 . . . . . Acylated on said nitrogen atom
C07D231/52 . . . . . Oxygen atom in position 3 and nitrogen atom in position 5, or vice-versa

C07D231/54 . condensed with carbocyclic rings or ring-systems
C07D231/56 . . Benzopyrazoles; Hydrogenated benzopyrazoles

**C07D233/00 Heterocyclic compounds containing 1,3-diazole or hydrogenated 1,3-diazole rings, not condensed with other rings**

C07D233/02 . having no double bonds between ring members or between ring members and non-ring members

C07D233/04 . having one double bond between ring members or between a ring member and a non-ring member
C07D233/06 . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring carbon atoms
C07D233/08 . . . with alkyl radicals, containing more than four carbon atoms, directly attached to ring carbon atoms
C07D233/10 . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring nitrogen atoms
C07D233/12 . . . . with substituted hydrocarbon radicals attached to ring nitrogen atoms
C07D233/14 . . . . . Radicals substituted by oxygen atoms
C07D233/16 . . . . . Radicals substituted by nitrogen atoms
C07D233/18 . . . . . Radicals substituted by carbon atoms having three bonds to hetero atoms with at the most one to halogen, e.g. ester or nitrile radicals
C07D233/20 . . with substituted hydrocarbon radicals, directly attached to ring carbon atoms
C07D233/22 . . . Radicals substituted by oxygen atoms

C07D233/24 . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical

C07D233/26 . . . Radicals substituted by carbon atoms having three bonds to hetero atoms

C07D233/28 . . 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

C07D233/30 . . . Oxygen or sulfur atoms

C07D233/32 . . . . One oxygen atom

C07D233/34 . . . . . ethylene-urea [C9511]

C07D233/36 . . . . . with hydrocarbon radicals, substituted by nitrogen atoms, attached to ring nitrogen atoms

C07D233/38 . . . . . with acyl radicals or hetero atoms directly attached to ring nitrogen atoms

C07D233/40 . . . . Two or more oxygen atoms

C07D233/42 . . . . Sulfur atoms

C07D233/44 . . . Nitrogen atoms not forming part of a nitro radical

C07D233/46 . . . . with only hydrogen atoms attached to said nitrogen atoms [C9511]

C07D233/48 . . . . with acyclic hydrocarbon or substituted acyclic hydrocarbon radicals, attached to said nitrogen atoms [C9511]

C07D233/50 . . . . with acyclic hydrocarbon or substituted acyclic hydrocarbon radicals, attached to said nitrogen atoms [C9511]

C07D233/52 . . . . with hetero atoms directly attached to said nitrogen atoms [C9511]

C07D233/54 . having two double bonds between ring members or between ring members and non-ring members [C0410]

C07D233/56 . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, attached to ring carbon atoms

C07D233/58 . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, attached to ring nitrogen atoms

C07D233/60 . . . with hydrocarbon radicals, substituted by oxygen or sulfur atoms, attached to ring nitrogen atoms

C07D233/61 . . . with hydrocarbon radicals, substituted by nitrogen atoms not forming part of a nitro radical, attached to ring nitrogen atoms [N0710]

C07D233/62 . . . with triarylmethyl radicals attached to ring nitrogen atoms (triarylmethane dyes C09B11/26)

C07D233/64 . . with substituted hydrocarbon radicals attached to ring carbon atoms, e.g. histidine

C07D233/66 . . 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

C07D233/68 . . . Halogen atoms [C9504]

C07D233/70 . . . One oxygen atom [C9504]

C07D233/72 . . . Two oxygen atoms, e.g. hydantoin [C9504]

C07D233/74 . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, attached to other ring members

C07D233/76 . . . . with substituted hydrocarbon radicals attached to the third ring carbon atom

C07D233/78 . . . . . Radicals substituted by oxygen atoms

C07D233/80 . . . . with hetero atoms or acyl radicals directly attached to ring nitrogen atoms

C07D233/82 . . . . . Halogen atoms

C07D233/84 . . . Sulfur atoms

C07D233/86 . . . Oxygen and sulfur atoms, e.g. thiohydantoin [C9504]

C07D233/88 . . . Nitrogen atoms, e.g. allantoin (nitro radicals C07D233/91) [C9504]

C07D233/90 . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals

C07D233/91 . . . Nitro radicals

C07D233/92 . . . . attached in position 4 or 5

C07D233/93 . . . . . with hydrocarbon radicals, substituted by halogen atoms, attached to other ring members [C9504]

C07D233/94 . . . . . with hydrocarbon radicals, substituted by oxygen or sulfur atoms, attached to other ring members [C9504]

C07D233/95 . . . . . with hydrocarbon radicals, substituted by nitrogen atoms, attached to other ring members [C9504]

C07D233/96 . having three double bonds between ring members or between ring members and non-ring members

**C07D235/00 Heterocyclic compounds containing 1,3-diazole or hydrogenated 1,3-diazole rings, condensed with other rings**

C07D235/02 . condensed with carbocyclic rings or ring systems

C07D235/04 . . Benzimidazoles; Hydrogenated benzimidazoles

C07D235/06 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached in position 2

C07D235/08 . . . . Radicals containing only hydrogen and carbon atoms

C07D235/10 . . . . Radicals substituted by halogen atoms or nitro radicals

C07D235/12 . . . . Radicals substituted by oxygen atoms

C07D235/14 . . . . Radicals substituted by nitrogen atoms (by nitro radicals C07D235/10)

C07D235/16 . . . . 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

C07D235/18 . . . with aryl radicals directly attached in position 2

C07D235/20 . . . Two benzimidazolyl-2 radicals linked together directly or via a hydrocarbon or substituted hydrocarbon radical

C07D235/22 . . . with hetero atoms directly attached to ring nitrogen atoms (C07D235/10 takes precedence)

C07D235/24 . . . 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

C07D235/26 . . . . Oxygen atoms

C07D235/28 . . . . Sulfur atoms

C07D235/30 . . . . Nitrogen atoms not forming part of a nitro radical

C07D235/32 . . . . . Benzimidazole-2-carbamic acids, unsubstituted or substituted; Esters thereof; Thio-analogues thereof

**C07D237/00 Heterocyclic compounds containing 1,2-diazine or hydrogenated 1,2-diazine rings**

C07D237/02 . not condensed with other rings

C07D237/04 . . having less than three double bonds between ring members or between ring

members and non-ring members

C07D237/06 . . having three double bonds between ring members or between ring members and non-ring members

C07D237/08 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D237/10 . . . 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

C07D237/12 . . . . Halogen atoms or nitro radicals

C07D237/14 . . . . Oxygen atoms

C07D237/16 . . . . . Two oxygen atoms

C07D237/18 . . . . Sulfur atoms

C07D237/20 . . . . Nitrogen atoms (nitro radicals C07D237/12)

C07D237/22 . . . . Nitrogen and oxygen atoms

C07D237/24 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

C07D237/26 . condensed with carbocyclic rings or ring systems

C07D237/28 . . Cinnolines

C07D237/30 . . Phthalazines

C07D237/32 . . . with oxygen atoms directly attached to carbon atoms of the nitrogen-containing ring

C07D237/34 . . . with nitrogen atoms directly attached to carbon atoms of the nitrogen-containing ring, e.g. hydrazine radicals

C07D237/36 . . Benzo-cinnolines

**C07D239/00 Heterocyclic compounds containing 1,3-diazine or hydrogenated 1,3-diazine rings**

C07D239/02 . not condensed with other rings

C07D239/04 . . having no double bonds between ring members or between ring members and non-ring members

C07D239/06 . . having one double bond between ring members or between a ring member and a non-ring member

C07D239/08 . . . with heteroatoms directly attached in position 2

C07D239/10 . . . . Oxygen or sulfur atoms

C07D239/12 . . . . Nitrogen atoms not forming part of a nitro radical

C07D239/14 . . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals attached to said nitrogen atoms

C07D239/16 . . . . . acylated on said nitrogen atoms

C07D239/18 . . . . . with hetero atoms attached to said nitrogen atoms, except nitro radicals, e.g. hydrazine radicals

C07D239/20 . . having two double bonds between ring members or between ring members and non-ring members

C07D239/22 . . . with hetero atoms directly attached to ring carbon atoms

C07D239/24 . . having three or more double bonds between ring members or between ring members and non-ring members

C07D239/26 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals,

directly attached to ring carbon atoms

C07D239/28 . . . 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

C07D239/30 . . . . Halogen atoms or nitro radicals

C07D239/32 . . . . One oxygen, sulfur or nitrogen atom

C07D239/34 . . . . . One oxygen atom

C07D239/36 . . . . . as doubly bound atom or as unsubstituted hydroxy radical

C07D239/38 . . . . . One sulfur atom

C07D239/40 . . . . . as doubly bound sulfur atom or as unsubstituted mercapto radical

C07D239/42 . . . . . One nitrogen atom (nitro radicals C07D239/30; benzenesulfonamido-pyrimidines C07D239/69)

C07D239/46 . . . . Two or more oxygen, sulfur or nitrogen atoms (benzenesulfonamido-pyrimidines C07D239/69)

C07D239/47 . . . . . One nitrogen atom and one oxygen or sulfur atom, e.g. cytosine [N0710]

C07D239/48 . . . . . Two nitrogen atoms

C07D239/49 . . . . . with an aralkyl radical, or substituted aralkyl radical, attached in position 5, e.g. trimethoprim [N0710]

C07D239/50 . . . . . Three nitrogen atoms

C07D239/52 . . . . . Two oxygen atoms

C07D239/54 . . . . . as doubly bound oxygen atoms or as unsubstituted hydroxy radicals

C07D239/545 . . . . . {7 dots} 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 [N0710]

C07D239/553 . . . . . {8 dots} with halogen atoms or nitro radicals directly attached to ring carbon atoms, e.g. fluorouracil [N0710]

C07D239/557 . . . . . {8 dots} 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 [N0710]

C07D239/56 . . . . . One oxygen atom and one sulfur atom

C07D239/58 . . . . . Two sulfur atoms

C07D239/60 . . . . . Three or more oxygen or sulfur atoms

C07D239/62 . . . . . Barbituric acids

C07D239/64 . . . . . {7 dots} Salts of organic bases; Organic double compounds

C07D239/66 . . . . . Thiobarbituric acids

C07D239/68 . . . . . {7 dots} Salts or organic bases; Organic double compounds

C07D239/69 . . . . Benzenesulfonamido-pyrimidines

C07D239/70 . condensed with carbocyclic rings or ring systems

C07D239/72 . . Quinazolines; Hydrogenated quinazolines

C07D239/74 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached to ring carbon atoms of the hetero ring

C07D239/76 . . . . N-oxides

C07D239/78 . . . with hetero atoms directly attached in position 2

C07D239/80 . . . . Oxygen atoms

C07D239/82 . . . . . with an aryl radical attached in position 4

C07D239/84 . . . . Nitrogen atoms
C07D239/86 . . . with hetero atoms directly attached in position 4
C07D239/88 . . . . Oxygen atoms
C07D239/90 . . . . . with acyclic radicals attached in positions 2 or 3
C07D239/91 . . . . . with aryl or aralkyl radicals attached in positions 2 or 3
C07D239/92 . . . . . with hetero atoms directly attached to nitrogen atoms of the hetero ring
C07D239/93 . . . . Sulfur atoms
C07D239/94 . . . . Nitrogen atoms
C07D239/95 . . . with hetero atoms directly attached in position 2 and 4
C07D239/96 . . . . Two oxygen atoms

**C07D241/00** **Heterocyclic compounds containing 1,4-diazine or hydrogenated 1,4-diazine rings**

[N: **Note**
Piperazines with only hydrogen atoms directly attached to ring carbon atoms are classified in group C07D295/00
]

C07D241/02 . not condensed with other rings
C07D241/04 . . having no double bonds between ring members or between ring members and non-ring members
C07D241/06 . . having one or two double bonds between ring members or between ring members and non-ring members
C07D241/08 . . . with oxygen atoms directly attached to ring carbon atoms
C07D241/10 . . having three double bonds between ring members or between ring members and non-ring members
C07D241/12 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
C07D241/14 . . . 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
C07D241/16 . . . . Halogen atoms; Nitro radicals
C07D241/18 . . . . Oxygen or sulfur atoms
C07D241/20 . . . . Nitrogen atoms (nitro radicals C07D241/16)
C07D241/22 . . . . . Benzenesulfonamido pyrazines
C07D241/24 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
C07D241/26 . . . . . with nitrogen atoms directly attached to ring carbon atoms
C07D241/28 . . . . . in which said hetero-bound carbon atoms have double bonds to oxygen, sulfur or nitrogen atoms [N0710]
C07D241/30 . . . . . {7 dots} in which said hetero-bound carbon atoms are part of a substructure -C(=X)-X-C(=X)-X- in which X is an oxygen or sulfur atom or an imino radical, e.g. imidoylguanidines [N0710]
C07D241/32 . . . . . {8 dots} (Amino-pyrazinoyl) guanidines [N0710]
C07D241/34 . . . . . {8 dots} (Amino-pyrazine carbonamido) guanidines [2,5] [N0710]

C07D241/36 . condensed with carbocyclic rings or ring systems

C07D241/38 . . with only hydrogen or carbon atoms directly attached to the ring nitrogen atoms

C07D241/40 . . . Benzopyrazines

C07D241/42 . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to carbon atoms of the hetero ring

C07D241/44 . . . . 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

C07D241/46 . . . Phenazines

C07D241/48 . . . . with hydrocarbon radicals, substituted by nitrogen atoms, directly attached to the ring nitrogen atoms

C07D241/50 . . with hetero atoms directly attached to ring nitrogen atoms [N9409]

C07D241/52 . . . Oxygen atoms

C07D241/54 . . . Nitrogen atoms

**C07D243/00 Heterocyclic compounds containing seven-membered rings having two nitrogen atoms as the only ring hetero atoms**

C07D243/02 . having the nitrogen atoms in positions 1,2

C07D243/04 . having the nitrogen atoms in positions 1,3

C07D243/06 . having the nitrogen atoms in positions 1,4

C07D243/08 . . not condensed with other rings

C07D243/10 . . condensed with carbocyclic rings or ring systems

C07D243/12 . . . 1,5-Benzodiazepines; Hydrogenated 1,5-benzodiazepines

C07D243/14 . . . 1,4-Benzodiazepines; Hydrogenated 1,4-benzodiazepines

C07D243/16 . . . . substituted in position 5 by aryl radicals

C07D243/18 . . . . . substituted in position 2 by nitrogen, oxygen or sulfur atoms

C07D243/20 . . . . . Nitrogen atoms

C07D243/22 . . . . . Sulfur atoms

C07D243/24 . . . . . Oxygen atoms

C07D243/26 . . . . . {7 dots} Preparation from compounds already containing the benzodiazepine skeleton [N0710]

C07D243/28 . . . . . {7 dots} Preparation including building-up the benzodiazepine skeleton from compounds containing no hetero rings [N0710]

C07D243/30 . . . . . {7 dots} Preparation including building-up the benzodiazepine skeleton from compounds already containing hetero rings [N0710]

C07D243/32 . . . . . {8 dots} containing a phthalimide or hydrogenated phthalimide ring system [N0710]

C07D243/34 . . . . . {8 dots} containing a quinazoline or hydrogenated quinazoline ring system [N0710]

C07D243/36 . . . . . {8 dots} containing an indole or hydrogenated indole ring system [N0710]

C07D243/38 . . . [b, e]- or [b, f]-condensed with six-membered rings

**C07D245/00 Heterocyclic compounds containing rings of more than seven members having two nitrogen atoms as the only ring hetero atoms**

C07D245/02 . not condensed with other rings

C07D245/04 . condensed with carbocyclic rings or ring systems
C07D245/06 . . condensed with one six-membered ring

**C07D247/00 Heterocyclic compounds containing rings having two nitrogen atoms as the only ring hetero atoms, according to more than one of groups C07D229/00 to C07D245/00**

C07D247/02 . having the nitrogen atoms in positions 1 and 3

**C07D249/00 Heterocyclic compounds containing five-membered rings having three nitrogen atoms as the only ring hetero atoms**

C07D249/02 . not condensed with other rings
C07D249/04 . . 1,2,3-Triazoles; Hydrogenated 1,2,3-triazoles
C07D249/06 . . . with aryl radicals directly attached to ring atoms
C07D249/08 . . 1,2,4-Triazoles; Hydrogenated 1,2,4-triazoles [C0410]
C07D249/10 . . . 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
C07D249/12 . . . . Oxygen or sulfur atoms
C07D249/14 . . . . Nitrogen atoms

C07D249/16 . condensed with carbocyclic rings or ring systems
C07D249/18 . . Benzotriazoles
C07D249/20 . . . with aryl radicals directly attached in position 2
C07D249/22 . . Naphthotriazoles
C07D249/24 . . . with stilbene radicals attached in position 2

**C07D251/00 Heterocyclic compounds containing 1,3,5-triazine rings**

C07D251/02 . not condensed with other rings
C07D251/04 . . having no double bonds between ring members or between ring members and non-ring members
C07D251/06 . . . with hetero atoms directly attached to ring nitrogen atoms
C07D251/08 . . having one double bond between ring members or between a ring member and a non-ring member
C07D251/10 . . having two double bonds between ring members or between ring members and non-ring members
C07D251/12 . . having three double bonds between ring members or between ring members and non-ring members
C07D251/14 . . . with hydrogen or carbon atoms directly attached to at least one ring carbon atom
C07D251/16 . . . . to only one ring carbon atom
C07D251/18 . . . . . with nitrogen atoms directly attached to the two other ring carbon atoms,

e.g. guanamines

C07D251/20 . . . . . with no nitrogen atoms directly attached to a ring carbon atom

C07D251/22 . . . . to two ring carbon atoms

C07D251/24 . . . . to three ring carbon atoms

C07D251/26 . . . with only hetero atoms directly attached to ring carbon atoms

C07D251/28 . . . . Only halogen atoms, e.g. cyanuric chloride

C07D251/30 . . . . Only oxygen atoms

C07D251/32 . . . . . Cyanuric acid; Isocyanuric acid

C07D251/34 . . . . . Cyanuric or isocyanuric esters

C07D251/36 . . . . . having halogen atoms directly attached to ring nitrogen atoms

C07D251/38 . . . . Sulfur atoms

C07D251/40 . . . . Nitrogen atoms

C07D251/42 . . . . . One nitrogen atom

C07D251/44 . . . . . with halogen atoms attached to the two other ring carbon atoms

C07D251/46 . . . . . with oxygen or sulfur atoms attached to the two other ring carbon atoms

C07D251/48 . . . . . Two nitrogen atoms

C07D251/50 . . . . . with a halogen atom attached to the third ring carbon atom

C07D251/52 . . . . . with an oxygen or sulfur atom attached to the third ring carbon atom

C07D251/54 . . . . . Three nitrogen atoms

C07D251/56 . . . . . Preparation of melamine

C07D251/58 . . . . . {7 dots} from cyanamide, dicyanamide or calcium cyanamide

C07D251/60 . . . . . {7 dots} from urea or from carbon dioxide and ammonia

C07D251/62 . . . . . Purification of melamine

C07D251/64 . . . . . Condensation products of melamine with aldehydes; Derivatives thereof (polycondensation products C08G)

C07D251/66 . . . . . Derivatives of melamine in which a hetero atom is directly attached to a nitrogen atom of melamine

C07D251/68 . . . . . Triazinylamino stilbenes

C07D251/70 . . . . . Other substituted melamines

C07D251/72 . condensed with carbocyclic rings or ring systems

**C07D253/00 Heterocyclic compounds containing six-membered rings having three nitrogen atoms as the only ring hetero atoms, not provided for by group C07D251/00**

C07D253/02 . not condensed with other rings

C07D253/04 . . 1,2,3-Triazines

C07D253/06 . . 1,2,4-Triazines

C07D253/065 . . . having three double bonds between ring members or between ring members and non-ring members [N0710]

C07D253/07 . . . . 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 [N0710]

C07D253/075 . . . . . Two hetero atoms, in positions 3 and 5 [N0710]

C07D253/08 . condensed with carbocyclic rings or ring systems

C07D253/10 . Condensed 1, 2,4-triazines; Hydrogenated condensed 1,2,4-triazines [N0711]

**C07D255/00 Heterocyclic compounds containing rings having three nitrogen atoms as the only ring hetero atoms, not provided for by groups C07D249/00 to C07D253/00**

C07D255/02 . not condensed with other rings

C07D255/04 . condensed with carbocyclic rings or ring systems

**C07D257/00 Heterocyclic compounds containing rings having four nitrogen atoms as the only ring hetero atoms**

C07D257/02 . not condensed with other rings
C07D257/04 . . Five-membered rings
C07D257/06 . . . with nitrogen atoms directly attached to the ring carbon atom
C07D257/08 . . Six-membered rings

C07D257/10 . condensed with carbocyclic rings or ring systems
C07D257/12 . . Six-membered rings having four nitrogen atoms

**C07D259/00 Heterocyclic compounds containing rings having more than four nitrogen atoms as the only ring hetero atoms**

**Guide heading: Heterocyclic compounds having nitrogen and oxygen as the only ring hetero atoms**

**C07D261/00 Heterocyclic compounds containing 1,2-oxazole or hydrogenated 1,2-oxazole rings**

C07D261/02 . not condensed with other rings
C07D261/04 . . having one double bond between ring members or between a ring member and a non-ring member
C07D261/06 . . having two or more double bonds between ring members or between ring members and non-ring members
C07D261/08 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms
C07D261/10 . . . 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
C07D261/12 . . . . Oxygen atoms
C07D261/14 . . . . Nitrogen atoms
C07D261/16 . . . . . Benzene-sulphonamido isoxazoles
C07D261/18 . . . . Carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen

C07D261/20 . condensed with carbocyclic rings or ring systems

**C07D263/00** **Heterocyclic compounds containing 1,3-oxazole or hydrogenated 1,3-oxazole rings**

C07D263/02 . not condensed with other rings

C07D263/04 . . having no double bonds between ring members or between ring members and non-ring members

C07D263/06 . . . with hydrocarbon radicals, substituted by oxygen atoms, attached to ring carbon atoms

C07D263/08 . . having one double bond between ring members or between a ring member and a non-ring member

C07D263/10 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D263/12 . . . . with radicals containing only hydrogen and carbon atoms

C07D263/14 . . . . with radicals substituted by oxygen atoms

C07D263/16 . . . 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

C07D263/18 . . . . Oxygen atoms

C07D263/20 . . . . . attached in position 2

C07D263/22 . . . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to other ring carbon atoms

C07D263/24 . . . . . with hydrocarbon radicals, substituted by oxygen atoms, attached to other ring carbon atoms

C07D263/26 . . . . . with hetero atoms or acyl radicals directly attached to the ring nitrogen atom

C07D263/28 . . . . Nitrogen atoms not forming part of a nitro radical

C07D263/30 . . having two or three double bonds between ring members or between ring members and non-ring members

C07D263/32 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D263/34 . . . 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

C07D263/36 . . . . One oxygen atom

C07D263/38 . . . . . attached in position 2

C07D263/40 . . . . . attached in position 4

C07D263/42 . . . . . attached in position 5

C07D263/44 . . . . Two oxygen atoms

C07D263/46 . . . . Sulfur atoms

C07D263/48 . . . . Nitrogen atoms not forming part of a nitro radical

C07D263/50 . . . . . Benzene-sulphonamido oxazoles

C07D263/52 . condensed with carbocyclic rings or ring systems

C07D263/54 . . Benzoxazoles; Hydrogenated benzoxazoles

C07D263/56 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached in position 2

C07D263/57 . . . . Aryl or substituted aryl radicals [N0710]

C07D263/58 . . . 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

C07D263/60 . . Naphthoxazoles; Hydrogenated naphthoxazoles

C07D263/62 . . having two or more ring systems containing condensed 1,3-oxazole rings

C07D263/64 . . . linked in positions 2 and 2' by chains containing six-membered aromatic rings or ring systems containing such rings [N0710]

**C07D265/00** **Heterocyclic compounds containing six-membered rings having one nitrogen atom and one oxygen atom as the only ring hetero atoms**

[N: **Notes**[N0908]
Morpholines having only hydrogen atoms attached to the ring carbon atoms are classified in C07D295/00
]

C07D265/02 . 1,2-Oxazines; Hydrogenated 1,2-oxazines

C07D265/04 . 1,3-Oxazines; Hydrogenated 1,3-oxazines

C07D265/06 . . not condensed with other rings

C07D265/08 . . . having one double bond between ring members or between a ring member and a non-ring member

C07D265/10 . . . . with oxygen atoms directly attached to ring carbon atoms

C07D265/12 . . condensed with carbocyclic rings or ring systems

C07D265/14 . . . condensed with one six-membered ring

C07D265/16 . . . . with only hydrogen or carbon atoms directly attached in positions 2 and 4

C07D265/18 . . . . with hetero atoms directly attached in position 2

C07D265/20 . . . . with hetero atoms directly attached in position 4

C07D265/22 . . . . . Oxygen atoms

C07D265/24 . . . . with hetero atoms directly attached in positions 2 and 4

C07D265/26 . . . . . Two oxygen atoms, e.g. isatoic anhydride

C07D265/28 . 1,4-Oxazines; Hydrogenated 1,4-oxazines

C07D265/30 . . not condensed with other rings

C07D265/32 . . . with oxygen atoms directly attached to ring carbon atoms

C07D265/33 . . . . Two oxygen atoms, in positions 3 and 5 [N0710]

C07D265/34 . . condensed with carbocyclic rings

C07D265/36 . . . condensed with one six-membered ring

C07D265/38 . . . [b, e]-condensed with two six-membered rings

**C07D267/00** **Heterocyclic compounds containing rings of more than six members having one nitrogen atom and one oxygen atom as the only ring hetero atoms**

C07D267/02 . Seven-membered rings

C07D267/04 . . having the hetero atoms in positions 1 and 2

C07D267/06 . . having the hetero atoms in positions 1 and 3

C07D267/08 . . having the hetero atoms in positions 1 and 4
C07D267/10 . . . not condensed with other rings
C07D267/12 . . . condensed with carbocyclic rings or ring systems
C07D267/14 . . . . condensed with one six-membered ring
C07D267/16 . . . . condensed with two six-membered rings
C07D267/18 . . . . . [b, e]-condensed
C07D267/20 . . . . . [b, f]-condensed

C07D267/22 . Eight-membered rings

**C07D269/00** **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 C07D261/00 to C07D267/00**

C07D269/02 . having the hetero atoms in positions 1 and 3

**C07D271/00** **Heterocyclic compounds containing five-membered rings having two nitrogen atoms and one oxygen atom as the only ring hetero atoms**

C07D271/02 . not condensed with other rings
C07D271/04 . . 1,2,3-Oxadiazoles; Hydrogenated 1,2,3-oxadiazoles
C07D271/06 . . 1,2,4-Oxadiazoles; Hydrogenated 1,2,4-oxadiazoles
C07D271/07 . . . with oxygen, sulfur or nitrogen atoms, directly attached to ring carbon atoms, the nitrogen atoms not forming part of a nitro radical [N0710]
C07D271/08 . . 1,2,5-Oxadiazoles; Hydrogenated 1,2,5-oxadiazoles
C07D271/10 . . 1,3,4-Oxadiazoles; Hydrogenated 1,3,4-oxadiazoles
C07D271/107 . . . with two aryl or substituted aryl radicals attached in positions 2 and 5 [N0710]
C07D271/113 . . . with oxygen, sulfur or nitrogen atoms, directly attached to ring carbon atoms, the nitrogen atoms not forming part of a nitro radical [N0710]

C07D271/12 . condensed with carbocyclic rings or ring systems

**C07D273/00** **Heterocyclic compounds containing rings having nitrogen and oxygen atoms as the only ring hetero atoms, not provided for by groups C07D261/00 to C07D271/00**

C07D273/01 . having one nitrogen atom [N0710]

C07D273/02 . having two nitrogen atoms and only one oxygen atom
C07D273/04 . . Six-membered rings
C07D273/06 . . Seven-membered rings

C07D273/08 . having two nitrogen atoms and more than one oxygen atom [N0710]

**Guide heading:** **Heterocyclic compounds having nitrogen and sulfur as the only ring hetero atoms**

**C07D275/00** **Heterocyclic compounds containing 1,2-thiazole or hydrogenated 1,2-thiazole rings**

C07D275/02 . not condensed with other rings

C07D275/03 . . 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 [N0710]

C07D275/04 . condensed with carbocyclic rings or ring systems

C07D275/06 . . with hetero atoms directly attached to the ring sulfur atom

**C07D277/00 Heterocyclic compounds containing 1,3-thiazole or hydrogenated 1,3-thiazole rings**

C07D277/02 . not condensed with other rings

C07D277/04 . . having no double bonds between ring members or between ring members and non-ring members

C07D277/06 . . . 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

C07D277/08 . . having one double bond between ring members or between a ring member and a non-ring member

C07D277/10 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D277/12 . . . 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

C07D277/14 . . . . Oxygen atoms

C07D277/16 . . . . Sulfur atoms

C07D277/18 . . . . Nitrogen atoms

C07D277/20 . . having two or three double bonds between ring members or between ring members and non-ring members

C07D277/22 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D277/24 . . . . Radicals substituted by oxygen atoms

C07D277/26 . . . . Radicals substituted by sulfur atoms

C07D277/28 . . . . Radicals substituted by nitrogen atoms

C07D277/30 . . . . 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

C07D277/32 . . . 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

C07D277/34 . . . . Oxygen atoms

C07D277/36 . . . . Sulfur atoms

C07D277/38 . . . . Nitrogen atoms [C0210]

C07D277/40 . . . . . Unsubstituted amino or imino radicals

C07D277/42 . . . . . Amino or imino radicals substituted by hydrocarbon or substituted hydrocarbon radicals [C0210]

C07D277/44 . . . . . Acylated amino or imino radicals

C07D277/46 . . . . . by carboxylic acids, or sulfur or nitrogen analogues thereof

C07D277/48 . . . . . by radicals derived from carbonic acid, or sulfur or nitrogen analogues

thereof, e.g. carbonylguanidines

C07D277/50 . . . . . Nitrogen atoms bound to hetero atoms (nitro radicals C07D277/58)

C07D277/52 . . . . . to sulfur atoms, e.g. sulfonamides

C07D277/54 . . . . Nitrogen and either oxygen or sulfur atoms

C07D277/56 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

C07D277/58 . . . . Nitro radicals

C07D277/587 . . . 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. (image) with m >= 0, Z being a singly or a doubly bound hetero atom [N0710]

C07D277/593 . . . . Z being doubly bound oxygen or doubly bound nitrogen, which nitrogen is part of a possibly substituted oximino radical [N0710]

C07D277/60 . condensed with carbocyclic rings or ring-systems

C07D277/62 . . Benzothiazoles

C07D277/64 . . . with only hydrocarbon or substituted hydrocarbon radicals attached in position 2

C07D277/66 . . . . with aromatic rings or ring systems directly attached in position 2

C07D277/68 . . . 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

C07D277/70 . . . . Sulfur atoms

C07D277/72 . . . . . 2-Mercaptobenzothiazole

C07D277/74 . . . . . Sulfur atoms substituted by carbon atoms

C07D277/76 . . . . . Sulfur atoms attached to a second hetero atom

C07D277/78 . . . . . to a sulfur atom

C07D277/80 . . . . . to a nitrogen atom

C07D277/82 . . . . Nitrogen atoms

C07D277/84 . . Naphthothiazoles

**C07D279/00** **Heterocyclic compounds containing six-membered rings having one nitrogen atom and one sulfur atom as the only ring hetero atoms**

[N: **Notes**[C0909]
Thiomorpholines having only hydrogen atoms attached to the ring carbon atoms are classified in C07D295/00
]

C07D279/02 . 1,2-Thiazines; Hydrogenated 1,2-thiazines

C07D279/04 . 1,3-Thiazines; Hydrogenated 1,3-thiazines

C07D279/06 . . not condensed with other rings

C07D279/08 . . condensed with carbocyclic rings or ring systems

C07D279/10 . 1,4-Thiazines; Hydrogenated 1,4-thiazines

C07D279/12 . . not condensed with other rings

C07D279/14 . . condensed with carbocyclic rings or ring systems
C07D279/16 . . . condensed with one six-membered ring
C07D279/18 . . . [b, e]-condensed with two six-membered rings
C07D279/20 . . . . with hydrogen atoms directly attached to the ring nitrogen atom
C07D279/22 . . . . with carbon atoms directly attached to the ring nitrogen atom
C07D279/24 . . . . . with hydrocarbon radicals, substituted by amino radicals, attached to the ring nitrogen atom
C07D279/26 . . . . . . without other substituents attached to the ring system
C07D279/28 . . . . . . with other substituents attached to the ring system
C07D279/30 . . . . . with acyl radicals attached to the ring nitrogen atom
C07D279/32 . . . . with hetero atoms directly attached to the ring nitrogen atom
C07D279/34 . . . . with hetero atoms directly attached to the ring sulfur atom
C07D279/36 . . . [b, e]-condensed, at least one with a further condensed benzene ring

**C07D281/00 Heterocyclic compounds containing rings of more than six members having one nitrogen atom and one sulfur atom as the only ring hetero atoms**

C07D281/02 . Seven-membered rings
C07D281/04 . . having the hetero atoms in positions 1 and 4
C07D281/06 . . . not condensed with other rings
C07D281/08 . . . condensed with carbocyclic rings or ring systems
C07D281/10 . . . . condensed with one six-membered ring
C07D281/12 . . . . condensed with two six-membered rings
C07D281/14 . . . . . [b, e]-condensed
C07D281/16 . . . . . [b, f]-condensed

C07D281/18 . Eight-membered rings

**C07D283/00 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 C07D275/00 to C07D281/00**

C07D283/02 . having the hetero atoms in positions 1 and 3

**C07D285/00 Heterocyclic compounds containing rings having nitrogen and sulfur atoms as the only ring hetero atoms, not provided for by groups C07D275/00 to C07D283/00**

C07D285/01 . Five-membered rings [N0710]
C07D285/02 . . Thiadiazoles; Hydrogenated thiadiazoles [C0710]
C07D285/04 . . . not condensed with other rings [C0710]
C07D285/06 . . . . 1,2,3-Thiadiazoles; Hydrogenated 1,2,3-thiadiazoles [C0710]
C07D285/08 . . . . 1,2,4-Thiadiazoles; Hydrogenated 1,2,4-thiadiazoles [C0710]
C07D285/10 . . . . 1,2,5-Thiadiazoles; Hydrogenated 1,2,5-thiadiazoles [C0710]
C07D285/12 . . . . 1,3,4-Thiadiazoles; Hydrogenated 1,3,4-thiadiazoles [C0710]

C07D285/125 . . . . . with oxygen, sulfur or nitrogen atoms, directly attached to ring carbon atoms, the nitrogen atoms not forming part of a nitro radical [N0710]

C07D285/13 . . . . . Oxygen atoms [N0710]

C07D285/135 . . . . . Nitrogen atoms [N0710]

C07D285/14 . . . condensed with carbocyclic rings or ring systems [C0710]

C07D285/15 . Six-membered rings [N0710]

C07D285/16 . . Thiadiazines; Hydrogenated thiadiazines [C0710]

C07D285/18 . . . 1,2,4-Thiadiazines; Hydrogenated 1,2,4-thiadiazines [C0710]

C07D285/20 . . . . condensed with carbocyclic rings or ring systems [C0710]

C07D285/22 . . . . . condensed with one six-membered ring [C0710]

C07D285/24 . . . . . with oxygen atoms directly attached to the ring sulfur atom [C0710]

C07D285/26 . . . . . {7 dots} substituted in position 6 or 7 by sulfamoyl or substituted sulfamoyl radicals [C0710]

C07D285/28 . . . . . {8 dots} with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached in position 3 [C0710]

C07D285/30 . . . . . {8 dots} with hydrocarbon radicals, substituted by hetero atoms attached in position 3 [C0710]

C07D285/32 . . . . . {8 dots} 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 [C0710]

C07D285/34 . . . 1,3,5-Thiadiazines; Hydrogenated 1,3,5-thiadiazines [C0710]

C07D285/36 . Seven-membered rings

C07D285/38 . Eight-membered rings

**C07D291/00 Heterocyclic compounds containing rings having nitrogen, oxygen and sulfur atoms as the only ring hetero atoms**

C07D291/02 . not condensed with other rings

C07D291/04 . . Five-membered rings

C07D291/06 . . Six-membered rings

C07D291/08 . condensed with carbocyclic rings or ring systems

**C07D293/00 Heterocyclic compounds containing rings having nitrogen and selenium or nitrogen and tellurium, with or without oxygen or sulfur atoms, as the ring hetero atoms**

C07D293/02 . not condensed with other rings

C07D293/04 . . Five-membered rings

C07D293/06 . . . Selenazoles; Hydrogenated selenazoles

C07D293/08 . . Six-membered rings

C07D293/10 . condensed with carbocyclic rings or ring systems

C07D293/12 . . Selenazoles; Hydrogenated selenazoles

**C07D295/00 Heterocyclic compounds containing polymethylene-imine rings with at least five ring members, 3-azabicylo [3.2.2.] nonane, piperazine, morpholine or thiomorpholine rings, having only hydrogen atoms directly attached to the ring carbon atoms**

C07D295/02 . containing only hydrogen and carbon atoms in addition to the ring hetero elements
C07D295/023 . . Preparation; Separation; Stabilisation; Use of additives [N0710]
C07D295/027 . . containing only one hetero ring [N0710]
C07D295/03 . . . with the ring nitrogen atoms directly attached to acyclic carbon atoms [N0710]
C07D295/033 . . . with the ring nitrogen atoms directly attached to carbocyclic rings [N0710]
C07D295/037 . . with quaternary ring nitrogen atoms [N0710]

C07D295/04 . with substituted hydrocarbon radicals attached to ring nitrogen atoms [C9409]
C07D295/06 . . substituted by halogen atoms or nitro radicals
C07D295/067 . . . with the ring nitrogen atoms and the substituents attached to the same carbon chain, which is not interrupted by carbocyclic rings [N0710]
C07D295/073 . . . with the ring nitrogen atoms and the substituents separated by carbocyclic rings or by carbon chains interrupted by carbocyclic rings [N0710]
C07D295/08 . . substituted by singly bound oxygen or sulfur atoms
C07D295/084 . . . with the ring nitrogen atoms and the oxygen or sulfur atoms attached to the same carbon chain, which is not interrupted by carbocyclic rings [N0710]
C07D295/088 . . . . to an acyclic saturated chain [N0710]
C07D295/092 . . . . with aromatic radicals attached to the chain [N0710]
C07D295/096 . . . with the ring nitrogen atoms and the oxygen or sulfur atoms separated by carbocyclic rings or by carbon chains interrupted by carbocyclic rings [N0710]
C07D295/10 . . substituted by doubly bound oxygen or sulfur atoms (acylated ring nitrogen atoms C07D295/16)
C07D295/104 . . . 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 [N0710]
C07D295/108 . . . . to an acyclic saturated chain [N0710]
C07D295/112 . . . 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 [N0710]
C07D295/116 . . . . with the doubly bound oxygen or sulfur atoms directly attached to a carbocyclic ring [N0710]
C07D295/12 . . substituted by singly or doubly bound nitrogen atoms (nitro radicals C07D295/06)
C07D295/125 . . . with the ring nitrogen atoms and the substituent nitrogen atoms attached to the same carbon chain, which is not interrupted by carbocyclic rings [N0710]
C07D295/13 . . . . to an acyclic saturated chain [N0710]
C07D295/135 . . . with the ring nitrogen atoms and the substituent nitrogen atoms separated by carbocyclic rings or by carbon chains interrupted by carbocyclic rings [N0710]
C07D295/14 . . substituted by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
C07D295/145 . . . 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

cyclic rings [N0710]

C07D295/15 . . . . to an acyclic saturated chain [N0710]

C07D295/155 . . . 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 [N0710]

C07D295/16 . acylated on ring nitrogen atoms

C07D295/18 . . by radicals derived from carboxylic acids, or sulfur or nitrogen analogues thereof

C07D295/182 . . . Radicals derived from carboxylic acids [N0710]

C07D295/185 . . . . from aliphatic carboxylic acids [N0710]

C07D295/192 . . . . from aromatic carboxylic acids [N0710]

C07D295/194 . . . Radicals derived from thio- or thiono carboxylic acids [N0710]

C07D295/195 . . . Radicals derived from nitrogen analogues of carboxylic acids [N0710]

C07D295/20 . . by radicals derived from carbonic acid, or sulfur or nitrogen analogues thereof

C07D295/205 . . . Radicals derived from carbonic acid [N0710]

C07D295/21 . . . Radicals derived from sulfur analogues of carbonic acid [N0710]

C07D295/215 . . . Radicals derived from nitrogen analogues of carbonic acid [N0710]

C07D295/22 . with hetero atoms directly attached to ring nitrogen atoms

C07D295/24 . . Oxygen atoms [N0710]

C07D295/26 . . Sulfur atoms [N0710]

C07D295/28 . . Nitrogen atoms [N0710]

C07D295/30 . . . non-acylated [N0710]

C07D295/32 . . . acylated with carboxylic or carbonic acids, or their nitrogen or sulfur analogues [N0710]

**Guide heading:** **Heterocyclic compounds having oxygen atoms with or without sulfur, selenium or tellurium, as ring hetero atoms**

**C07D301/00** **Preparation of oxiranes**

C07D301/02 . Synthesis of the oxirane ring

C07D301/03 . . by oxidation of unsaturated compounds, or of mixtures of unsaturated and saturated compounds [N0710]

C07D301/04 . . . with air or molecular oxygen

C07D301/06 . . . . in the liquid phase [C0710]

C07D301/08 . . . . in the gaseous phase [C0710]

C07D301/10 . . . . . with catalysts containing silver or gold [C0710]

C07D301/12 . . . with hydrogen peroxide or inorganic peroxides or peracids

C07D301/14 . . . with organic peracids, or salts, anhydrides or esters thereof

C07D301/16 . . . . formed in situ e.g. from carboxylic acids and hydrogen peroxide [C0710]

C07D301/18 . . . . . from polybasic carboxylic acids [C0710]

C07D301/19 . . . with organic hydroperoxides [N0710]

C07D301/22 . . by oxidation of the saturated compounds with air or molecular oxygen (of mixtures of unsaturated compounds C07D301/04)

C07D301/24 . . by splitting off HAL-Y from compounds containing the radical HAL-C-C-OY

C07D301/26 . . . Y being hydrogen

C07D301/27 . Condensation of epihalohydrins or halohydrins with compounds containing active hydrogen atoms (macromolecular compounds C08) [N0710]

C07D301/28 . . by reaction with hydroxyl radicals [N0710]

C07D301/30 . . by reaction with carboxyl radicals [N0710]

C07D301/32 . Separation; Purification

C07D301/36 . Use of additives, e.g. for stabilisation [N9510]

**C07D303/00 Compounds containing three-membered rings having one oxygen atom as the only ring heteroatom**

C07D303/02 . Compounds containing oxirane rings

C07D303/04 . . containing only hydrogen and carbon atoms in addition to the ring oxygen atoms

C07D303/06 . . . in which the oxirane rings are condensed with a carbocyclic ring system having three or more relevant rings

C07D303/08 . . with hydrocarbon radicals, substituted by halogen atoms, nitro radicals or nitroso radicals

C07D303/10 . . . in which the oxirane rings are condensed with a carbocyclic ring system having three or more relevant rings (steroids C07J)

C07D303/12 . . with hydrocarbon radicals substituted by singly or doubly bound oxygen atoms

C07D303/14 . . . by free hydroxyl radicals

C07D303/16 . . . by esterified hydroxyl radicals

C07D303/17 . . . . containing oxirane rings condensed with carbocyclic ring systems having three or more relevant rings [N0710]

C07D303/18 . . . by etherified hydroxyl radicals

C07D303/20 . . . . Ethers with hydroxy compounds containing no oxirane rings

C07D303/22 . . . . . with monohydroxy compounds

C07D303/23 . . . . . Oxiranylmethyl ethers of compounds having one hydroxy group bound to a six-membered aromatic ring, the oxiranylmethyl radical not being further substituted, i.e. [image] [N0710]

C07D303/24 . . . . . with polyhydroxy compounds

C07D303/26 . . . . . having one or more free hydroxyl radicals

C07D303/27 . . . . . having all hydroxyl radicals etherified with oxirane containing compounds [N0710]

C07D303/28 . . . . Ethers with hydroxy compounds containing oxirane rings

C07D303/30 . . . . . ethers of oxirane-containing polyhydroxy compounds in which all hydroxyl radicals are etherified with oxirane-containing hydroxy compounds

C07D303/31 . . . . in which the oxirane rings are condensed with a carbocyclic ring system having three or more relevant rings [N0710]

C07D303/32 . . . by aldehydo- or ketonic radicals

C07D303/34 . . with hydrocarbon radicals substituted by sulfur, selenium or tellurium atoms

C07D303/36 . . with hydrocarbon radicals substituted by nitrogen atoms (nitro, nitroso radicals C07D303/08)

C07D303/38 . . 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

C07D303/40 . . . by ester radicals

C07D303/42 . . . . Acyclic compounds having a chain of seven or more carbon atoms, e.g. epoxidised fats

C07D303/44 . . . . Esterified with oxirane-containing hydroxy compounds

C07D303/46 . . . by amide or nitrile radicals

C07D303/48 . . 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

**C07D305/00 Heterocyclic compounds containing four-membered rings having one oxygen atom as the only ring hetero atom**

C07D305/02 . not condensed with other rings

C07D305/04 . . having no double bonds between ring members or between ring members and non-ring members

C07D305/06 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to the ring atoms

C07D305/08 . . . 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

C07D305/10 . . having one or more double bonds between ring members or between ring members and non-ring members

C07D305/12 . . . Beta-lactones

C07D305/14 . condensed with carbocyclic rings or ring systems

**C07D307/00 Heterocyclic compounds containing five-membered rings having one oxygen atom as the only ring hetero atom**

C07D307/02 . not condensed with other rings

C07D307/04 . . having no double bonds between ring members or between ring members and non-ring members

C07D307/06 . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring carbon atoms

C07D307/08 . . . . Preparation of tetrahydrofuran

C07D307/10 . . . with substituted hydrocarbon radicals attached to ring carbon atoms [C9409]

C07D307/12 . . . . Radicals substituted by oxygen atoms

C07D307/14 . . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical

C07D307/16 . . . . 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

C07D307/18 . . . 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

C07D307/20 . . . . Oxygen atoms

C07D307/22 . . . . Nitrogen atoms not forming part of a nitro radical

C07D307/24 . . . . Carbon atoms having three bonds to hetero atoms with at the most one

bond to halogen

C07D307/26 . . having one double bond between ring members or between a ring member and a non-ring member

C07D307/28 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D307/30 . . . 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

C07D307/32 . . . . Oxygen atoms

C07D307/33 . . . . . in position 2, the oxygen atom being in its keto or unsubstituted enol form [N0710]

C07D307/34 . . having two or three double bonds between ring members or between ring members and non-ring members

C07D307/36 . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring carbon atoms

C07D307/38 . . . with substituted hydrocarbon radicals attached to ring carbon atoms

C07D307/40 . . . . Radicals substituted by oxygen atoms

C07D307/42 . . . . . Singly bound oxygen atoms (two oxygen atoms bound to the same carbon atom C07D307/46)

C07D307/44 . . . . . Furfuryl alcohol

C07D307/45 . . . . . Oxygen atoms acylated by a cyclopropane containing carboxylic acyl radical, e.g. chrysanthemumates [N0710]

C07D307/46 . . . . . Doubly bound oxygen atoms, or two oxygen atoms singly bound to the same carbon atom

C07D307/48 . . . . . Furfural

C07D307/50 . . . . . {7 dots} Preparation from natural products

C07D307/52 . . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical

C07D307/54 . . . . 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

C07D307/56 . . . 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

C07D307/58 . . . . One oxygen atom, e.g. butenolide

C07D307/60 . . . . Two oxygen atoms, e.g. succinic anhydride

C07D307/62 . . . . Three oxygen atoms, e.g. ascorbic acid

C07D307/64 . . . . Sulfur atoms

C07D307/66 . . . . Nitrogen atoms (nitro radicals C07D307/70)

C07D307/68 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

C07D307/70 . . . . Nitro radicals

C07D307/71 . . . . . attached in position 5

C07D307/72 . . . . . with hydrocarbon radicals, substituted by nitrogen-containing radicals, attached in position 2

C07D307/73 . . . . . {7 dots} by amino or imino, or substituted amino or imino radicals

C07D307/74 . . . . . {7 dots} by hydrazino or hydrazono or such substituted radicals

C07D307/75 . . . . . {8 dots} having carboxylic acyl radicals or their thio or nitrogen analogues directly attached to the hydrazino or hydrazono

radical, e.g. hydrazides

C07D307/76 . . . . . {7 dots} having carbonic acyl radicals or their thio or nitrogen analogues directly attached to the hydrazino or hydrazono radical, e.g. semicarbazides

C07D307/77 . ortho- or peri-condensed with carbocyclic rings or ring systems

C07D307/78 . . Benzo [b] furans; Hydrogenated benzo [b] furans

C07D307/79 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals directly attached to carbon atoms of the hetero ring

C07D307/80 . . . . Radicals substituted by oxygen atoms

C07D307/81 . . . . Radicals substituted by nitrogen atoms not forming part of a nitro radical

C07D307/82 . . . 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

C07D307/83 . . . . Oxygen atoms

C07D307/84 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen

C07D307/85 . . . . . attached in position 2

C07D307/86 . . . with an oxygen atom directly attached in position 7

C07D307/87 . . Benzo [c] furans; Hydrogenated benzo [c] furans

C07D307/88 . . . with one oxygen atom directly attached in position 1 or 3

C07D307/885 . . . . 3,3-Diphenylphthalides [N0710]

C07D307/89 . . . with two oxygen atoms directly attached in positions 1 and 3

C07D307/90 . . . with an oxygen atom in position 1 and a nitrogen atom in position 3, or vice-versa

C07D307/91 . . Dibenzofurans; Hydrogenated dibenzofurans

C07D307/92 . . Naphthofurans; Hydrogenated naphthofurans

C07D307/93 . . condensed with a ring other than six-membered

C07D307/935 . . . Not further condensed cyclopenta [b] furans or hydrogenated cyclopenta [b] furans [N0710]

C07D307/937 . . . . with hydrocarbon or substituted hydrocarbon radicals directly attached in position 2, e.g. prostacyclins [N0710]

C07D307/94 . spiro-condensed with carbocyclic rings or ring systems, e.g. griseofulvins

**C07D309/00 Heterocyclic compounds containing six-membered rings having one oxygen atom as the only ring hetero atom, not condensed with other rings**

C07D309/02 . having no double bonds between ring members or between ring members and non-ring members

C07D309/04 . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to ring carbon atoms

C07D309/06 . . . Radicals substituted by oxygen atoms

C07D309/08 . . 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

C07D309/10 . . . Oxygen atoms

C07D309/12 . . . . Only hydrogen atoms and one oxygen atom directly attached to ring carbon atoms, e.g. tetrahydropyranyl ethers

C07D309/14 . . . Nitrogen atoms not forming part of a nitro radical [N: nitro radical C07D309/08]

C07D309/16 . having one double bond between ring members or between a ring member and a non-ring member

C07D309/18 . . containing only hydrogen and carbon atoms in addition to the ring hetero atom

C07D309/20 . . with hydrogen atoms and substituted hydrocarbon radicals directly attached to ring carbon atoms

C07D309/22 . . . Radicals substituted by oxygen atoms

C07D309/24 . . . . Methylol radicals

C07D309/26 . . . . Carboxaldehyde radicals

C07D309/28 . . 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

C07D309/30 . . . Oxygen atoms, e.g. delta-lactones

C07D309/32 . having two double bonds between ring members or between ring members and non-ring members

C07D309/34 . having three or more double bonds between ring members or between ring members and non-ring members

C07D309/36 . . with oxygen atoms directly attached to ring carbon atoms

C07D309/38 . . . One oxygen atom in position 2 or 4, e.g. pyrones

C07D309/40 . . . Oxygen atoms attached in position 3 and 4, e.g. maltol

**C07D311/00 Heterocyclic compounds containing six-membered rings having one oxygen atom as the only hetero atom, condensed with other rings**

C07D311/02 . ortho- or peri-condensed with carbocyclic rings or ring systems

C07D311/04 . . Benzo[b]pyrans, not hydrogenated in the carbocyclic ring

C07D311/06 . . . with oxygen or sulfur atoms directly attached in position 2

C07D311/08 . . . . not hydrogenated in the hetero ring

C07D311/10 . . . . . unsubstituted

C07D311/12 . . . . . substituted in position 3 and unsubstituted in position 7

C07D311/14 . . . . . substituted in position 6 and unsubstituted in position 7

C07D311/16 . . . . . substituted in position 7

C07D311/18 . . . . . substituted otherwise than in position 3 or 7 (substituted in position 4 by oxygen or sulfur C07D311/42)

C07D311/20 . . . . hydrogenated in the hetero ring

C07D311/22 . . . with oxygen or sulfur atoms directly attached in position 4

C07D311/24 . . . . 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

C07D311/26 . . . . with aromatic rings attached in position 2 or 3

C07D311/28 . . . . . with aromatic rings attached in position 2 only

C07D311/30 . . . . . not hydrogenated in the hetero ring, e.g. flavones

C07D311/32 . . . . . 2,3-Dihydro derivatives, e.g. flavanones
C07D311/34 . . . . . with aromatic rings attached in position 3 only
C07D311/36 . . . . . not hydrogenated in the hetero ring, e.g. isoflavones
C07D311/38 . . . . . 2,3-Dihydro derivated, e.g. isoflavanones
C07D311/40 . . . . . Separation, e.g. from natural material; Purification
C07D311/42 . . . with oxygen or sulfur atoms in position 2 and 4
C07D311/44 . . . . with one hydrogen atom in position 3
C07D311/46 . . . . . unsubstituted in the carbocyclic ring
C07D311/48 . . . . . with two such benzopyran radicals linked together by a carbon chain
C07D311/50 . . . . . with elements other than carbon and hydrogen in position 3
C07D311/52 . . . . . Enol-esters or -ethers, or sulfur analogues thereof
C07D311/54 . . . . . substituted in the carbocyclic ring
C07D311/56 . . . . without hydrogen atoms in position 3
C07D311/58 . . . other than with oxygen or sulfur atoms in positions 2 or 4
C07D311/60 . . . . with aryl radicals attached in position 2
C07D311/62 . . . . . with oxygen atoms directly attached in position 3 e.g. anthocyanidins
C07D311/64 . . . . with oxygen atoms directly attached in position 8
C07D311/66 . . . . 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
C07D311/68 . . . . with nitrogen atoms directly attached in position 4
C07D311/70 . . . . with two hydrocarbon radicals attached in position 2 and elements other than carbon and hydrogen in position 6
C07D311/72 . . . . . 3,4-Dihydro-derivatives having in position 2 at least one methyl radical and in position 6 an oxygen atom, e.g. tocopherols
C07D311/74 . . Benzo[b]pyrans, hydrogenated in the carbocyclic ring
C07D311/76 . . Benzo[c]pyrans
C07D311/78 . . Ring systems having three or more relevant rings
C07D311/80 . . . Dibenzopyrans; Hydrogenated dibenzopyrans
C07D311/82 . . . . Xanthenes
C07D311/84 . . . . . 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
C07D311/86 . . . . . Oxygen atoms, e.g. xanthones
C07D311/88 . . . . . Nitrogen atoms
C07D311/90 . . . . . with hydrocarbon radicals substituted by amino radicals, directly attached in position 9
C07D311/92 . . . Naphthopyrans; Hydrogenated naphthopyrans
C07D311/94 . . condensed with rings other than six-membered

C07D311/96 . spiro-condensed with carbocyclic rings or ring systems

**C07D313/00 Heterocyclic compounds containing rings of more than six members having one oxygen atom as the only ring hetero atom**

C07D313/02 . Seven-membered rings

C07D313/04 . . not condensed with other rings
C07D313/06 . . condensed with carbocyclic rings or ring systems
C07D313/08 . . . condensed with one six-membered ring
C07D313/10 . . . condensed with two six-membered rings
C07D313/12 . . . . [b,e]-condensed
C07D313/14 . . . . [b,f]-condensed

C07D313/16 . Eight-membered rings
C07D313/18 . . not condensed with other rings
C07D313/20 . . condensed with carbocyclic rings or ring systems

**C07D315/00 Heterocyclic compounds containing rings having one oxygen atom as the only ring hetero atom according to more than one of groups C07D303/00 to C07D313/00**

**C07D317/00 Heterocyclic compounds containing five-membered rings having two oxygen atoms as the only ring hetero atoms**

C07D317/02 . having the hetero atoms in positions 1 and 2
C07D317/04 . . not condensed with other rings
C07D317/06 . . condensed with carbocyclic rings or ring systems

C07D317/08 . having the hetero atoms in positions 1 and 3
C07D317/10 . . not condensed with other rings
C07D317/12 . . . with only hydrogen atoms or radicals containing only hydrogen and carbon atoms, directly attached to ring carbon atoms
C07D317/14 . . . with substituted hydrocarbon radicals attached to ring carbon atoms [C9409]
C07D317/16 . . . . Radicals substituted by halogen atoms or nitro radicals
C07D317/18 . . . . Radicals substituted by singly bound oxygen or sulfur atoms
C07D317/20 . . . . . Free hydroxyl or mercaptan
C07D317/22 . . . . . etherified
C07D317/24 . . . . . esterified
C07D317/26 . . . . Radicals substituted by doubly bound oxygen or sulfur atoms or by two such atoms singly bound to the same carbon atom
C07D317/28 . . . . Radicals substituted by nitrogen atoms (by nitro radicals C07D317/16)
C07D317/30 . . . . 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
C07D317/32 . . . 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
C07D317/34 . . . . Oxygen atoms
C07D317/36 . . . . . Alkylene carbonates; Substituted alkylene carbonates
C07D317/38 . . . . . Ethylene carbonate
C07D317/40 . . . . . Vinylene carbonate; Substituted vinylene carbonates
C07D317/42 . . . . Halogen atoms or nitro radicals
C07D317/44 . . ortho- or peri-condensed with carbocyclic rings or ring systems

C07D317/46 . . . condensed with one six-membered ring
C07D317/48 . . . . Methylenedioxybenzenes or hydrogenated methylenedioxybenzenes unsubstituted on the hetero ring
C07D317/50 . . . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to atoms of the carbocyclic ring
C07D317/52 . . . . . Radicals substituted by halogen atoms or nitro radicals
C07D317/54 . . . . . Radicals substituted by oxygen atoms
C07D317/56 . . . . . Radicals substituted by sulfur atoms
C07D317/58 . . . . . Radicals substituted by nitrogen atoms (by nitro radicals C07D317/52)
C07D317/60 . . . . . 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
C07D317/62 . . . . . 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 atoms of the carbocyclic ring
C07D317/64 . . . . . Oxygen atoms
C07D317/66 . . . . . Nitrogen atoms not forming part of a nitro radical
C07D317/68 . . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
C07D317/70 . . . condensed with ring systems containing two or more relevant rings
C07D317/72 . . spiro-condensed with carbocyclic rings

**C07D319/00 Heterocyclic compounds containing six-membered rings having two oxygen atoms as the only ring hetero atoms**

C07D319/02 . 1,2-Dioxanes; Hydrogenated 1,2-dioxanes

C07D319/04 . 1,3-Dioxanes; Hydrogenated 1,3-dioxanes
C07D319/06 . . not condensed with other rings
C07D319/08 . . condensed with carbocyclic rings or ring systems

C07D319/10 . 1,4-Dioxanes; Hydrogenated 1,4-dioxanes
C07D319/12 . . not condensed with other rings
C07D319/14 . . condensed with carbocyclic rings or ring systems
C07D319/16 . . . condensed with one six-membered ring
C07D319/18 . . . . Ethylenedioxybenzenes, not substituted on the hetero ring
C07D319/20 . . . . with substituents attached to the hetero ring
C07D319/22 . . . condensed with one naphthalene or hydrogenated naphthalene ring system
C07D319/24 . . . [b,e]-condensed with two six-membered rings

**C07D321/00 Heterocyclic compounds containing rings having two oxygen atoms as the only ring hetero atoms, not provided for by groups C07D317/00 to C07D319/00**

C07D321/02 . Seven-membered rings
C07D321/04 . . not condensed with other rings
C07D321/06 . . . 1,3-Dioxepines; Hydrogenated 1,3-dioxepines

C07D321/08 . . . 1,4-Dioxepines; Hydrogenated 1,4-dioxepines

C07D321/10 . . condensed with carbocyclic rings or ring systems

C07D321/12 . Eight-membered rings

**C07D323/00** **Heterocyclic compounds containing more than two oxygen atoms as the only ring hetero atoms**

C07D323/02 . Five-membered rings

C07D323/04 . Six-membered rings

C07D323/06 . . trioxane

**C07D325/00** **Heterocyclic compounds containing rings having oxygen as the only ring hetero atoms according to more than one of the main groups C07D303/00 to C07D323/00**

**C07D327/00** **Heterocyclic compounds containing rings having oxygen and sulfur atoms as the only ring hetero atoms**

C07D327/02 . One oxygen atom and one sulfur atom

C07D327/04 . . Five-membered rings

C07D327/06 . . Six-membered rings

C07D327/08 . . . [b,e]-condensed with two six-membered carbocyclic rings

C07D327/10 . Two oxygen atoms and one sulfur atom, e.g. cyclic sulfates

**C07D329/00** **Heterocyclic compounds containing rings having oxygen and selenium or oxygen and tellurium atoms as the only ring hetero atoms**

**Guide heading:** **Heterocyclic compounds having sulfur, selenium or tellurium as the only ring hetero atoms**

**C07D331/00** **Heterocyclic compounds containing rings of less than five members, having one sulfur atom as the only ring hetero atom**

C07D331/02 . Three-membered rings

C07D331/04 . Four-membered rings

**C07D333/00** **Heterocyclic compounds containing five-membered rings having one sulfur atom as the only ring hetero atom**

C07D333/02 . not condensed with other rings

C07D333/04 . . not substituted on the ring sulfur

C07D333/06 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to the ring carbon atoms

C07D333/08 . . . . Hydrogen atoms or radicals containing only hydrogen and carbon atoms
C07D333/10 . . . . . Thiophene
C07D333/12 . . . . Radicals substituted by halogen atoms or nitro or nitroso radicals
C07D333/14 . . . . Radicals substituted by singly bound hetero atoms other than halogen
C07D333/16 . . . . . by oxygen atoms
C07D333/18 . . . . . by sulfur atoms
C07D333/20 . . . . . by nitrogen atoms (nitro, nitroso radicals C07D333/12)
C07D333/22 . . . . Radicals substituted by doubly bound hetero atoms, or by two hetero atoms other than halogen singly bound to the same carbon atom
C07D333/24 . . . . 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
C07D333/26 . . . 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
C07D333/28 . . . . Halogen atoms
C07D333/30 . . . . Hetero atoms other than halogen
C07D333/32 . . . . . Oxygen atoms
C07D333/34 . . . . . Sulfur atoms
C07D333/36 . . . . . Nitrogen atoms (nitro, nitroso radicals C07D333/42)
C07D333/38 . . . . Carbon atoms having three bonds to hetero atoms, with at the most one bond to halogen, e.g. ester or nitrile radicals
C07D333/40 . . . . . Thiophene-2-carboxylic acid [2]
C07D333/42 . . . . with nitro or nitroso radicals directly attached to ring carbon atoms
C07D333/44 . . . . . attached in position 5
C07D333/46 . . substituted on the ring sulfur atom
C07D333/48 . . . by oxygen atoms

C07D333/50 . condensed with carbocyclic rings or ring systems
C07D333/52 . . Benzo[b]thiophenes; Hydrogenated benzo[b]thiophenes
C07D333/54 . . . with only hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, directly attached to carbon atoms of the hetero ring
C07D333/56 . . . . Radicals substituted by oxygen atoms
C07D333/58 . . . . Radicals substituted by nitrogen atoms
C07D333/60 . . . . 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
C07D333/62 . . . 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
C07D333/64 . . . . Oxygen atoms
C07D333/66 . . . . Nitrogen atoms not forming part of a nitro radical
C07D333/68 . . . . Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen
C07D333/70 . . . . . attached in position 2
C07D333/72 . . Benzo[c]thiophenes; Hydrogenated benzo[c]thiophenes
C07D333/74 . . Naphthothiophenes

C07D333/76 . . Dibenzothiophenes

C07D333/78 . . condensed with rings other than six-membered or with ring systems containing such rings

C07D333/80 . . . Seven-membered rings

**C07D335/00 Heterocyclic compounds containing six-membered rings having one sulfur atom as the only ring hetero atom**

C07D335/02 . not condensed with other rings

C07D335/04 . condensed with carbocyclic rings or ring systems

C07D335/06 . . Benzothiopyrans; Hydrogenated benzothiopyrans

C07D335/08 . . Naphthothiopyrans; Hydrogenated naphthothiopyrans

C07D335/10 . . Dibenzothiopyrans; Hydrogenated dibenzothiopyrans

C07D335/12 . . . Thioxanthenes

C07D335/14 . . . . 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

C07D335/16 . . . . . Oxygen atoms, e.g. thioxanthones

C07D335/18 . . . . . Nitrogen atoms

C07D335/20 . . . . with hydrocarbon radicals, substituted by amino radicals, directly attached in position 9

**C07D337/00 Heterocyclic compounds containing rings of more than six members having one sulfur atom as the only ring hetero atom**

C07D337/02 . Seven-membered rings

C07D337/04 . . not condensed with other rings

C07D337/06 . . condensed with carbocyclic rings or ring systems

C07D337/08 . . . condensed with one six-membered ring

C07D337/10 . . . condensed with two six-membered rings

C07D337/12 . . . . [b,e]-condensed

C07D337/14 . . . . [b,f]-condensed

C07D337/16 . Eight-membered rings

**C07D339/00 Heterocyclic compounds containing rings having two sulfur atoms as the only ring hetero atoms**

C07D339/02 . Five-membered rings

C07D339/04 . . having the hetero atoms in position 1,2, e.g. lipoic acid

C07D339/06 . . having the hetero atoms in position 1,3, e.g. cyclic dithiocarbonates

C07D339/08 . Six-membered rings

**C07D341/00 Heterocyclic compounds containing rings having three or more sulfur atoms as the only ring hetero atoms**

**C07D343/00** **Heterocyclic compounds containing rings having sulfur and selenium or sulfur and tellurium atoms as the only ring hetero atoms**

**C07D345/00** **Heterocyclic compounds containing rings having selenium or tellurium atoms as the only ring hetero atoms**

**C07D347/00** **Heterocyclic compounds containing rings having halogen atoms as ring hetero atoms**

**Guide heading:** **Heterocyclic compounds containing two or more hetero rings**

**C07D401/00** **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**

C07D401/02 . containing two hetero rings
C07D401/04 . . directly linked by a ring-member-to-ring-member bond
C07D401/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D401/08 . . linked by a carbon chain containing alicyclic rings
C07D401/10 . . linked by a carbon chain containing aromatic rings
C07D401/12 . . linked by a chain containing hetero atoms as chain links

C07D401/14 . containing three or more hetero rings

**C07D403/00** **Heterocyclic compounds containing two or more hetero rings, having nitrogen atoms as the only ring hetero atoms, not provided for by group C07D401/00**

C07D403/02 . containing two hetero rings
C07D403/04 . . directly linked by a ring-member-to-ring-member bond
C07D403/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D403/08 . . linked by a carbon chain containing alicyclic rings
C07D403/10 . . linked by a carbon chain containing aromatic rings
C07D403/12 . . linked by a chain containing hetero atoms as chain links

C07D403/14 . containing three or more hetero rings

**C07D405/00** **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**

C07D405/02 . containing two hetero rings
C07D405/04 . . directly linked by a ring-member-to-ring-member bond
C07D405/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D405/08 . . linked by a carbon chain containing alicyclic rings

C07D405/10 . . linked by a carbon chain containing aromatic rings
C07D405/12 . . linked by a chain containing hetero atoms as chain links

C07D405/14 . containing three or more hetero rings

**C07D407/00** **Heterocyclic compounds containing two or more hetero rings, at least one ring having oxygen atoms as the only ring hetero atoms, not provided for by group C07D405/00**

C07D407/02 . containing two hetero rings
C07D407/04 . . directly linked by a ring-member-to-ring-member bond
C07D407/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D407/08 . . linked by a carbon chain containing alicyclic rings
C07D407/10 . . linked by a carbon chain containing aromatic rings
C07D407/12 . . linked by a chain containing hetero atoms as chain links

C07D407/14 . containing three or more hetero rings

**C07D409/00** **Heterocyclic compounds containing two or more hetero rings, at least one ring having sulfur atoms as the only ring hetero atoms**

C07D409/02 . containing two hetero rings
C07D409/04 . . directly linked by a ring-member-to-ring-member bond
C07D409/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D409/08 . . linked by a carbon chain containing alicyclic rings
C07D409/10 . . linked by a carbon chain containing aromatic rings
C07D409/12 . . linked by a chain containing hetero atoms as chain links

C07D409/14 . containing three or more hetero rings

**C07D411/00** **Heterocyclic compounds containing two or more hetero rings, at least one ring having oxygen and sulfur atoms as the only ring hetero atoms**

C07D411/02 . containing two hetero rings
C07D411/04 . . directly linked by a ring-member-to-ring-member bond
C07D411/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D411/08 . . linked by a carbon chain containing alicyclic rings
C07D411/10 . . linked by a carbon chain containing aromatic rings
C07D411/12 . . linked by a chain containing hetero atoms as chain links

C07D411/14 . containing three or more hetero rings

**C07D413/00** **Heterocyclic compounds containing two or more hetero rings, at least one ring having nitrogen and oxygen atoms as the only ring hetero atoms**

C07D413/02 . containing two hetero rings

C07D413/04 . . directly linked by a ring-member-to-ring-member bond
C07D413/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D413/08 . . linked by a carbon chain containing alicyclic rings
C07D413/10 . . linked by a carbon chain containing aromatic rings
C07D413/12 . . linked by a chain containing hetero atoms as chain links

C07D413/14 . containing three or more hetero rings

**C07D415/00 Heterocyclic compounds containing the thiamine skeleton**

**C07D417/00 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 C07D415/00**

C07D417/02 . containing two hetero rings
C07D417/04 . . directly linked by a ring-member-to-ring-member bond
C07D417/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D417/08 . . linked by a carbon chain containing alicyclic rings
C07D417/10 . . linked by a carbon chain containing aromatic rings
C07D417/12 . . linked by a chain containing hetero atoms as chain links

C07D417/14 . containing three or more hetero rings

**C07D419/00 Heterocyclic compounds containing two or more hetero rings, at least one ring having nitrogen, oxygen, and sulfur atoms as the only ring hetero atoms**

C07D419/02 . containing two hetero rings
C07D419/04 . . directly linked by a ring-member-to-ring-member bond
C07D419/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D419/08 . . linked by a carbon chain containing alicyclic rings
C07D419/10 . . linked by a carbon chain containing aromatic rings
C07D419/12 . . linked by a chain containing hetero atoms as chain links

C07D419/14 . containing three or more hetero rings

**C07D421/00 Heterocyclic compounds containing two or more hetero rings, at least one ring having selenium, tellurium, or halogen atoms as ring hetero atoms**

C07D421/02 . containing two hetero rings
C07D421/04 . . directly linked by a ring-member-to-ring-member bond
C07D421/06 . . linked by a carbon chain containing only aliphatic carbon atoms
C07D421/08 . . linked by a carbon chain containing alicyclic rings
C07D421/10 . . linked by a carbon chain containing aromatic rings
C07D421/12 . . linked by a chain containing hetero atoms as chain links

C07D421/14 . containing three or more hetero rings

**Guide heading:** **Heterocyclic compounds containing condensed hetero ring systems C07D451/00-C07D517/00 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. For the purpose of classification in groups C07D451/00-C07D519/00, the degree of hydrogenation of the ring system is not taken into consideration. For the purpose of classification in groups C07D451/00-C07D463/00, C07D473/00-C07D477/00, C07D489/00, C07D499/00-C07D507/00, 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 C07D471/22, not in group C07D455/02. In groups C07D471/00, C07D487/00, C07D491/00-C07D498/00 or C07D513/00-C07D517/00, the subdivision is based on the number of relevant hetero rings.**

**C07D451/00** **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**

C07D451/02 . 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

C07D451/04 . . 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

C07D451/06 . . . Oxygen atoms

C07D451/08 . . . . Diarylmethoxy radicals

C07D451/10 . . . . acylated by aliphatic or araliphatic carboxylic acids, e.g. atropine, scopolamine

C07D451/12 . . . . acylated by aromatic or heteroaromatic carboxylic acids, e.g. cocaine

C07D451/14 . containing 9-azabicyclo [3.3.1] nonane ring systems, e.g. granatane, 2-aza-adamantane; Cyclic acetals thereof

**C07D453/00** **Heterocyclic compounds containing quinuclidine or iso-quinuclidine ring systems, e.g. quinine alkaloids**

C07D453/02 . containing not further condensed quinuclidine ring systems

C07D453/04 . . 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

C07D453/06 . containing isoquinuclidine ring systems

**C07D455/00** **Heterocyclic compounds containing quinolizine ring systems, e.g. emetine alkaloids, protoberberine; Alkylenedioxy derivatives of dibenzo [a, g] quinolizines, e.g. berberine**

C07D455/02 . containing not further condensed quinolizine ring systems

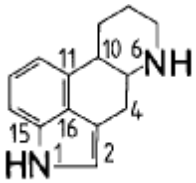
C07D455/03 . containing quinolizine ring systems directly condensed with at least one six-membered carbocyclic ring, e.g. protoberberine; Alkylenedioxy derivatives of dibenzo [a, g] quinolizines, e.g. berberine [N0710]

[N: **WARNING**
[C0711]
Group C07D455/03 is temporarily incomplete. See provisionally also other ECLA subgroups of C07D455/00]

C07D455/04 . . containing a quinolizine ring system condensed with only one six-membered carbocyclic ring, e.g. julolidine

C07D455/06 . . . containing benzo [a] quinolizine ring systems

C07D455/08 . . . . having an isoquinolyl-1, a substituted isoquinolyl-1 or an alkylenedioxyisoquinolyl-1 radical linked through only one carbon atom, attached in position 2, e.g. emetine

**C07D457/00** **Heterocyclic compounds containing indolo [4, 3-f, g] quinoline ring systems, e.g. derivatives of ergoline, of the formula:**  **, e.g. lysergic acid**

(compounds of the cyclic peptide type derived from ergotamane C07D519/02)

C07D457/02 . with hydrocarbon or substituted hydrocarbon radicals, attached in position 8

C07D457/04 . 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 8

C07D457/06 . . Lysergic acid amides

C07D457/08 . . . in which the amide nitrogen is a member of a heterocyclic ring

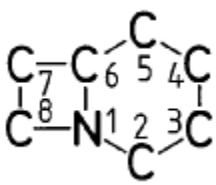
C07D457/10 . with hetero atoms directly attached in position 8

C07D457/12 . . Nitrogen atoms

C07D457/14 . containing indolo [4, 3-f, g] quinoline ring systems condensed with carbocyclic rings or ring systems

**C07D459/00** **Heterocyclic compounds containing benz [g] indolo [2, 3-a] quinolizine ring systems, e.g. yohimbine; 16, 18-lactones thereof, e.g. reserpic acid lactone**

**C07D461/00** **Heterocyclic compounds containing indolo [3,2,1-d,e] pyrido [3,2,1,j] [1,5]-naphthyridine ring systems, e.g. vincamine** (dimeric indolo alkaloids C07D519/04)

**C07D463/00** **Heterocyclic compounds containing 1-azabicyclo [4.2.0] octane ring systems, i.e. compounds containing a ring system of the formula:**  **, e.g.**

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

[N: **WARNING**
[C0710] The IPC subgroups of C07D463/00, introduced in the ECLA scheme in October 2007, might be temporarily incomplete as a number of documents presently classified in internal ECLA subgroups of C07D463/00 still needs reclassification to these IPC subgroups
]

C07D463/02 . Preparation (by microbiological processes C12P17/18) [N0710]
C07D463/04 . . by forming the ring or condensed ring systems [N0710]
C07D463/06 . . from compounds already containing the ring or condensed ring systems, e.g. by dehydrogenation of the ring, by introduction, elimination or modification of substituents [N0710]
C07D463/08 . . . Modification of a carboxyl group directly attached in position 2, e.g. esterification [N0710]

C07D463/10 . with a carbon atom having three bonds to hetero atoms with atthe most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 2 [N0710]
C07D463/12 . . with hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals attached in position 7 [N0710]
C07D463/14 . . with hetero atoms directly attached in position 7 [N0710]
C07D463/16 . . . Nitrogen atoms [N0710]
C07D463/18 . . . . further acylated by radicals derived from carboxylic acids or by nitrogen or sulfur analogues thereof [N0710]
C07D463/20 . . . . . 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 [N0710]
C07D463/22 . . . . . further substituted by nitrogen atoms [N0710]

**C07D471/00** **Heterocyclic compounds containing nitrogen atoms as the only ring hetero atoms in the condensed system, at least one ring being a six-membered ring with one nitrogen atom, not provided for by groups C07D451/00 to C07D463/00**

C07D471/02 . in which the condensed system contains two hetero rings
C07D471/04 . . Ortho-condensed systems (carbacephalosporins C07D463/00)
C07D471/06 . . Peri-condensed systems
C07D471/08 . . Bridged systems
C07D471/10 . . Spiro-condensed systems

C07D471/12 . in which the condensed system contains three hetero rings
C07D471/14 . . Ortho-condensed systems
C07D471/16 . . Peri-condensed systems
C07D471/18 . . Bridged systems
C07D471/20 . . Spiro-condensed systems

C07D471/22 . in which the condensed system contains four or more hetero rings

**C07D473/00** **Heterocyclic compounds containing purine ring systems**

C07D473/02 . with oxygen, sulfur or nitrogen atoms directly attached in positions 2 and 6

C07D473/04 . . two oxygen atoms

C07D473/06 . . . with radicals containing only hydrogen and carbon atoms, attached in position 1 or 3

C07D473/08 . . . . with methyl radicals in positions 1 and 3, e.g. theophylline

C07D473/10 . . . . with methyl radicals in positions 3 and 7, e.g. theobromine

C07D473/12 . . . . with methyl radicals in positions 1, 3 and 7, e.g. caffeine

C07D473/14 . . . . with two methyl radicals in positions 1 and 3 and two methyl radicals in positions 7, 8 or 9

C07D473/16 . . two nitrogen atoms

C07D473/18 . . one oxygen and one nitrogen atom, e.g. guanine

C07D473/20 . . two sulfur atoms

C07D473/22 . . one oxygen and one sulfur atom

C07D473/24 . . one nitrogen and one sulfur atom

C07D473/26 . with an oxygen, sulfur or nitrogen atom directly attached in position 2 or 6, but not in both

C07D473/28 . . Oxygen atom

C07D473/30 . . . attached in position 6, e.g. hypoxanthine

C07D473/32 . . Nitrogen atom

C07D473/34 . . . attached in position 6, e.g. adenine

C07D473/36 . . Sulfur atom

C07D473/38 . . . attached in position 6

C07D473/40 . with halogen atoms or perhalogeno-alkyl radicals directly attached in positions 2 or 6

**C07D475/00 Heterocyclic compounds containing pteridine ring systems**

C07D475/02 . with an oxygen atom directly attached in position 4

C07D475/04 . . with a nitrogen atom directly attached in position 2

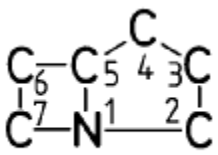
C07D475/06 . with a nitrogen atom directly attached in position 4

C07D475/08 . . with a nitrogen atom directly attached in position 2

C07D475/10 . . with an aromatic or hetero-aromatic ring directly attached in position 2

C07D475/12 . containing pteridine ring systems condensed with carbocyclic rings or ring systems

C07D475/14 . . Benz [g] pteridines, e.g. riboflavin

**C07D477/00 Heterocyclic compounds containing 1-azabicyclo [3.2.0] heptane ring systems, i.e. compounds containing a ring system of the formula:** 

,

**carbapenicillins, thienamycins; Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring** [C9412]

C07D477/02 . Preparation (by microbiological processes C12P17/18)

C07D477/04 . . by forming the ring or condensed ring systems

C07D477/06 . . from compounds already containing the ring or condensed ring systems, e.g. by dehydrogenation of the ring, by introduction, elimination or modification of substituents

C07D477/08 . . . Modification of a carboxyl group directly attached in position 2, e.g. esterification [N9412]

C07D477/10 . 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

C07D477/12 . . with hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached in position 6 [N9412]

C07D477/14 . . . with hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, attached in position 3 [N9412]

C07D477/16 . . . 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 [N9412]

C07D477/18 . . . . Oxygen atoms [N9412]

C07D477/20 . . . . Sulfur atoms [N9412]

C07D477/22 . . . . Nitrogen atoms [N9412]

C07D477/24 . . 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

C07D477/26 . 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

**C07D487/00 Heterocyclic compounds containing nitrogen atoms as the only ring hetero atoms in the condensed system, not provided for by C07D451/00 to C07D477/00**

C07D487/02 . in which the condensed system contains two hetero rings

C07D487/04 . . Ortho-condensed systems (carbapenams, e.g. thienamycins, C07D477/00)

C07D487/06 . . Peri-condensed systems

C07D487/08 . . Bridged systems

C07D487/10 . . Spiro-condensed systems

C07D487/12 . in which the condensed system contains three hetero rings

C07D487/14 . . Ortho-condensed systems

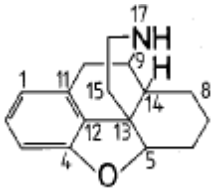
C07D487/16 . . Peri-condensed systems

C07D487/18 . . Bridged systems

C07D487/20 . . Spiro-condensed systems

C07D487/22 . in which the condensed system contains four or more hetero rings

**C07D489/00 Heterocyclic compounds containing 4aH-8, 9 c- Iminoethano-phenanthro [4, 5-b, c,**




C07D489/02 . with oxygen atoms attached in positions 3 and 6, e.g. morphine, morphinone

C07D489/04 . . Salts; Organic complexes

C07D489/06 . with a hetero atom directly attached in position 14

C07D489/08 . . Oxygen atom

C07D489/09 . containing 4aH-8, 9 c-Iminoethano- phenanthro [4, 5-b, c, d] furan ring systems condensed with carbocyclic rings or ring systems [N0710]

C07D489/10 . . with a bridge between positions 6 and 14

C07D489/12 . . . the bridge containing only two carbon atoms

**C07D491/00** **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 C07D451/00 to C07D459/00, C07D463/00, C07D477/00 or C07D489/00**

C07D491/02 . in which the condensed system contains two hetero rings

C07D491/04 . . Ortho-condensed systems

C07D491/044 . . . with only one oxygen atom as ring hetero atom in the oxygen-containing ring [N0710]

C07D491/048 . . . . the oxygen-containing ring being five-membered [N0710]

C07D491/052 . . . . the oxygen-containing ring being six-membered [N0710]

C07D491/056 . . . with two or more oxygen atoms as ring hetero atoms in the oxygen-containing ring [N0710]

C07D491/06 . . Peri-condensed systems

C07D491/08 . . Bridged systems

C07D491/10 . . Spiro-condensed systems

C07D491/107 . . . with only one oxygen atom as ring hetero atom in the oxygen-containing ring [N0710]

C07D491/113 . . . with two or more oxygen atoms as ring hetero atoms in the oxygen-containing ring [N0710]

C07D491/12 . in which the condensed system contains three hetero rings

C07D491/14 . . Ortho-condensed systems (alkylenedioxy derivatives of dibenzo [a, g] quinolizines, e.g. berberine, C07D455/03)

C07D491/147 . . . the condensed system containing one ring with oxygen as ring hetero atom and two rings with nitrogen as ring hetero atom [N0710]

C07D491/153 . . . the condensed system containing two rings with oxygen as ring hetero atom and one ring with nitrogen as ring hetero atom [N0710]

C07D491/16 . . Peri-condensed systems

C07D491/18 . . Bridged systems (3-oxa-9-azatricyclo [3.3.1.0<2,4>] nonane ring systems, e.g. scopolamine, C07D451/00)

C07D491/20 . . Spiro-condensed systems

C07D491/22 . in which the condensed system contains four or more hetero rings

**C07D493/00 Heterocyclic compounds containing oxygen atoms as the only ring hetero atoms in the condensed system**

C07D493/02 . in which the condensed system contains two hetero rings

C07D493/04 . . Ortho-condensed systems

C07D493/06 . . Peri-condensed systems

C07D493/08 . . Bridged systems

C07D493/10 . . Spiro-condensed systems

C07D493/12 . in which the condensed system contains three hetero rings

C07D493/14 . . Ortho-condensed systems

C07D493/16 . . Peri-condensed systems

C07D493/18 . . Bridged systems

C07D493/20 . . Spiro-condensed systems

C07D493/22 . in which the condensed system contains four or more hetero rings

**C07D495/00 Heterocyclic compounds containing in the condensed system at least one hetero ring having sulfur atoms as the only ring hetero atoms**

C07D495/02 . in which the condensed system contains two hetero rings

C07D495/04 . . Ortho-condensed systems

C07D495/06 . . Peri-condensed systems

C07D495/08 . . Bridged systems

C07D495/10 . . Spiro-condensed systems

C07D495/12 . in which the condensed system contains three hetero rings

C07D495/14 . . Ortho-condensed systems

C07D495/16 . . Peri-condensed systems

C07D495/18 . . Bridged systems

C07D495/20 . . Spiro-condensed systems

C07D495/22 . in which the condensed system contains four or more hetero rings

**C07D497/00 Heterocyclic compounds containing in the condensed system at least one hetero ring having oxygen and sulfur atoms as the only ring hetero atoms**

C07D497/02 . in which the condensed system contains two hetero rings

C07D497/04 . . Ortho-condensed systems

C07D497/06 . . Peri-condensed systems

C07D497/08 . . Bridged systems

C07D497/10 . . Spiro-condensed systems

C07D497/12 . in which the condensed system contains three hetero rings

C07D497/14 . . Ortho-condensed systems

C07D497/16 . . Peri-condensed systems

C07D497/18 . . Bridged systems

C07D497/20 . . Spiro-condensed systems

C07D497/22 . in which the condensed system contains four or more hetero rings

**C07D498/00** **Heterocyclic compounds containing in the condensed system at least one hetero ring having nitrogen and oxygen atoms as the only ring hetero atoms** (4-oxa-1-azabicyclo [3.2.0] heptanes, e.g. oxapenicillins C07D503/00; 5-oxa-1-azabicyclo [4.2.0] octanes, e.g. oxacephalosporins C07D505/00; analogues thereof having ring oxygen atoms in other position C07D507/00)

C07D498/02 . in which the condensed system contains two hetero rings

C07D498/04 . . Ortho-condensed systems

C07D498/06 . . Peri-condensed systems

C07D498/08 . . Bridged systems

C07D498/10 . . Spiro-condensed systems

C07D498/12 . in which the condensed system contains three hetero rings

C07D498/14 . . Ortho-condensed systems

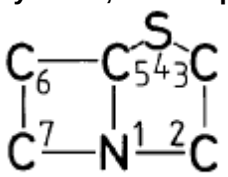
C07D498/16 . . Peri-condensed systems

C07D498/18 . . Bridged systems

C07D498/20 . . Spiro-condensed systems

C07D498/22 . in which the condensed system contains four or more hetero rings

**C07D499/00** **Heterocyclic compounds containing 4-thia-1-azabicyclo [3.2.0] heptane ring systems, i.e. compounds containing a ring system of the formula:**




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

C07D499/04 . Preparation [N0710]

C07D499/06 . . by forming the ring or condensed ring systems (by microbiological processes C12P37/00) [N0710]

C07D499/08 . . Modification of a carboxyl radical directly attached in position 2, e.g. esterification [N0710]

C07D499/10 . . Modification of an amino radical directly attached in position 6 [N0710]

C07D499/12 . . . Acylation [N0710]
C07D499/14 . . Preparation of salts [N0710]
C07D499/16 . . . of alkali or alkaline earth metals [N0710]
C07D499/18 . . Separation; Purification [N0710]
C07D499/20 . . . via salts with organic bases [N0710]

C07D499/21 . 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 [N0710]
C07D499/22 . . Salts with organic bases; Complexes with organic compounds [N0710]
C07D499/24 . . . with acyclic or carbocyclic compounds containing amino radicals [N0710]
C07D499/26 . . . with heterocyclic compounds [N0710]
C07D499/28 . . with modified 2-carboxyl group [N0710]
C07D499/30 . . . Acid anhydride [N0710]
C07D499/32 . . . Esters [N0710]
C07D499/34 . . . Thio-acid; Esters thereof [N0710]
C07D499/36 . . . . O-esters [N0710]
C07D499/38 . . . . S-esters [N0710]
C07D499/40 . . . Amides; Hydrazides; Azides [N0710]
C07D499/42 . . Compounds with a free primary amino radical attached in position 6 [N0710]
C07D499/44 . . Compounds with an amino radical acylated by carboxylic acids, attached in position 6 [N0710]
C07D499/46 . . . with acyclic hydrocarbon radicals or such radicals substituted by carbocyclic or heterocyclic rings, attached to the carboxamido radical [N0710]
C07D499/48 . . . 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 [N0710]
C07D499/50 . . . . substituted in beta-position to the carboxamido radical [N0710]
C07D499/52 . . . . . by oxygen or sulfur atoms [N0710]
C07D499/54 . . . . . by nitrogen atoms [N0710]
C07D499/56 . . . . . by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen [N0710]
C07D499/58 . . . . substituted in alpha-position to the carboxamido radical [N0710]
C07D499/60 . . . . . by oxygen atoms [N0710]
C07D499/62 . . . . . by sulfur atoms [N0710]
C07D499/64 . . . . . by nitrogen atoms [N0710]
C07D499/66 . . . . . with alicyclic rings as additional substituents on the carbon chain [N0710]
C07D499/68 . . . . . with aromatic rings as additional substituents on the carbon chain [N0710]
C07D499/70 . . . . . with hetero rings as additional substituents on the carbon chain [N0710]
C07D499/72 . . . . . by carbon atoms having three bonds to hetero atoms [N0710]
C07D499/74 . . . with carbocyclic rings directly attached to the carboxamido radical [N0710]
C07D499/76 . . . with hetero rings directly attached to the carboxamido radical [N0710]

C07D499/78 . . Compounds with an amino radical, acylated by carbonic acid, or by nitrogen or sulfur analogues thereof, attached in position 6 [N0710]

C07D499/80 . . Compounds with a nitrogen-containing hetero ring, attached with the ring nitrogen atom in position 6 [N0710]

C07D499/86 . 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 [N0710]

C07D499/861 . . with a hydrocarbon radical or a substituted hydrocarbon radical, directly attached in position 6 [N0710]

C07D499/865 . . 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 [N0710]

C07D499/87 . 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 [N0710]

C07D499/88 . 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 [C0710]

C07D499/881 . . with a hydrogen atom or an unsubstituted hydrocarbon radical, attached in position 3 [N0710]

C07D499/883 . . with a substituted hydrocarbon radical attached in position 3 [N0710]

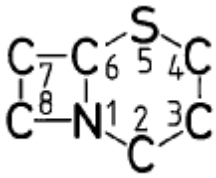
C07D499/887 . . with a hetero atom or a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, e.g. an ester or nitrile radical, directly attached in position 3 [N0710]

C07D499/893 . . with a hetero ring or a condensed hetero ring system, directly attached in position 3 [N0710]

C07D499/897 . 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 [N0710]

C07D499/90 . further condensed with carbocyclic rings or ring systems [5] [N0710]

**C07D501/00 Heterocyclic compounds containing 5-thia-1-azabicyclo [4.2.0] octane ring systems, i.e. compounds containing a ring system of the formula:**



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

C07D501/02 . Preparation [N0710]

C07D501/04 . . from compounds already containing the ring or condensed ring systems, e.g. by dehydrogenation of the ring, by introduction, elimination or modification of substituents [N0710]

C07D501/06 . . . Acylation of 7-aminocephalosporanic acid [N0710]

C07D501/08 . . by forming the ring or condensed ring systems (by microbiological processes C12P35/00) [N0710]

C07D501/10 . . . from compounds containing the penicillin ring system [N0710]

C07D501/12 . . Separation; Purification [N0710]

C07D501/14 . Compounds having a nitrogen atom directly attached in position 7 [N0710]

C07D501/16 . . with a double bond between positions 2 and 3 [N0710]

C07D501/18 . . . 7-Aminocephalosporanic or substituted 7-aminocephalosporanic acids [N0710]

C07D501/20 . . . 7-Acylaminocephalosporanic or substituted 7-acylaminocephalosporanic acids in which the acyl radicals are derived from carboxylic acids [N0710]

C07D501/22 . . . . with radicals containing only hydrogen and carbon atoms, attached in position 3 [N0710]

C07D501/24 . . . . with hydrocarbon radicals, substituted by hetero atoms or hetero rings, attached in position 3 [N0710]

C07D501/26 . . . . . Methylene radicals, substituted by oxygen atoms; Lactones thereof with the 2-carboxyl group [N0710]

C07D501/28 . . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted by hetero atoms [N0710]

C07D501/30 . . . . . with the 7-amino-radical acylated by an araliphatic carboxylic acid [N0710]

C07D501/32 . . . . . with the 7-amino radical acylated by an araliphatic carboxylic acid, which is substituted on the aliphatic radical by hetero atoms [N0710]

C07D501/34 . . . . . with the 7-amino radical acylated by carboxylic acids containing hetero rings [N0710]

C07D501/36 . . . . . Methylene radicals, substituted by sulfur atoms [N0710]

C07D501/38 . . . . . 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 [N0710]

C07D501/40 . . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted by hetero atoms [N0710]

C07D501/42 . . . . . with the 7-amino radical acylated by an araliphatic carboxylic acid [N0710]

C07D501/44 . . . . . with the 7-amino radical acylated by an araliphatic carboxylic acid, which is substituted on the aliphatic radical by hetero atoms [N0710]

C07D501/46 . . . . . with the 7-amino radical acylated by carboxylic acids containing hetero rings [N0710]

C07D501/48 . . . . . Methylene radicals, substituted by hetero rings (C07D501/38 to C07D501/46 take precedence) [N0710]

C07D501/50 . . . . . with the 7-amino radical acylated by an aliphatic carboxylic acid, which is substituted by hetero atoms [N0710]

C07D501/52 . . . . . with the 7-amino radical acylated by an araliphatic carboxylic acid [N0710]

C07D501/54 . . . . . with the 7-amino radical acylated by an araliphatic carboxylic acid, which is substituted on the aliphatic radical by hetero atoms [N0710]

C07D501/56 . . . . . with the 7-amino radical acylated by carboxylic acids containing hetero rings [N0710]

C07D501/57 . . . . with a further substituent in position 7, e.g. cephamycines [N0710]

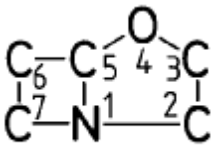
C07D501/58 . . . with a nitrogen atom, which is a member of a hetero ring, attached in position 7

[N0710]

C07D501/59 . . . with hetero atoms directly attached in position 3 [N0710]

C07D501/60 . . with a double bond between positions 3 and 4 [N0710]

C07D501/62 . Compounds further condensed with a carbocyclic ring or ring system [N0710]

**C07D503/00** **Heterocyclic compounds containing 4-oxa-1-azabicyclo [3.2.0] heptane ring systems, i.e. compounds containing a ring system of the formula:**  **, e.g. oxapenicillins, clavulanic acid derivatives; Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring** [N9412]

C07D503/02 . Preparation (by microbiological processes C12P17/18) [N0710]

C07D503/04 . . by forming the ring or condensed ring systems [N0710]

C07D503/06 . . from compounds already containing the ring or condensed ring systems, e.g. by dehydrogenation of the ring, by introduction, elimination or modification of substituents [N0710]

C07D503/08 . . . Modification of a carboxyl group directly attached in position 2, e.g. esterification [N0710]

C07D503/10 . 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 [N0710]

C07D503/12 . . unsubstituted in position 6 [N0710]

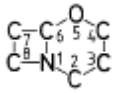
C07D503/14 . . . with hydrogen atoms, hydrocarbon or substituted hydrocarbon radicals, other than a carbon atom having three bonds to hetero atoms with at the most one bond to halogen, attached in position 3 [N0710]

C07D503/16 . . . . 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 [N0710]

C07D503/18 . . . . . by oxygen atoms [N0710]

C07D503/20 . . . . . by sulfur atoms [N0710]

C07D503/22 . . . . . by nitrogen atoms [N0710]

**C07D505/00** **Heterocyclic compounds containing 5-oxa-1-azabicyclo [4.2.0] octane ring systems, i.e. compounds containing a ring system of the formula:**  **, e.g. oxacephalosporins; Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring** [N9412]

C07D505/02 . Preparation (by microbiological processes C12P17/18) [N0710]

C07D505/04 . . by forming the ring or condensed ring systems [N0710]

C07D505/06 . . from compounds already containing the ring or condensed ring systems, e.g. by dehydrogenation of the ring, by introduction, elimination or modification of substituents [N0710]

C07D505/08 . . . Modification of a carboxyl group directly attached in position 2, e.g. esterification [N0710]

C07D505/10 . 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 [N0710]

C07D505/12 . . substituted in position 7 [N0710]

C07D505/14 . . . with hetero atoms directly attached in position 7 [N0710]

C07D505/16 . . . . Nitrogen atoms [N0710]

C07D505/18 . . . . . further acylated by radicals derived from carboxylic acids or by nitrogen or sulfur analogues thereof [N0710]

C07D505/20 . . . . . 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 [N0710]

C07D505/22 . . . . . {7 dots} further substituted by singly-bound nitrogen atoms [N0710]

C07D505/24 . . . . . {7 dots} further substituted by doubly-bound nitrogen atoms [N0710]

**C07D507/00** **Heterocyclic compounds containing a condensed beta-lactam ring system, not provided for by groups C07D463/00, C07D477/00 or C07D499/00 to C07D505/00; Such ring systems being further condensed** [N0710]

C07D507/02 . containing 3-oxa-1-azabicyclo [3.2.0] heptane ring systems [N0711]

C07D507/04 . containing 2-oxa-1-azabicyclo [4.2.0] octane ring systems [N0711]

C07D507/06 . containing 3-oxa-1-azabicyclo [4.2.0] octane ring systems [N0711]

C07D507/08 . containing 4-oxa-1-azabicyclo [4.2.0] octane ring systems [N0711]

**C07D513/00** **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 C07D463/00, C07D477/00 or C07D499/00 to C07D507/00**

C07D513/02 . in which the condensed system contains two hetero rings

C07D513/04 . . Ortho-condensed systems

C07D513/06 . . Peri-condensed systems

C07D513/08 . . Bridged systems

C07D513/10 . . Spiro-condensed systems

C07D513/12 . . in which the condensed system contains three hetero rings

C07D513/14 . . Ortho-condensed systems

C07D513/16 . . Peri-condensed systems

C07D513/18 . . Bridged systems

C07D513/20 . . Spiro-condensed systems

C07D513/22 . in which the condensed system contains four or more hetero rings

**C07D515/00** **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 C07D463/00, C07D477/00 or C07D499/00 to C07D507/00**

C07D515/02 . in which the condensed system contains two hetero rings
C07D515/04 . . Ortho-condensed systems
C07D515/06 . . Peri-condensed systems
C07D515/08 . . Bridged systems
C07D515/10 . . Spiro-condensed systems

C07D515/12 . in which the condensed system contains three hetero rings
C07D515/14 . . Ortho-condensed systems
C07D515/16 . . Peri-condensed systems
C07D515/18 . . Bridged systems
C07D515/20 . . Spiro-condensed systems

C07D515/22 . in which the condensed system contains four or more hetero rings

**C07D517/00 Heterocyclic compounds containing in the condensed system at least one hetero ring having selenium, tellurium or halogen atoms as ring hetero atoms**

C07D517/02 . in which the condensed system contains two hetero rings
C07D517/04 . . Ortho-condensed systems
C07D517/06 . . Peri-condensed systems
C07D517/08 . . Bridged systems
C07D517/10 . . Spiro-condensed systems

C07D517/12 . in which the condensed system contains three hetero rings
C07D517/14 . . Ortho-condensed systems
C07D517/16 . . Peri-condensed systems
C07D517/18 . . Bridged systems
C07D517/20 . . Spiro-condensed systems

C07D517/22 . in which the condensed system contains four or more hetero rings

**C07D519/00 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 C07D453/00 or C07D455/00**

C07D519/02 . Ergot alkaloids of the cyclic peptide type

C07D519/04 . Dimeric indole alkaloids, e.g. vincaleucoblastine

C07D519/06 . containing at least one condensed beta-lactam ring system, provided for by groups C07D463/00, C07D477/00 or C07D499/00 to C07D507/00, e.g. a penem or a cepham system [N0711]

**C07D521/00 Heterocyclic compounds containing unspecified hetero rings** [C0410]

**Note** [N0902]

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 C07D201/00 to C07D519/00