This Class 540 is considered to be an integral part of Class 260 (see the Class 260 schedule for the position of this Class in schedule hierarchy). This Class retains all pertinent definitions and class lines of Class 260.

ORGANIC COMPOUNDS (CLASS 532, SUBCLASS 1)

1. HETEROCYCLIC CARBON COMPOUNDS CONTAINING A HETERO RING HAVING CHALCOGEN (I.E., OXYGEN, SULFUR, SELENIUM OR TELLURIUM) OR NITROGEN AS THE ONLY RING HETERO ATOMS

2. Cyclopentanohydrophenanthrene ring system containing

3. Heavy metal or aluminum containing

4. Boron or silicon containing

5. Phosphorus attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

6. Spiro

7. Plural spiro atoms

8. The cyclopentanohydrophenanthrene ring system is part of a polycyclo ring system having at least five cyclos

9. Nitrogen containing hetero ring as one of the cyclos of the polycyclo ring system

10. The cyclopentanohydrophenanthrene ring system shares spiro atoms with two hetero rings, each of which contains two oxygens (e.g., 3,17-bis-ketals, etc.)

11. The cyclopentanohydrophenanthrene ring system shares a spiro atom with a lactone ring (i.e., -C(=X)=O is part of the ring, wherein X is chalcogen)

12. Plural oxygens in both rings which share a spiro atom (e.g., 17,20;20,21 bismethylenedioxy-pregnanes, etc.)

13. Nitrogen, sulfur, cyano or -C(=X)-, wherein X is chalcogen, bonded directly to the cyclopentanohydrophenanthrene ring system

14. Halogen attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by acyclic nonionic bonding

15. The cyclopentanohydrophenanthrene ring system is part of a polycyclo ring system having at least five cyclos

16. Hetero ring is one of the cyclos of the polycyclo ring system

17. The hetero ring is five-membered, consisting of one oxygen and four carbons, and shares the spiro atom with a six-membered oxygen containing hetero ring (e.g., sapogenins, etc.)

18. Purification or recovery

19. Chalcogen bonded directly at the 12-position of the cyclopentanohydrophenanthrene ring system (e.g., hecogenin, etc.)

20. Chalcogen bonded directly at the 11-position of the cyclopentanohydrophenanthrene ring system

21. Chalcogen bonded directly at the 7-position of the cyclopentanohydrophenanthrene ring system

22. Halogen, cyano, nitrogen or sulfur bonded directly to the cyclopentanohydrophenanthrene ring system

23. The spiro atom is the 17-position carbon of the cyclopentanohydrophenanthrene ring system
The hetero ring shares the 11,12,13-positions of the cyclopentanohydrophenanthrene ring system (i.e., bridged; e.g., 11,18-oxido steroids, etc.)

The hetero ring is three-membered consisting of one oxygen and two carbons (e.g., oxirane, etc.)

The hetero ring shares the 5,6-positions of the cyclopentanohydrophenanthrene ring system

The hetero ring contains two chalcogens which are bonded directly at the 16 and 17-positions of the cyclopentanohydrophenanthrene ring system

The spiro includes the cyclopentanohydrophenanthrene ring system and a hetero ring

Nitrogen in the spiro hetero ring

Sulfur in the spiro hetero ring

Plural oxygens in the spiro hetero ring

The A ring is a benzene ring

Chalcogen bonded directly to the spiro hetero ring

The spiro hetero ring shares the 3-position carbon of the cyclopentanohydrophenanthrene ring system

Halogen bonded directly to the cyclopentanohydrophenanthrene ring system

Nitrogen attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

Plural cyclic ketal rings containing (e.g., 3,20-bis-ketals, etc.)

Chalcogen bonded directly at the 11-position of the cyclopentanohydrophenanthrene ring system

The cyclopentanohydrophenanthrene ring system is fully saturated

Carbon chain having carbon-to-carbon unsaturation bonded directly at the 17 position of the cyclopentanohydrophenanthrene ring system

The spiro hetero ring contains -C(=X)-O-, wherein X is chalcogen, as part of the ring (e.g., spiro-lactones, etc.)

Sulfur bonded directly to the cyclopentanohydrophenanthrene ring system

Chalcogen bonded directly at the 11-position of the cyclopentanohydrophenanthrene ring system

Chalcogen, halogen, or nitrogen attached indirectly to the cyclopentanohydrophenanthrene ring system by acyclic nonionic bonding

The spiro hetero ring is four-membered consisting of one oxygen and three carbons

The spiro hetero ring is three-membered consisting of one oxygen and two carbons (e.g., oxirane, etc.)

The cyclopentanohydrophenanthrene ring system is part of a polycyclo ring system having at least five cyclos

Hetero ring is one of the cyclos of the polycyclo ring system

The hetero ring contains nitrogen

Plural nitrogens in the hetero ring

The hetero ring is five-membered

The hetero ring consists of two nitrogens and three carbons and is ortho fused to the A ring

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Having \(-\text{C}(=\text{X})\)-, wherein \(\text{X}\) is chalcogen, bonded directly at the 17-position of the cyclopentanohydrophenanthrene ring system.

The hetero ring consists of two nitrogens and three carbons and is ortho fused to the D ring.

Chalcogen in the hetero ring.

The hetero ring is five-membered.

The hetero ring contains sulfur.

The hetero ring is a cyclic anhydride (i.e., containing \(-\text{C}(=\text{X})-\text{O}-\text{C}(=\text{Y})\)- as part of the ring, wherein \(\text{X}\) and \(\text{Y}\) are chalcogen; e.g., 5,8-maleic anhydride adduct of 5,7,9(11)-pregnatrien-3,20-di-one, etc.).

The hetero ring contains plural oxygens.

Two of the cyclos share at least three ring members or a ring carbon is shared by three of the cyclos (e.g., bridged, peri-fused, etc.).

The hetero ring is ortho fused to the D ring.

At least six cyclos in the polycylo ring system.

Nitrogen or acyclic chalcogen bonded directly to the hetero ring (e.g., cyclic carbonates, etc.).

The A ring is a benzene ring.

Sulfur or nitrogen attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by acyclic nonionic bonding.

Halogen attached indirectly to the cyclopentanohydrophenanthrene ring system by acyclic nonionic bonding.

Halogen bonded directly to the cyclopentanohydrophenanthrene ring system.

Oxygen bonded directly at the 11-position of the cyclopentanohydrophenanthrene ring system.

Oxygen attached directly to the B ring or indirectly to the A or B ring by acyclic nonionic bonding.

The hetero ring is a lactone (i.e., containing \(-\text{C}(=\text{X})-\text{O}-\) as part of the ring, wherein \(\text{X}\) is chalcogen).

The lactone ring shares at least three ring members with one other cyclo of the polycylo ring system (i.e., bridged).

The lactone ring shares the 11,12,13-positions of the cyclopentanohydrophenanthrene ring system (e.g., 11, 18-lactones, etc.).

The lactone ring shares a ring carbon with two other cyclos of the polycylo ring system (e.g., peri-fused, etc.).

The hetero ring is three-membered consisting of one oxygen and two carbons (e.g., oxirane, etc.).

The polycylo ring system contains plural oxirane rings.

The hetero ring shares the 1,2-positions of the cyclopentanohydrophenanthrene ring system.

The hetero ring shares the 4,5-positions of the cyclopentanohydrophenanthrene ring system.

The hetero ring shares the 4,5-positions of the cyclopentanohydrophenanthrene ring system.

The hetero ring shares the 5,6-positions of the cyclopentanohydrophenanthrene ring system.

The hetero ring shares the 6,7-positions of the cyclopentanohydrophenanthrene ring system.
The hetero ring shares the 11,12-positions of the cyclopentanohydrophenanthrene ring system.
The hetero ring shares the 14,15-positions of the cyclopentanohydrophenanthrene ring system.
The hetero ring shares the 16,17-positions of the cyclopentanohydrophenanthrene ring system.
Halogen bonded directly to the cyclopentanohydrophenanthrene ring system.
Saturated A ring.
The hetero ring shares the 9,11-positions of the cyclopentanohydrophenanthrene ring system.
Halogen bonded directly to the cyclopentanohydrophenanthrene ring system.
Having -C(=X)-, wherein X is chalcogen, bonded directly to the cyclopentanohydrophenanthrene ring system.
The hetero ring shares at least three ring members with one other cyclo of the polycyclo ring system (i.e., bridged).
Bridge consisting of oxygen and carbon between the 6- and 10-positions of the cyclopentanohydrophenanthrene ring system (e.g., 6,19-oxido steroids, etc.).
Bridge consisting of oxygen and carbon between the 11- and 13-positions of the cyclopentanohydrophenanthrene ring system (e.g., 11,18-oxido steroids, etc.).
The hetero ring shares a ring carbon with two other cyclos of the polycyclo ring system (e.g., peri-fused, etc.).
Hetero ring attached directly to the cyclopentanohydrophenanthrene ring system by nonionic bonding.
The hetero ring contains nitrogen.
Plural nitrogen containing hetero rings bonded directly to the cyclopentanohydrophenanthrene ring system.
The hetero ring is bonded directly at the 3-position of the cyclopentanohydrophenanthrene ring system.
The A ring is a benzene ring.
Halogen bonded directly to the cyclopentanohydrophenanthrene ring system.
The hetero ring contains plural chalcogens.
The hetero ring and acyclic chalcogen are both bonded directly at the 17 position of the cyclopentanohydrophenanthrene ring system.
The hetero ring contains -C(=X)-O-, wherein X is chalcogen, as part of the ring (e.g., lactones, etc.).
Additional chalcogen, cyano, or -C(=X)-, wherein X is chalcogen, bonded directly to the hetero ring.
Nitrogen or sulfur attached directly or indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding.
Chalcogen bonded directly at the 14-position of the cyclopentanohydrophenanthrene ring system or double bond in the D ring (e.g., cardenolides, etc.).
Nitrogen attached directly to the cyclopentanohydrophenanthrene ring system by nonionic bonding.
107 ...Nitrogen containing hetero ring attached indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

108 ...The hetero ring is five-membered and has plural hetero atoms

109 ...The hetero ring is in the 17-position substituent of the cyclopentanohydrophenanthrene ring system

110 ...The hetero ring is bonded directly to a -C(=X)- group, wherein X is chalcogen

111 ...Having -C(=X)-, wherein X is chalcogen, bonded directly at the 17-position of the cyclopentanohydrophenanthrene ring system

112 ...Chalcogen or nitrogen in chain between the hetero ring and the cyclopentanohydrophenanthrene ring system

113 ...Chalcogen in chain between the hetero ring and the cyclopentanohydrophenanthrene ring system

114 ...Oxygen containing hetero ring attached indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

115 ...The hetero ring contains -C(=X)-O-, wherein X is chalcogen, as part of the ring (e.g., lactones, etc.)

116 ...Additional hetero atom in the oxygen containing hetero ring

117 ...The A ring is a benzene ring

118 ...The hetero ring is bonded directly to chalcogen which is bonded directly to the cyclopentanohydrophenanthrene ring system

119 ...The chalcogen is bonded directly at the 17-position of the cyclopentanohydrophenanthrene ring system

120 ...Chalcogen attached indirectly to the cyclopentanohydrophenanthrene ring system by nonionic bonding

121 ...Azaporphyrins

122 ...Phthalocyanines

123 ...Hetero ring attached directly or indirectly to the phthalocyanine ring system by nonionic bonding

124 ...The hetero ring is six-membered having nitrogen as a ring member

125 ......Plural hetero atoms in the six-membered hetero ring

126 ......Triazines (including hydrogenated)

127 ......The hetero ring is five-membered having plural hetero atoms, at least one of which is nitrogen

128 ......Boron, germanium, phosphorus or silicon containing

129 ......Having -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the phthalocyanine ring system (e.g., tetracarboxy copper phthalocyanine, etc.)

130 ......Having -C(=X)-, wherein X is chalcogen, attached indirectly to ring carbon of the phthalocyanine ring system by nonionic bonding (e.g., phthalocyanine acetic acids, etc.)

131 ......Sulfonyl bonded directly to ring carbon of the phthalocyanine ring system

132 ......Chalcogen bonded directly to the sulfonyl group

133 ......Nitrogen bonded directly to the sulfonyl group

134 ......Additional nitrogen in the sulfonyl containing substituent

135 ......Nitrogen attached indirectly to ring carbon of the phthalocyanine ring system by acyclic nonionic bonding

136 ......Halogen bonded directly to ring carbon of the phthalocyanine ring system
137 At least eight halogens bonded directly to ring carbons of the phthalocyanine ring system.

138 Processes of halogenating the phthalocyanine ring system.

139 Heavy metal or aluminum containing.

140 Specified crystalline form or processes of milling (e.g., alpha crystalline form, ball milling, acid milling, etc.).

141 Heavy metal containing.

142 Processes of forming the phthalocyanine ring system.

143 From reactant which contains plural cyano groups (e.g., preparing from phthalonitrile, etc.).

144 From reactant which contains plural carbonyl groups (e.g., preparing from phthalic anhydride, etc.).

145 Porphyrins (including hydrogenated; e.g., chlorophyll, etc.).

200 Hetero ring is four-membered containing nitrogen and having chalcogen double bonded directly to a ring carbon which is adjacent to the ring nitrogen.

201 Heavy metal containing.

202 Plural hetero atoms in the hetero ring.

203 Polycyclo ring system containing the hetero ring as one of the cyclos.

204 The ring nitrogen is shared by a ring containing at least seven members.

205 The ring nitrogen is shared by a five-membered ring.

214 The six-membered ring contains sulfur.

215 1-thia-5-aza-bicyclo(4.2.0)octane (including unsaturated; e.g., cephem, etc.).

216 The 1-thia-5-aza-bicyclo(4.2.0)oct-ane is part of a polycyclo ring system having at least three cyclos.

217 Double bond between the 2,3-positions of the bicyclo ring system (e.g., 2 cephem, etc.).

218 Ring expansion to produce the bicyclo ring system.

219 7-amino cephalosporanic acid per se or salt thereof (i.e., 7-ACA or salt thereof).

220 Purification or recovery.

221 7,7-disubstituted.

222 Additional hetero ring containing.

223 2- or 4-position substituent contains hetero ring.

224 3-position substituent contains a pyridine ring (e.g., quinoline, thienopyridine, lutidines, etc.).

225 7-position substituent contains hetero ring.

226 3-position substituent contains sulfur.

227 7-position substituent contains sulfur.

228 Alkyl, hydroxyalkyl, alkoxyalkyl or alkanoyloxyalkyl bonded directly to 3 position.

229 Sulfur containing substituent.

230 Alkyl, hydroxyalkyl, alkoxyalkyl or alkanoyloxyalkyl bonded directly to 3 position.

231 The six-membered ring contains oxygen.

300 The six-membered ring contains oxygen.

301 1-oxa-5-aza-bicyclo(4.2.0)octane (including unsaturated).

302 The ring nitrogen is shared by a five-membered ring.

303 The five-membered ring contains an additional hetero atom.

304 1-thia-4-aza-bicyclo(3.2.0)heptane (including unsaturated; e.g., penam, etc.).

305 The 1-thia-4-aza-bicyclo(3.2.0)hept-ane is part of a polycyclo ring system having at least three cyclos.
Plural 1-thia-4-aza-bicyclo(3.2.0)heptane ring systems attached directly or indirectly to each other by nonionic bonding

The 6-position substituent contains phosphorus attached directly or indirectly to the bicyclo ring system by nonionic bonding

Nitrogen containing hetero ring attached directly at the 3-position of the bicyclo ring system

Having -C(=X)-, wherein X is chalcogen, bonded directly at the 3-position of the bicyclo ring system

Nitrogen or hydrogen bonded directly to the -C(=X)- group

Nitrogen bonded directly at the 6-position of the bicyclo ring system

The 2-position substituent contains chalcogen, nitrogen or halogen

Having -C(=X)-, wherein X is chalcogen, single bonded directly to the nitrogen (e.g., penicillin F, etc.)

Processes utilizing penam containing compound

Introduction of -C(=X)- group, wherein X is chalcogen, onto nitrogen (e.g., carboxamide formation, etc.)

Boron, silicon or phosphorus containing reactant

Esterification of the 3-position -C(=X)X- group, wherein the X's may be the same or diverse chalcogens

Sulfur-oxidation, epimerization, 6-alkoxylation, de-esterification or reduction

Formation of solvate or anhydrous forms, or special crystalline forms

Conversion of amine salts to metal salts

Purification utilizing solid adsorbent

Base salt formation of 3-position -COOH group

Extracting solid from solution

The nitrogen is part of a hetero ring

Chalcogen, -C(=X)-, wherein X is chalcogen, or additional nitrogen bonded directly to the -C(=X)- group

Hetero ring or ring system bonded directly to the -C(=X)- group

Nitrogen containing ring or ring system attached by carbon or acyclic carbon chain to the -C(=X)- group

Polycyclo heterocyclic ring system in 6-position substituent

The polycyclo ring system is attached directly to a -C(=X)-NH- group, wherein X is chalcogen and substitution may be made for hydrogen only, which group is between the polycyclo ring system and the 1-thia-4-aza bicyclo(3.2.0)heptane

Acyclic nitrogen or azide attached indirectly to the -C(=X)- group by acyclic nonionic bonding

Having -C(=X)-, wherein X is chalcogen, bonded directly to the nitrogen

Hetero ring bonded directly to the -C(=X)- group

Chalcogen, additional nitrogen or additional -C(=X)- bonded directly to the -C(=X)- group

Additional acyclic nitrogen or acyclic chalcogen in the 6-position substituent

The -C(=X)- group, an unsubstituted benzene ring and -NHH bonded directly to the same carbon atom (e.g., ampicillin, etc.)

Cycloaliphatic ring in 6-position substituent

Benzene or hetero ring in 6-position substituent

The ring is bonded directly to the -C(=X)- group
Having \(-C(=X)X-\), wherein the X's may be the same or diverse chalcogens, in chain between the ring and the \(-C(=X)-\) group.

Chalcogen in the chain between the ring and the \(-C(=X)-\) group.

Unsubstituted hydrocarbyl chain between the ring and the \(-C(=X)-\) group.

Amine addition salts of 3-position \(-COOH\) group.

Nitrogen containing hetero ring in the cation (i.e., amine moiety).

Plural nitrogens in the cation (i.e., amine moiety).

Processes.

Bicyclo ring system which is 1-oxa-4-aza-bicyclo(3.2.0)heptane (including unsaturated).

Acyclic carbon double bonded directly at the 2-position of the bicyclo ring system.

Chalcogen attached directly by a single bond to the carbon or to an acyclic carbon chain which contains the carbon.

The ring system is 4-aza-bicyclo(3.2.0)heptane (including unsaturated) and has sulfur bonded directly at the 2-position.

Thienamycin per se or salt thereof.

Five-membered hetero ring consisting of one nitrogen, one sulfur and three carbons as one of the cyclos of the polycyclo ring system.

Double bond between ring members of the five-membered hetero ring.

Additional chalcogen bonded directly to the hetero ring.

The additional chalcogen is bonded directly to the ring nitrogen.

The additional chalcogen is double bonded directly to the hetero ring.

Having \(-C(=X)-\), wherein X is chalcogen, bonded directly to the additional chalcogen.

The additional chalcogen is sulfur which is bonded directly to chalcogen.

The sulfur is double bonded directly to the chalcogen.

Additional carbon bonded directly to the additional chalcogen.

Halogen attached directly at the 4-position of the hetero ring by nonionic bonding.

The 4-position of the hetero ring is unsubstituted or alkyl substituted only.

Nitrogen bonded directly at the 3-position of the hetero ring.

Nitrogen bonded directly at the 3-position of the hetero ring.

The hetero ring contains at least eight members including nitrogen and carbon.

Chalcogen double bonded directly to a ring carbon of the hetero ring which is adjacent to the ring nitrogen (e.g., laurolactam, etc.).

Heavy metal, aluminum, boron or silicon containing.

Spiro.

Chalcogen in the hetero ring.

Polycyclo ring system which contains the hetero ring as one of the cyclos.

Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.).

A five-membered cyclo of the polycyclo ring system consists of four ring carbons and one ring oxygen (e.g., fused rifamycins, etc.).

Tetracyclo ring system which contains the hetero ring as one of the cyclos (e.g., rifamycin S, etc.).

Nitrogen, sulfur or halogen attached directly to the tetracyclo ring system by nonionic bonding.
Plural nitrogens in the hetero ring

Polycyclo ring system which contains the hetero ring as one of the cyclos

Oxirane ring is one of the cyclos in the polycyclo ring system (e.g., maytansinol, etc.)

Nitrogen or additional chalcogen attached directly to the hetero ring by nonionic bonding

Utilizing oximes, oxime salts, hydroxylamines, hydroxylamine salts or nitrosating agents to form the hetero ring (i.e., formation of the lactam ring)

Heavy metal or aluminum containing

Spiro

The hetero ring contains chalcogen

Polycyclo ring system which contains the hetero ring as one of the cyclos

Plural nitrogens in the hetero ring

The hetero ring contains plural nitrogens

Polycyclo ring system which contains the hetero ring as one of the cyclos

Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc., toxiferin)

Bicyclo ring system which contains the hetero ring as one of the cyclos

The hetero ring contains at least three nitrogens

Nitro bonded directly to ring nitrogen of the hetero ring (e.g., HMX, etc.)

Polycyclo ring system which contains the hetero ring as one of the cyclos

Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)

...Plural nitrogens in the hetero ring

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Oxirane ring is one of the cyclos in the polycyclo ring system (e.g., maytansinol, etc.)

...Nitrogen or additional chalcogen attached directly to the hetero ring by nonionic bonding

...Utilizing oximes, oxime salts, hydroxylamines, hydroxylamine salts or nitrosating agents to form the hetero ring (i.e., formation of the lactam ring)

...Heavy metal or aluminum containing

...Spiro

...The hetero ring contains chalcogen

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Plural nitrogens in the hetero ring

...The hetero ring contains plural nitrogens

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc., toxiferin)

...Bicyclo ring system which contains the hetero ring as one of the cyclos

...The hetero ring contains at least three nitrogens

...Nitro bonded directly to ring nitrogen of the hetero ring (e.g., HMX, etc.)

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)

...Plural nitrogens in the hetero ring

...The hetero ring contains plural nitrogens

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)

...Oxirane ring is one of the cyclos in the polycyclo ring system (e.g., maytansinol, etc.)

...Nitrogen or additional chalcogen attached directly to the hetero ring by nonionic bonding

...Utilizing oximes, oxime salts, hydroxylamines, hydroxylamine salts or nitrosating agents to form the hetero ring (i.e., formation of the lactam ring)

...Heavy metal or aluminum containing

...Spiro

...The hetero ring contains chalcogen

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Plural nitrogens in the hetero ring

...The hetero ring contains plural nitrogens

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc., toxiferin)

...Bicyclo ring system which contains the hetero ring as one of the cyclos

...The hetero ring contains at least three nitrogens

...Nitro bonded directly to ring nitrogen of the hetero ring (e.g., HMX, etc.)

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)

...Plural nitrogens in the hetero ring

...The hetero ring contains plural nitrogens

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)

...Oxirane ring is one of the cyclos in the polycyclo ring system (e.g., maytansinol, etc.)

...Nitrogen or additional chalcogen attached directly to the hetero ring by nonionic bonding

...Utilizing oximes, oxime salts, hydroxylamines, hydroxylamine salts or nitrosating agents to form the hetero ring (i.e., formation of the lactam ring)

...Heavy metal or aluminum containing

...Spiro

...The hetero ring contains chalcogen

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Plural nitrogens in the hetero ring

...The hetero ring contains plural nitrogens

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc., toxiferin)

...Bicyclo ring system which contains the hetero ring as one of the cyclos

...The hetero ring contains at least three nitrogens

...Nitro bonded directly to ring nitrogen of the hetero ring (e.g., HMX, etc.)

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)

...Oxirane ring is one of the cyclos in the polycyclo ring system (e.g., maytansinol, etc.)

...Nitrogen or additional chalcogen attached directly to the hetero ring by nonionic bonding

...Utilizing oximes, oxime salts, hydroxylamines, hydroxylamine salts or nitrosating agents to form the hetero ring (i.e., formation of the lactam ring)

...Heavy metal or aluminum containing

...Spiro

...The hetero ring contains chalcogen

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Plural nitrogens in the hetero ring

...The hetero ring contains plural nitrogens

...Polycyclo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc., toxiferin)
...Tricyclo ring system having the hetero ring as one of the cyclos

...Nitrogen of the hetero ring is shared by an additional cyclo of the tricyclo ring system

...Additional hetero atom in the additional cyclo of the tricyclo ring system

...The additional cyclo is five-membered consisting of nitrogen and carbon (e.g., imidazobenzodiazepinones, etc.)

...The additional cyclo consists of three nitrogens and two carbons (e.g., triazolobenzodiazepinones, etc.)

...Bicyclo ring system having the hetero ring as one of the cyclos

...At least three nitrogens in the hetero ring

...At least three hetero atoms in the bicyclo ring system

...Chalcogen in the bicyclo ring system

...The bicyclo ring system is 1,4-benzodiazepine (including hydrogenated)

...The chalcogen double bonded directly to the hetero ring is sulfur

...Additional chalcogen bonded directly to ring carbon of the hetero ring

...The additional chalcogen is bonded directly at the 3-position of the bicyclo ring system

...Nitrogen or -C(=X)-, wherein X is chalcogen, attached indirectly to the chalcogen by acyclic nonionic bonding

...Acyclic nitrogen bonded directly to the hetero ring

...Having -C(=X)-, wherein X is chalcogen, bonded directly to the hetero ring

...Halogen bonded directly to the hetero ring

...Chalcogen attached indirectly to nitrogen of the hetero ring by acyclic nonionic bonding

...Sulfur, -C(=X)-, wherein X is chalcogen, or nitrogen, other than as nitro or nitroso, bonded directly to the carbocyclic ring of the bicyclo ring system

...Nitrogen in the 1-position substituent of the bicyclo ring system

...Preparation by cyclizing benzophenones or imine derivatives thereof

...Preparation from a compound containing a different hetero ring

...The bicyclo ring system is 1,5-benzodiazepine (including hydrogenated)

...Additional chalcogen double bonded directly to ring carbon of the hetero ring

...Polycylo ring system which contains the hetero ring as one of the cyclos

...Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)

...Plural hetero atoms in the polycylo ring system

...Tricyclo ring system which contains the hetero ring as one of the cyclos

...Bicyclo ring system which contains the hetero ring as one of the cyclos

...Additional hetero ring containing

...Plural seven-membered hetero rings

...Additional chalcogen bonded directly to the hetero ring

...Nitrogen bonded directly to the hetero ring

...The nitrogen is bonded additionally only to hydrogen

...Having -C(=X)-, wherein X is chalcogen, bonded directly to the hetero ring

...Halogen bonded directly to the hetero ring
531 ....Chalcogen or nitrogen attached indirectly to the hetero ring by nonionic bonding
532 ....Preparing from a compound containing a hetero ring
533 ....The hetero ring is a lactam (i.e., -C(=X)-NH- is part of the ring, wherein X is chalcogen and substitution may be made for the hydrogen only)
534 ....Preparing from a compound containing a cycloaliphatic ring
535 ......The reactant is a cyclic oxime
536 ......Gas phase rearrangement
537 ......Acyclic -C(=X)X-, wherein the X's are the same or diverse chalcogens, attached directly to the cycloaliphatic ring by nonionic bonding
538 ......Cyclization to form the hetero ring
539 ......Reactant contains a cyano group
540 ......Purification or recovery
541 ......Heavy metal or boron containing
542 ......Phosphorus attached directly or indirectly to the hetero ring by nonionic bonding
543 ......Spiro
544 ......The hetero ring contains chalcogen
545 ......Plural nitrogens in the heterocyclic ring
546 ......Polycyclo ring system which contains the hetero ring as one of the cyclos
547 ......Tricyclo ring system which contains the hetero ring as one of the cyclos
548 ......At least three ring hetero atoms in the tricyclo ring system
549 ......Sulfur and nitrogen are bonded directly to each other in the hetero ring
550 ......The nitrogen of the hetero ring is bonded directly to both remaining rings of the tricyclo ring system (e.g., dibenzo(b,e)(1,4)thiazepine, etc.)
551 ......Nitrogen bonded directly to ring carbon of the hetero ring
552 ......Bicyclo ring system which contains the hetero ring as one of the cyclos
553 ......The hetero ring contains plural nitrogens (e.g., 1,3-diazepines, etc.)
554 ......The hetero ring contains at least three nitrogens
555 ......Polycyclo ring system which contains the hetero ring as one of the cyclos
556 ......Two of the cyclos share at least three ring members or a ring member is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)
557 ......Tricyclo ring system which contains the hetero ring as one of the cyclos
558 ......Nitrogen of the hetero ring is shared by an additional cyclo of the tricyclo ring system
559 ......The additional cyclo has at least six ring members
560 ......Chalcogen in the tricyclo ring system
561 ......The additional cyclo consists of one nitrogen and four carbons (e.g., diazepinoindoles, etc.)
562 ......The additional cyclo consists of two nitrogens and three carbons (e.g., imidazobenzodiazepines, etc.)
563 ......s-Triazolo(4,3-a)(1,4)-benzodi-azepines (including hydrogenated)
564 ......Chalcogen, nitrogen, cyano or halogen bonded directly to ring carbon of the triazolo ring
565 ......Nitrogen attached indirectly to ring carbon of the triazolo ring by acyclic nonionic bonding
566 ......The unshared ring carbon of the triazolo ring is unsubstituted or alkyl substituted only
567 ......Bicyclo ring system which contains the hetero ring as one of the cyclos

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568 ......At least three ring hetero atoms in the bicyclo ring system
569 ......1,4-benzodiazepines (including hydrogenated)
570 ......Chalcogen bonded directly to ring carbon of the hetero ring
571 ......Nitrogen bonded directly to ring carbon of the hetero ring
572 ......Chalcogen or nitrogen attached indirectly to ring carbon of the hetero ring by acyclic nonionic bonding
573 ......Chalcogen or nitrogen attached indirectly to ring carbon of the hetero ring by acyclic nonionic bonding
574 ......Formation of the 1,4-benzodiazepine ring system
575 ......The nitrogens are in the 1,4-positions of the hetero ring
576 ......Polycyclo ring system which contains the hetero ring as one of the cyclos
577 ......Plural nitrogens in the polycyclo ring system
578 ......Three or more hetero atoms in the polycyclo ring system
579 ......Nitrogen of the hetero ring is shared by an additional cyclo of the polycyclo ring system
580 ......The seven-membered hetero ring shares ring members with one other cyclo only
581 ......Two of the cyclos share at least three ring members or a ring carbon is shared by three of the cyclos (e.g., bridged, peri-fused, etc.)
582 ......Bicyclo ring system which contains the hetero ring as one of the cyclos (e.g., 3-azabicyclo-(3.2.2)nonanes, etc.)
583 ......Having -C(=X)-, wherein X is chalcogen, bonded directly to ring nitrogen of the bicyclo ring system
584 ......Chalcogen or nitrogen attached directly to ring nitrogen of the bicyclo ring system by nonionic bonding
585 ......Chalcogen or nitrogen attached indirectly to ring nitrogen of the bicyclo ring system by acyclic nonionic bonding
586 ......Tricyclo ring system which contains the hetero ring as one of the cyclos
587 ......The hetero ring shares ring members with each of two benzene rings in the tricyclo ring system (e.g., morphanthridines, etc.)
588 ......The nitrogen of the hetero ring is bonded directly to each of the two benzene rings (e.g., iminodibenzyl, etc.)
589 ......Having -C(=X)-, wherein X is chalcogen, bonded directly to ring nitrogen of the tricyclo ring system
590 ......Nitrogen attached directly or indirectly to ring carbon of the hetero ring by acyclic nonionic bonding
591 ......Chalcogen attached directly or indirectly to the hetero ring by acyclic nonionic bonding
592 ......Nitrogen attached indirectly to ring nitrogen of the hetero ring by acyclic nonionic bonding
593 ......Bicyclo ring system which contains the hetero ring as one of the cyclos
594 ......3-Benzazepines (including hydrogenated)
595 ......Benzene ring bonded directly to ring carbon of the hetero ring
596 ......Additional hetero ring attached directly or indirectly to the hetero ring by nonionic bonding
597 ......The additional hetero ring is six-membered and contains nitrogen
598 ......Plural hetero atoms in the additional hetero ring
599 ......Polycyclo ring system having the additional hetero ring as one of the cyclos
600 ......The additional hetero ring is 1,3-diazine (including hydrogenated)
601 ......The additional hetero ring is 1,3-diazine (including hydrogenated)
602 ....The additional hetero ring is five-membered and contains nitrogen
603 .....Plural hetero atoms in the additional hetero ring
604 ...Chalcogen attached directly to the hetero ring by nonionic bonding
605 ...Nitrogen attached directly to the hetero ring by nonionic bonding
606 ....Chalcogen, additional nitrogen, or -C(=X)-, wherein X is chalcogen, attached directly to the nitrogen by nonionic bonding
607 ...Having -C(=X)-, wherein X is chalcogen, bonded directly to nitrogen of the hetero ring
608 ....Chalcogen bonded directly to the -C(=X)- group
609 ....Chalcogen or nitrogen attached indirectly to the hetero ring by acyclic nonionic bonding
610 ....The chalcogen or nitrogen is multiple bonded to a carbon (e.g., cyano or carbonyl groups, etc.)
611 ...Benzene ring bonded directly to the hetero ring
612 ...The hetero ring is unsubstituted or alkyl substituted only

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