This Class 544 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)

. HETEROCYCLIC CARBON COMPOUNDS CONTAINING A HETERO RING HAVING CHALCOGEN (I.E., OXYGEN, SULFUR, SELENIUM, OR TELLURIUM) OR NITROGEN AS THE ONLY RING HETERO ATOMS (Class 540, subclass 1)

1. Hetero ring is six-membered having two or more ring hetero atoms of which at least one is nitrogen (e.g., selenazines, etc.)

2. Six-membered hetero ring consists of oxygen, sulfur, nitrogen and carbon (e.g., oxathiazines, etc.)

3. Six-membered hetero ring consists of sulfur, nitrogen, and carbon

4. Heavy metal or aluminum containing

5. Plural sulfurs in the six-membered hetero ring (e.g., dithiazines, etc.)

6. Spiro

7. Plural nitrogens in the six-membered hetero ring (e.g., thiatriazines, etc.)

8. Thiadiazines

9. Polycyclo ring system having the thiadiazine ring as one of the cyclos

10. Bicyclo ring system having the thiadiazine ring as one of the cyclos

11. Benzothiadiazines

12. 1,2,4-benzothiadiazines

13. Sulframyl or substituted sulframyl containing

14. Polycyclo ring system having the six-membered hetero ring as one of the cyclos

31. Phentothiazine as three cyclos of polycyclo ring system having at least four cyclos

32. Tricyclo ring system having the six-membered hetero ring as one of the cyclos

33. 1,2- or 2,1-Thiazine ring in the tricyclo ring system (e.g., hydrogenated 1,2-benzothiazine in tricyclo ring system, etc.)

34. Plural ring nitrogens in the tricyclo ring system

35. Phentothiazines (including hydrogenated)

36. Purification or recovery

37. Nitrogen bonded directly to phentothiazine ring system

38. Carbon bonded directly to ring nitrogen of phentothiazine ring system

39. Divalent chalcogen double bonded directly to the carbon

40. Additional chalcogen bonded directly to the carbon

41. Nitrogen containing substituent bonded to nitrogen of phentothiazine ring system

42. Nitrogen containing hetero ring in the nitrogen containing substituent (e.g., oxazole, etc.)

43. Plural hetero rings in the nitrogen containing substituent

44. Piperazine ring in the nitrogen containing substituent

45. Chalcogen in the nitrogen containing substituent

46. Chalcogen in the nitrogen containing substituent

47. Bicyclo ring system having the six-membered hetero ring as one of the cyclos

48. Three or more ring hetero atoms in the bicyclo ring system

49. Benzothiazines (including hydrogenated)

50. 1,3- or 3,1-benzothiazines

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51 .......1,4-benzothiazines
52 .......Double bonded divalent chalcogen containing
53 .....1,3-thiazines
54 .....Double bonded divalent chalcogen containing
55 .....Additional hetero ring containing
56 .....1,4-thiazines
57 .....Phosphorus containing
58.1 .....Double bonded divalent chalcogen containing
58.2 ......Divalent chalcogen double bonded directly to the thiazine ring
58.4 ......Having -C(=X)-, wherein X is chalcogen, bonded directly to the thiazine ring
58.5 ......Additional hetero ring containing
58.6 ......Ring nitrogen in the additional hetero ring, which is six-membered
58.7 ......Ring chalcogen in the additional hetero ring
59 .....Thiomorpholines (i.e., fully hydrogenated 1,4-thiazines)
60 ......Additional hetero ring containing
61 ......The additional hetero ring is one of the cyclos in a bicyclo ring system
62 .......Beno is the other cyclo
63 ......Six-membered hetero ring consists of oxygen, nitrogen and carbon (e.g., 1,2-oxazines, etc)
64 ......Heavy metal or aluminum containing
65 ......Plural oxygens in the six-membered hetero ring
66 ......Plural nitrogens in the six-membered hetero ring
67 ......1,3,5-oxadiazines
68 ......Oxygen bonded directly to the six-membered hetero ring
69 ......Boron or silicon containing
70 ......Spiro
71 ......Spiro oxazine
72 ......Plural oxazine rings
73 ......Polycyclo ring system having oxazine ring as at least one of the cyclos
74 ......Plural 1,4-oxazine rings are cyclos in the polycyclo ring system
75 ......Pentacyclo ring system having the oxazine rings as cyclos
76 ......Plural nitrogens bonded directly to the pentacyclo ring system
77 ......Acyclic nitrogen is bonded directly to a -C(=X)- group, wherein X is chalcogen
78 ......Plural morpholine rings (i.e., plural fully hydrogenated 1,4-oxazine rings)
79 ......Polycyclo ring system
80 ......Ring nitrogen in the polycyclo ring system
81 ......Four or more ring nitrogens in the polycyclo ring system
82 ......Additional nitrogen containing hetero ring (e.g., thiazole, etc.)
83 ......Triazine
84 ......Phosphorus attached directly or indirectly to a morpholine ring by nonionic bonding
85 ......Sulfur attached directly or indirectly to a morpholine ring by nonionic bonding
86 ......Nitrogen attached directly or indirectly to a morpholine ring by nonionic bonding
87 ......Oxygen attached directly or indirectly to a morpholine ring by nonionic bonding
88 ......1,3-Oxazines
89 ......Polycyclo ring system having the oxazine ring as one of the cyclos
90 ......Bicyclo ring system having the oxazine ring as one of the cyclos
91 ......Three or more ring hetero atoms in the bicyclo ring system
92 ......Chalcogen bonded directly to the oxazine ring
93 ......Plural oxygens bonded directly to the oxazine ring
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<th>Description</th>
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<td>Chalcogen bonded directly to the oxazine ring</td>
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<td>Phenoxazines (including hydrogenated)</td>
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<td>Sulfur containing</td>
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<td>105</td>
<td>Bicyclo ring system having the oxazine ring as one of the cyclos (e.g., benzoxazines, etc.)</td>
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<td>Morpholines (i.e., fully hydrogenated 1,4-oxazines)</td>
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<td>Addition salts of morpholine which is unsubstituted or hydrocarbyl substituted only</td>
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<td>Additional nitrogen containing hetero ring (e.g., thiazetidine, etc.)</td>
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<td>Diazine ring</td>
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<td>The diazine ring is one of the cyclos in a polycyclo ring system</td>
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<td>116</td>
<td>The diazine ring is one of the cyclos in a bicyclo ring system</td>
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<td>117</td>
<td>Three or more ring hetero atoms in the bicyclo ring system</td>
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<td>Four or more ring nitrogens in the bicyclo ring system</td>
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<td>1,3-Diazine ring</td>
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<td>Oxygen bonded directly to the diazine ring</td>
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<td>124</td>
<td>Six-membered ring consisting of one nitrogen and five carbons (e.g., pyridine, etc.)</td>
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<td>The additional six-membered hetero ring is one of the cyclos in a polycyclo ring system</td>
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<td>126</td>
<td>The additional six-membered hetero ring is one of the cyclos in a tricyclo ring system</td>
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<td>127</td>
<td>The additional six-membered hetero ring is one of the cyclos in a bicyclo ring system</td>
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<td>128</td>
<td>Quinoline or isoquinoline (including hydrogenated)</td>
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<td>129</td>
<td>Piperidine ring</td>
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<td>Double bonded divalent chalcogen containing</td>
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<td>131</td>
<td>Double bonded divalent chalcogen containing</td>
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<td>132</td>
<td>Five-membered hetero ring having two or more ring hetero atoms of which at least one is nitrogen</td>
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<tr>
<td>133</td>
<td>The five-membered hetero ring has at least sulfur and nitrogen as ring hetero atoms</td>
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<tr>
<td>134</td>
<td>Plural sulfurs or nitrogens in the five-membered hetero ring (e.g., thiaatriazole, etc.)</td>
</tr>
<tr>
<td>135</td>
<td>Benzothiazoles (including hydrogenated)</td>
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<tr>
<td>136</td>
<td>Polysulfide containing chain between morpholine ring and benzothiazole ring system</td>
</tr>
</tbody>
</table>
The five-membered hetero ring has at least oxygen and nitrogen as ring hetero atoms

Oxadiazole ring (including hydrogenated)

1,3-Diazole ring (including hydrogenated)

1,2-Diazole ring (including hydrogenated)

Five-membered hetero ring consisting of one nitrogen and four carbons

The five-membered hetero ring is one of the cyclos in a polycyclo ring system

The five-membered hetero ring is one of the cyclos in a bicyclo ring system

Chalcogen bonded directly to the bicyclo ring system

Sulfur containing hetero ring (e.g., thioxane, etc.)

Thiophene ring (including hydrogenated)

Additional oxygen containing hetero ring

Plural ring hetero atoms in the additional hetero ring

The additional hetero ring is six-membered

The additional six-membered hetero ring is one of the cyclos in a polycyclo ring system

The additional six-membered hetero ring is one of the cyclos in a bicyclo ring system

The additional hetero ring is five-membered

The five-membered hetero ring is one of the cyclos in a polycyclo ring system

Polycyclo-carbocyclic ring system having at least three cyclos

Tricyclo having three six-membered carbocyclic rings

Anthrone or anthraquinone

Phosphorus attached directly or indirectly to morpholine ring by nonionic bonding

Sulfur attached directly or indirectly to morpholine ring by nonionic bonding

Nitrogen attached directly or indirectly to morpholine ring by nonionic bonding

Double bonded divalent sulfur

Nitrogen attached directed or indirectly to morpholine ring by nonionic bonding

Cyano containing

Morpholine ring bonded directly to the nitrogen

Carbocyclic ring bonded directly to the nitrogen

Morpholine ring bonded directly to the carbocyclic ring

Nitro bonded directly to the carbocyclic ring

Oxygen double bonded and acyclic nitrogen bonded directly to the same carbon

A ring bonded directly to the carbon

Oxygen attached directly or indirectly to morpholine ring by nonionic bonding

The oxygen is in a -COO- group

Carbonyl of -COO- group bonded directly to a ring

The oxygen is bonded directly to a ring

Ether containing

The oxygen is in a carbonyl group

The carbonyl is bonded directly to nitrogen of morpholine ring

Ether containing

N-hydrocarbyl morpholines

Triazines

Heavy metal or aluminum containing

Asymmetrical (e.g., 1, 2, 4-triazines, etc.)

Polycyclo ring system having the asymmetrical triazine ring as one of the cyclos
184 ......Four or more ring hetero 
atoms in the polycyclo ring 
system
185 ......Hexamethylenetetramines
186 ......Processes
187 ......Anthrone or anthraquinone 
containing
188 ......Polycyclo ring system having 
the anthrone or anthraquinone 
and at least one hetero ring 
as cyclos
189 ......Sulfur containing
190 ......Cyanuric chloride or 
dichloroisocyanuric acid salt
191 ......Processes utilizing cyanogen 
chloride reactant
192 ......Cyanuric acid per se or salt 
thereof
193 ......Trimerization process to form 
the triazine ring
193.1 ......Stilbene containing
193.2 ......Plural triazine rings 
containing
194 ......Substituent nitrogen bonded 
directly to carbon of the 
triazine ring
195 ......Phosphorus containing
196 ......Three substituent nitrogens 
bonded directly to the three 
carbons of the triazine ring
197 ......Additional ring containing
198 ......Hetero ring
199 ......Halogen or sulfur 
containing
200 ......Melamine per se, or salt 
thereof
201 ......Processes utilizing urea 
or biuret reactant
202 ......Processes utilizing 
cynamide or dicyanamide 
reactant
203 ......Purification or recovery
204 ......Two substituent nitrogens 
bonded directly to two carbons 
of the triazine ring
205 ......Guanamines
206 ......Additional ring containing
207 ......Hetero ring
208 ......Additional ring containing
209 ......Hetero ring
210 ......Sulfur containing
211 ......Additional ring containing
212 ......Hetero ring
213 ......Sulfur containing
214 ......Phosphorus containing
215 ......Chalcogen or halogen 
containing substituent
216 ......Bonded to triazine ring 
carbon
217 ......Halogen bonded directly to 
triazine ring carbon
218 ......Chalcogen bonded directly 
to triazine ring carbon
219 ......Chalcogen bonded directly 
to triazine ring carbon
220 ......Divalent chalcogen double 
bonded directly to triazine 
ring carbon
221 ..........To three ring carbons
222 ..........Nitrogen containing 
substituent
223 ..........To two ring carbons
224 ...........The six-membered hetero ring 
consists of two nitrogens and 
four carbons (e.g., 1,2-
diazines, etc.)
225 ..........Heavy metal or aluminum 
containing
226 ..........Arsenic or zinc containing
227 ..........Mercury containing
228 ..........Purine containing 
(including hydrogenated)
229 ..........Boron or silicon containing
230 ..........Spiro
231 ..........Spiro diazine
232 ..........Phosphorus attached directly 
or indirectly to a 1,2-diazine 
ing by nonionic bonding
233 ..........Polycyclo ring system having 
a 1,2-diazine ring as one of 
the cyclos
234 ..........Tricyclo ring system having 
the 1,2-diazine ring as one of 
the cyclos
235 ..........Bicyclo ring system having 
the 1,2-diazine ring as one of 
the cyclos
236 ..........At least three ring 
nitrogens in the bicyclo ring 
system
237 ..........Phthalazines (including 
hydrogenated)
238 ..........1,2-diazines which contain an 
additional hetero ring
239 ..........Chalcogen bonded directly to 
ring carbon of a 1,2-diazine 
ring
240 ..........Plural chalcogens bonded 
directly
1. Halogen attached directly to the 1,2-diazine ring by nonionic bonding
2. 1,3-diazines
3. Phosphorus attached directly or indirectly to the diazine ring by nonionic bonding
4. Polycyclo ring system having the diazine ring as one of the cyclos
5. Polycyclo ring system having the diazine ring as one of the cyclos
6. Tetracyclo ring system having the diazine ring as one of the cyclos
7. Three or more ring hetero atoms in the tetracyclo ring system
8. Ring carbon is shared by three of the cyclos (e.g., anthrapirimidine, etc.)
9. Tricyclo ring system having the diazine ring as one of the cyclos
10. Three or more ring hetero atoms in the tricyclo ring system
11. Four or more ring nitrogens in the tricyclo ring system
12. Ring nitrogen is shared by two of the cyclos
13. Bicyclo ring system having the diazine ring as one of the cyclos
14. At least five ring hetero atoms in the bicyclo ring system
15. Four ring hetero atoms in the bicyclo ring system
16. Four ring nitrogens in the bicyclo ring system
17. Pteridines (including hydrogenated)
18. Nitrogen bonded directly to the pteridine ring system
19. Plural nitrogens bonded directly to the pteridine ring system
20. At 2- and 4-positions
21. Pteroyl per se or having -C(=X)-, wherein X is chalcogen, bonded directly to acyclic nitrogen of otherwise unsubstituted pteroyl
22. The other cyclo in the bicyclo ring system is five-membered
23. Ring nitrogen is shared by two cyclos
24. Purines (including hydrogenated)
25. Chalcogen bonded directly to ring carbon of the purine ring system
26. At 2-, 6-, and 8-positions
27. At 2- and 6-positions (e.g., theophyllines, etc.)
28. Additional polycyclo ring system, which is not another purine, having a hetero ring as one of the cyclos
29. Additional hetero ring which is unsaturated and is not one of the cyclos of a purine ring system
30. Plural ring nitrogens in the additional hetero ring
31. Having -C(=X)-, wherein X is chalcogen attached directly or indirectly to the purine ring system by nonionic bonding or halogen bonded directly at 8-position (e.g., theophylline acetate, 8-chlorotheophylline, etc.)
32. Nitrogen attached directly or indirectly to the purine ring system by nonionic bonding
33. Positions other than 2- and 6- are unsubstituted or hydrocarbyl or hydrocarboyl substituted only (e.g., theophylline, etc.)
34. Caffeine per se, theobromine per se, or salt thereof
35. Recovery of caffeine per se, theobromine per se, or salt thereof, from natural or waste material
276 ............Nitrogen attached directly or indirectly to the purine ring system by nonionic bonding
277 ............Nitrogen attached directly or indirectly to the purine ring system by nonionic bonding
278 .........Three ring hetero atoms in the bicyclo ring system
279 .........Three ring nitrogens in the bicyclo ring system
280 .........The other cyclo in the bicyclo ring system is five-membered
281 ...........Ring nitrogen is shared by the two cyclos
282 .........Ring nitrogen is shared by two cyclos
283 .........The other cyclo in the bicyclo ring system is a benzene ring (e.g., quinazoline, etc.)
284 ...........Additional nitrogen containing unsaturated heterocyclic ring (e.g., thiazole, etc.)
285 ...........Chalcogen bonded directly at 2- and 4-positions
286 ...........Chalcogen bonded directly at 2-position
287 ...........Chalcogen bonded directly at 4-position
288 ...........Sulfur bonded directly at 6-position
289 ...........Carbocyclic ring bonded directly at 2-position
290 ...........Carbocyclic ring bonded directly at 3-position
291 ...........Nitrogen bonded directly at 2- and 4-positions
292 ...........Nitrogen bonded directly at 2-position
293 ...........Nitrogen bonded directly at 4-position
294 .........Polycyclo-carbocyclic ring system having at least three cyclos
295 .........Plural diazine rings
296 .........Plural 1,3-diazine rings
297 .........Nitrogen attached directly at 2-position by nonionic bonding and sulfur bonded directly to the nitrogen
298 .........Chalcogen bonded directly to diazine ring carbon
299 ...........At 2-, 4-, and 6-positions (e.g., barbituric acid, etc.)
300 ...........Additional hetero ring which is unsaturated
301 ...........Nitrogen attached directly or indirectly to the diazine ring by nonionic bonding
302 ...........Additional chalcogen attached directly or indirectly to the diazine ring by nonionic bonding
303 ...........Halogen attached directly or indirectly to the diazine ring by nonionic bonding
304 ...........Alicyclic ring attached directly or indirectly to the diazine ring by nonionic bonding
305 ...........Phenyl bonded directly at 5-position
306 ...........Acyclic ethylenic or acetylenic unsaturation containing
307 ...........Plural alkyl groups bonded directly at 5-position
308 ...........Plural diverse alkyl groups bonded directly at 5-position
309 ...........At 2-position and at 4- or 6-position
310 ...........Additional hetero ring which is unsaturated
311 ...........Nitrogen attached directly or indirectly to the diazine ring by nonionic bonding
312 ...........5-position is unsubstituted or alkyl substituted only
313 ...........Halogen attached directly to the diazine ring by nonionic bonding
314 ...........Additional chalcogen attached directly or indirectly to the diazine ring by nonionic bonding
315 ...........At 2-position
316 ...........Nitrogen attached directly or indirectly to the diazine ring by nonionic bonding
317 ...........The nitrogen is bonded directly at 4- or 6-position
318 ...........Additional chalcogen attached directly or indirectly to the diazine ring by nonionic bonding

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319 .......At 4- or 6-position
320 .......Nitrogen attached directly at 2-position by nonionic bonding
321 .......Carbocyclic ring containing
322 .......Nitrogen attached directly to diazine ring by nonionic bonding
323 .......At 2-position and at 4- or 6-position
324 .......Additional hetero ring which is unsaturated
325 .......Substituent on 5-position contains carbocyclic ring
326 .......At 4- or 6-position
327 .......Sulfur attached indirectly to the diazine ring by nonionic bonding (e.g., thiamines, etc.)
328 .......Additional hetero ring which is unsaturated
329 .......Carbonyl attached directly or indirectly to the diazine ring by nonionic bonding
330 .......At 2-position
331 .......Additional hetero ring which is unsaturated
332 .......Chalcogen attached indirectly to the diazine ring by nonionic bonding
333 .......Additional hetero ring which is unsaturated
334 .......Halogen attached directly to the diazine ring by nonionic bonding
335 .......Chalcogen attached indirectly to the diazine ring by nonionic bonding
336 .......1,4-diazines
337 .......Phosphorus attached directly or indirectly to the diazine ring by nonionic bonding
338 .......Polycyclo ring system having the diazine ring as one of the cyclos
339 .......Heptacyclo ring system having the diazine ring as one of the cyclos (e.g., indanthrones, etc.)
340 .......Chalcogen attached indirectly to the heptacyclo ring system by nonionic bonding
341 .......Halogen, nitrogen, or carbon attached directly to the heptacyclo ring system by nonionic bonding
342 .......Pentacyclo ring system having the diazine ring as one of the cyclos
343 .......Tetracyclo ring system having the diazine ring as one of the cyclos (e.g., benzophenazines, etc.)
344 .......Tricyclo ring system having the diazine ring as one of the cyclos
345 .......Three or more ring hetero atoms in the tricyclo ring system
346 .......Ring nitrogen is shared by two of the cyclos (e.g., ergot, alkaloids, etc.)
347 .......Phenazines (including hydrogenated)
348 .......Nitrogen attached directly to the phenazine ring system by nonionic bonding
349 .......Bicyclo ring system having the diazine ring as one of the cyclos
350 .......Three or more ring hetero atoms in the bicyclo ring system
351 .......Triethylene diamines
352 .......Process of forming, purifying, or recovering triethylene diamine per se, or salt thereof
353 .......Quinoxalines (including hydrogenated)
354 .......Chalcogen bonded directly to diazine ring carbon
355 .......Having -C(=X)-, wherein X is chalcogen, bonded directly to diazine ring carbon
356 .......Halogen or nitrogen attached directly to diazine ring carbon by nonionic bonding
357 .......Plural diazine rings
358 .......Piperazines (i.e., fully hydrogenated 1,4-diazines)
359 .......Additional hetero ring containing
360 .......Six-membered ring consisting of one nitrogen and five carbons (e.g., pyridine, etc.)
The additional six-membered hetero ring is one of the cyclos in a polycyclo ring system.

The additional six-membered hetero ring is one of the cyclos in a bicyclo ring system.

Quinoline or isoquinoline (including hydrogenated).

At least three hetero rings containing at least one nitrogen.

Five-membered hetero ring having two or more ring hetero atoms of which at least one is nitrogen.

Ring chalcogen in the five-membered hetero ring.

The five-membered hetero ring containing one of the cyclos in a polycyclo ring system.

1,3-oxazole ring or 1,3-thiazole ring (including hydrogenated).

1,3-diazole ring (including hydrogenated).

1,2-diazole ring (including hydrogenated).

Five-membered hetero ring consisting of one nitrogen and four carbons.

The five-membered hetero ring containing one of the cyclos in a bicyclo ring system.

Ring chalcogen in the additional hetero ring.

Polycyclo ring system having the additional hetero ring as one of the cyclos.

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

Plural ring chalcogens in the bicyclo ring system.

Plural ring chalcogens in the polycyclo ring system or the piperazine ring bonded directly to the polycyclo ring system.

The additional hetero ring is five-membered and unsaturated (e.g., thienyl piperazines, etc.).

Polycyclo-carbocyclic ring system having at least three cyclos.

Piperazine ring bonded directly to the polycyclo-carbocyclic ring system.

Nitrogen attached directly to the piperazine ring by nonionic bonding.

Chalcogen attached directly to piperazine ring nitrogen by nonionic bonding.

Chalcogen bonded directly to piperazine ring carbon.

Plural chalcogens bonded directly to piperazine ring carbons.

Having -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the additional six-membered hetero ring (e.g., nicotinic acid, etc.).

The five-membered hetero ring is one of the cyclos in a bicyclo ring system.

Ring chalcogen in the additional hetero ring.

Polycyclo-carbocyclic ring system having at least three cyclos.

At least three hetero rings containing hydrogenated.

1,3-oxazole ring or 1,3-thiazole ring (including hydrogenated).

1,3-diazole ring (including hydrogenated).

1,2-diazole ring (including hydrogenated).

Five-membered hetero ring consisting of one nitrogen and four carbons.

The five-membered hetero ring containing one of the cyclos in a bicyclo ring system.

Ring chalcogen in the additional hetero ring.

Polycyclo ring system having the additional hetero ring as one of the cyclos.

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

Plural ring chalcogens in the bicyclo ring system.

Plural ring chalcogens in the polycyclo ring system or the piperazine ring bonded directly to the polycyclo ring system.

The additional hetero ring is five-membered and unsaturated (e.g., thienyl piperazines, etc.).

Polycyclo-carbocyclic ring system having at least three cyclos.

Piperazine ring bonded directly to the polycyclo-carbocyclic ring system.

Nitrogen attached directly to the piperazine ring by nonionic bonding.

Chalcogen attached directly to piperazine ring nitrogen by nonionic bonding.

Chalcogen bonded directly to piperazine ring carbon.

Plural chalcogens bonded directly to piperazine ring carbons.

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

Plural -C(=X)- groups bonded directly to the piperazine ring.

Chalcogen or acyclic nitrogen bonded directly to at least one of the -C(=X) groups.

The -C(=X)- is part of a -C(=X)X- group, wherein the X's are the same or diverse chalcogens.

Halogen or acyclic nitrogen bonded directly to the -C(=X)- group.

Carbocyclic ring containing.

Phenyl or naphthyl bonded directly to ring nitrogen of the piperazine ring.

Acyclic nitrogen bonded directly to a -C(=X)- group, wherein X is chalcogen.

The other ring nitrogen has a substituent which includes chalcogen single bonded to acyclic carbon.

The other ring nitrogen is unsubstituted or alkyl substituted only, or salt thereof.

Plural carbocyclic rings bonded directly to the same acyclic carbon.
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397 .......Chalcogen bonded directly to the carbon
398 .......Chalcogen attached indirectly to the piperazine ring by nonionic bonding
399 .......The chalcogen, X, is in a -C(=X)= group
400 .........Acyclic nitrogen bonded directly to the -C(=X)= group
401 .........The chalcogen is single bonded to both acyclic carbon and hydrogen
402 .........Nitrogen attached indirectly to the piperazine ring by nonionic bonding
403 ......Carbocyclic ring containing
404 ......N-hydrocarbyl piperazines
405 ......Additional hetero ring which is unsaturated
406 ......Having -C(=X)=, wherein X is chalcogen, bonded directly to the diazine ring
407 ......Nitrogen attached directly to the diazine ring by nonionic bonding
408 ......Chalcogen bonded directly to diazine ring carbon
409 ......Halogen attached directly to the diazine ring by nonionic bonding
410 ......Unsubstituted or hydrocarbyl substituted only, or salt thereof

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

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