

<p>This Class 548 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.</p> <p>ORGANIC COMPOUNDS (CLASS 532, SUBCLASS 1)</p> <p>.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)</p> <p>100 ..Hetero ring is five-membered having two or more ring hetero atoms of which at least one is nitrogen (e.g., selenazoles, etc.)</p> <p>101 ...Heavy metal or aluminum containing</p> <p>102Arsenic containing</p> <p>103The metal is bonded directly to carbon, which carbon is a ring carbon of the five-membered hetero ring or which carbon is attached directly or indirectly to the five-membered hetero ring by nonionic bonding</p> <p>104The metal is bonded directly to chalcogen of a -C(=X)X-group, wherein the X's are the same or diverse chalcogens, which group is attached directly or indirectly to the five-membered hetero ring by nonionic bonding</p> <p>105The metal is bonded directly to chalcogen which chalcogen is attached directly to the five-membered hetero ring by nonionic bonding</p> <p>106The metal is bonded directly to chalcogen which chalcogen is attached indirectly to the five-membered hetero ring by nonionic bonding</p>	<p>107The metal is in an anion and the five-membered hetero ring is in a cation</p> <p>108Polycyclo ring system having the five-membered hetero ring as one of the cyclos</p> <p>109Azide or acyclic nitrogen containing</p> <p>110 ...Boron or silicon containing</p> <p>111 ...Phosphorus attached directly to the five-membered hetero ring by nonionic bonding</p> <p>112 ...Phosphorus attached indirectly to the five-membered hetero ring by nonionic bonding</p> <p>113Polycyclo ring system having the five-membered hetero ring as one of the cyclos</p> <p>114The polycyclo ring system and phosphorus are both bonded directly to the same chalcogen</p> <p>115The five-membered hetero ring and phosphorus are both bonded directly to the same nitrogen</p> <p>116The five-membered hetero ring and phosphorus are both bonded directly to the same chalcogen</p> <p>117The five-membered hetero ring contains chalcogen as a ring hetero atom</p> <p>118The five-membered hetero ring contains at least three ring nitrogens</p> <p>119 ...The phosphorus is part of a substituent which is attached directly to ring carbon of the five-membered hetero ring</p> <p>120 ...The five-membered hetero ring contains ring selenium and is one of the cyclos in a polycyclo ring system</p> <p>121 ...Bicyclo ring system having the five-membered hetero ring as one of the cyclos</p> <p>122 ...The five-membered hetero ring consists of sulfur, oxygen, nitrogen, and carbon</p> <p>123 ...Plural ring sulfurs in the five-membered hetero ring</p> <p>124 ...Plural ring oxygens in the five-membered hetero ring</p> <p>125 ...The five-membered hetero ring consists of chalcogen, plural nitrogens, and carbon</p>
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126Polycyclo ring system having the five-membered hetero ring as one of the cyclos	144Chalcogen bonded directly to ring carbon of the oxadiazole ring
127	....1,2,3-thiadiazoles (including hydrogenated)	145	....Plural carbocyclic rings bonded directly to the oxadiazole ring
128	....1,2,4-thiadiazoles (including hydrogenated)	146	...1,3-thiazoles (including hydrogenated)
129	....Chalcogen bonded directly to ring carbon of the thiadiazole ring	147	....Spiro
130	.....Nitrogen or additional chalcogen bonded directly to ring carbon of the thiadiazole ring	148	....Polycyclo ring system having the thiazole ring as one of the cyclos
131	....1,2,4-oxadiazoles (including hydrogenated)	149	....Tetracyclo ring system having the thiazole ring as one of the cyclos
132	....Chalcogen bonded directly to ring carbon of the oxadiazole ring	150	....Tricyclo ring system having the thiazole ring as one of the cyclos
133	....Nitrogen attached directly to the oxadiazole ring by nonionic bonding	151	.....At least three ring hetero atoms in the tricyclo ring system
134	....1,2,5-thiadiazoles (including hydrogenated)	152	....Bicyclo ring system having the thiazole ring as one of the cyclos
135	....Chalcogen or nitrogen attached directly to ring carbon of the thiadiazole ring by nonionic bonding	153	.....At least three ring hetero atoms in the bicyclo ring system
136	....1,3,4-thiadiazoles (including hydrogenated)	154	.....Ring nitrogen is shared by the two cyclos
137	....Diazole ring attached directly to the thiadiazole ring by nonionic bonding	155	.....Tetramisole per se or salt thereof (including hydrogenated)
138	....Nitrogen attached directly to the thiadiazole ring by nonionic bonding	156	.....Plural benzothiazoles (including hydrogenated)
139	.....Having -C(=X)-, wherein X is chalcogen, attached directly to the nitrogen by nonionic bonding	157	.....Chalcogen bonded directly to ring carbon of the thiazole ring
140	.....Additional nitrogen attached directly to the -C(=X)- group by nonionic bonding	158	.....Plural benzothiazole ring systems bonded directly to chain consisting of plural sulfurs
141	.....Chalcogen or additional nitrogen attached directly to ring carbon of the thiadiazole ring by nonionic bonding	159	.....Additional polycyclo heterocyclic ring system containing
142	....Chalcogen bonded directly to the 2- and 5- positions of the thiadiazole ring	160	.....Polycyclo-carbocyclic ring system having at least three cyclos
143	....1,3,4-oxadiazoles (including hydrogenated)	161	.....Nitrogen attached directly to the thiazole ring by nonionic bonding
		162	.....The nitrogen is a ring hetero atom

163	.....Carbonyl or thiocarbonyl bonded directly to the nitrogen	183	.....Plural chalcogens bonded directly to ring carbons of the thiazole ring
164	.....The nitrogen bonded additionally only to hydrogen	184	.....Nitrogen attached directly to the thiazole ring by nonionic bonding
165	.....Chalcogen bonded directly to ring carbon of the thiazole ring	185	.....Having -C(=X)-, wherein X is chalcogen, bonded directly to nitrogen
166	.....Chalcogen bonded directly to the chalcogen	186	.....Chalcogen attached indirectly to the thiazole ring by nonionic bonding
167	.....Nitrogen attached directly to the chalcogen by nonionic bonding	187	.....The chalcogen, X, is in a -C(=X)- group
168	.....The nitrogen is bonded additionally directly to two carbons	188	.....The -C(=X)- group is bonded directly to the thiazole ring
169	.....Chalcogen attached indirectly to the thiazole ring by nonionic bonding	189	.....Nitrogen attached indirectly to the thiazole ring by nonionic bonding
170	.....The chalcogen, X, is in a -C(=X)- group	190	.....Nitrogen attached directly to the thiazole ring by nonionic bonding
171	.....Nitrogen bonded directly to the -C(=X)- group	191	.....Plural nitrogens attached directly to the thiazole ring by nonionic bonding
172	.....Nitrogen attached directly to chalcogen by nonionic bonding	192	.....Nitrogen bonded directly to a -C(=X)- group, wherein X is chalcogen
173	.....Halogen attached directly or indirectly to the bicyclo ring system by nonionic bonding	193	.....Chalcogen attached indirectly to the thiazole ring by nonionic bonding
174	.....Sulfur double bonded or thiol bonded directly to ring carbon of the thiazole ring	194	.....The chalcogen, X, is in a -C(=X)- group
175	.....Process of forming the bicyclo ring system	195	.....The -C(=X)- group is bonded directly to the nitrogen
176	.....Aniline or alkyl derivative thereof utilized as starting material	196	.....Chalcogen or additional nitrogen bonded directly to the -C(=X)- group
177	.....Purification or recovery	197	.....Nitrogen bonded directly to chalcogen
178	.....Chalcogen or nitrogen attached directly to the other cyclo of the bicyclo ring system by nonionic bonding	198	.....Nitrogen attached indirectly to the thiazole ring by nonionic bonding
179	.....Chalcogen attached indirectly to the bicyclo ring system by nonionic bonding	199	.....The nitrogen is bonded additionally only to hydrogen
180	.....The chalcogen, X, is in a -C(=X)- group	200	.....Having -C(=X)-, wherein X is chalcogen, bonded directly to the thiazole ring
181	....Polycyclo heterocyclic ring system containing ring nitrogen	201	.....The -C(=X)- is part of a -C(=X)X- group, wherein the X's are the same or diverse chalcogens
182	....Chalcogen bonded directly to ring carbon of the thiazole ring		

202	....Plural double bonds between ring members of thiazole ring	221	....Chalcogen bonded directly at the 2-position of the oxazole ring
203	....Chalcogen attached indirectly to the thiazole ring by nonionic bonding	222	....Nitrogen bonded directly at the 2-position of the oxazole ring
204	.....The chalcogen, X, is in a -C(=X)- group	223	....At least four rings in the polycyclo ring system
205	....Nitrogen attached indirectly to the thiazole ring by nonionic bonding	224	....Carbocyclic ring bonded directly at the 2-position of the oxazole ring
206	...1,2-thiazoles (including hydrogenated)	225	...Chalcogen bonded directly to ring carbon of the oxazole ring
207	...Polycyclo ring system having the thiazole ring as one of the cyclos	226	....Plural chalcogens bonded directly to ring carbons of the oxazole ring
208	....Ring carbon is shared by three of the cyclos of the polycyclo ring system	227	....Chalcogens bonded directly at 2- and 5-positions of the oxazole ring
209	....Acyclic chalcogen bonded directly to ring carbon of the thiazole ring	228	....Chalcogen bonded directly at 5-position of the oxazole ring
210	.....At least three chalcogens bonded directly to the thiazole ring	229	....Chalcogen bonded directly at 2-position of the oxazole ring
211	.....Saccharin per se or salt thereof	230	....Nitrogen, halogen, or -C(=X)-, wherein X is chalcogen, attached directly to the oxazole ring by nonionic bonding
212	....Nitrogen attached directly to the thiazole ring by nonionic bonding	231	.....3-position substituent contains ethylenic or acetylenic unsaturation or nitrogen
213	...Chalcogen bonded directly to ring carbon of the thiazole ring	232	.....4- or 5-position substituent contains chalcogen
214	...Nitrogen or chalcogen attached indirectly to the thiazole ring by nonionic bonding	233	...Nitrogen bonded directly to ring carbon of the oxazole ring
215	...1,3-oxazoles (including hydrogenated)	234	....Additional ring attached directly to the nitrogen by nonionic bonding
216	....Spiro	235	...Plural double bonds between the ring members of the oxazole ring
217	...Polycyclo ring system having the oxazole ring as one of the cyclos	236	....Cyano or -C(=X)-, wherein X is chalcogen, attached directly or indirectly to the oxazole ring by nonionic bonding
218	....At least three ring hetero atoms in the polycyclo ring system	237	...One double bond between the ring members of the oxazole ring
219	....Plural polycyclo ring systems having the oxazole ring as one of the cyclos in each of the ring systems	238	....2-position substituent contains nitrogen, other than as nitro or nitroso
220	.....Plural oxazole-containing polycyclo ring systems each bonded directly to the same polycyclo ring system or the same hetero ring		

- 2392-position is unsubstituted or hydrocarbyl substituted only
- 240 ...1,2-oxazoles (including hydrogenated)
- 241Polycyclo ring system having the oxazole ring as one of the cyclos
- 242At least three ring hetero atoms in the polycyclo ring system
- 243Chalcogen bonded directly to ring carbon of the oxazole ring
- 244Nitrogen bonded directly to ring carbon of the oxazole ring
- 245Nitrogen bonded directly to ring carbon of the oxazole ring
- 246Nitrogen bonded directly to the 3-position of the oxazole ring
- 247Plural double bonds between ring members of the oxazole ring
- 248Having -C(=X)-, wherein X is chalcogen, bonded directly to ring carbon of the oxazole ring by nonionic bonding
- 2494-position substituent contains plural chalcogens, attached indirectly to the oxazole ring by nonionic bonding, none of which is bonded directly to phenyl
- 250 ...Tetrazoles (including hydrogenated)
- 251Chalcogen or nitrogen attached directly to the tetrazole ring by nonionic bonding
- 252Chalcogen attached indirectly to the tetrazole ring by nonionic bonding
- 253The chalcogen, X, is in a -C(=X)- group
- 254Nitrogen attached indirectly to the tetrazole ring by nonionic bonding
- 255 ...1,2,3-triazoles (including hydrogenated)
- 256Polycyclo heterocyclic ring system containing ring oxygen
- 257Polycyclo ring system having the triazole ring as one of the cyclos
- 258Ring nitrogen is shared by two of the cyclos
- 259Chalcogen attached directly to the polycyclo ring system by nonionic bonding
- 260Chalcogen attached indirectly to the polycyclo ring system by nonionic bonding
- 261The chalcogen, X, is in a -C(=X)- group
- 262.2 ...1,2,4-triazoles (including hydrogenated)
- 262.4Polycyclo ring system having the triazole ring as one of the cyclos
- 262.6Having -NH-C(=X)-NHH attached directly to the triazole ring by nonionic bonding (wherein X is chalcogen or =NH, and substitution may be made for hydrogen only)
- 262.8 ...Plural nitrogens attached to the triazole ring indirectly by acyclic nonionic bonding, two of which are bonded directly to the same acyclic carbon
- 263.2Chalcogen bonded directly to ring carbon of the triazole ring
- 263.4Plural chalcogen bonded directly to ring carbons of the triazole ring
- 263.6The 1- and 2- positions of the triazole ring are unsubstituted, or are alkyl or cycloalkyl substituted only
- 263.8Halogen or nitrogen attached directly to the triazole ring by nonionic bonding
- 264.2Carbon bonded directly to the chalcogen
- 264.4Nitrogen or additional chalcogen attached indirectly to the chalcogen by acyclic nonionic bonding
- 264.6Benzene ring bonded directly to the 4-position of the triazole ring
- 264.8Nitrogen attached directly to the triazole ring by nonionic bonding

- 265.2Plural nitrogens attached directly to the triazole ring by nonionic bonding
- 265.4Having -C(=X)-, wherein X is chalcogen, bonded directly to the nitrogen
- 265.6The nitrogen is further bonded to hydrogen only
- 265.8Benzene ring bonded directly to ring nitrogen of the triazole ring, and directly to the acyclic carbon of a benzoyl or benzyl group
- 266.2Additional unsaturated hetero ring attached directly or indirectly to the triazole ring by nonionic bonding
- 266.4The additional unsaturated hetero ring is one of the cyclos of a polycyclo ring system (except alkylenedioxyphenyl)
- 266.6The additional unsaturated hetero ring and the triazole ring are attached to the same acyclic atom or to the same acyclic chain
- 266.8Cyano or -C(=X)-, wherein X is chalcogen, bonded directly to the triazole ring
- 267.2Nitrogen attached indirectly to the triazole ring by acyclic nonionic bonding
- 267.4The nitrogen is double or triple bonded to carbon
- 267.6Having -C(=X)-, wherein X is chalcogen, bonded directly to the nitrogen
- 267.8Chalcogen attached indirectly to the triazole ring by acyclic nonionic bonding
- 268.2The triazole ring and the chalcogen are bonded directly to the same acyclic carbon
- 268.4Acyclic carbon bonded directly to triazole ring nitrogen is multiple bonded to an additional carbon
- 268.6Plural chalcogens attached indirectly to the triazole ring by acyclic nonionic bonding
- 268.8The triazole ring and a hetero ring whose ring members are carbon and chalcogen are bonded directly to the same acyclic carbon
- 269.2Processes for forming the triazole ring
- 269.4Benzene ring bonded directly to the triazole ring
- 300.1 ...1,3-diazoles (including hydrogenated)
- 300.4Polycyclo ring system containing anthracene configured ring system having at least one double bond between ring members and having oxygen single bonded or any atom double bonded directly at the 9- or 10-positions (e.g., anthrone, anthraquinone, etc.)
- 300.7Spiro
- 301.1One of the two rings which form the spiro is part of a polycyclo ring system
- 301.4Acyclic chalcogen bonded directly at the 2- and at the 4- or 5- positions of the 1,3-diazole ring [e.g., cyclohexanespiro-5`-(3`-hydroxymethyl) hydantoin, etc.]
- 301.7Polycyclo ring system having the diazole ring as one the cyclos
- 302.1Tricyclo ring system having the diazole ring as one the cyclos
- 302.4The 1,3-diazole shares ring nitrogen with a five-membered ring having no additional hetero atoms (e.g., imidazo [2,1-a] isoindole, etc.)
- 302.7Bicyclo ring system having the diazole ring as one of the cyclos
- 303.1At least three ring hetero atoms in the bicyclo ring system (e.g., furo- imidazole, (1,2-a) imidazole, pyrazo (1,2-a) imidazolidine, etc.)
- 303.4Four ring nitrogens in the bicyclo ring system (e.g., glycoluril, etc.)

- 303.7The other cyclo is a five-membered hetero ring having one sulfur and four carbons (e.g., cis-tetrahydro-2-oxothieno [3,4-d]-imidazoline 4-valeric acid or biotin, etc.)
- 304.1Having -C(=O)-HN-, wherein substitution may be made for H, attached directly or indirectly to the bicyclo ring system by acyclic nonionic bonding (e.g., biotin amide, biotinylglycine, etc.)
- 304.4The other ring is a benzene ring
- 304.7Additional hetero ring attached directly or indirectly to the diazole ring by nonionic bonding (e.g., methyl(5-[2-(2-thienyl)-1,3-dioxolan -2-yl]-1H-benzimidazol-2-yl) carbamate, etc.)
- 305.1The additional hetero ring is a cyclo in a polycyclo ring system (e.g., benzofuranyl-benzimidazole, etc.)
- 305.4The additional polycyclo ring system contains a 1,3-diazole [e.g., bis (benzimidazol-2-yl) stilene, etc.]
- 305.7The polycyclo ring systems are bonded to the same acyclic carbon atom or to the same acyclic carbon chain (e.g., di-[2-benzimidazolyl]-methane; di-[benzimidazolyl-(2)]-monohydroxyethylene, etc.)
- 306.1The additional hetero ring contains nitrogen as the only ring hetero atom [e.g., 2-(2'-imidazol-2'-yl)-benzimidazole; 1-p-chlorophenyl-3-pyrrolidin-1'-yl-propyl benzimidazolone, etc.]
- 306.4Chalcogen bonded directly to ring carbon of the diazole ring
- 306.7Plural chalcogens attached directly to the diazole ring by nonionic bonding
- 307.1The chalcogen is sulfur
- 307.4Nitrogen attached directly to the diazole ring by nonionic bonding
- 307.7Chalcogen attached directly to diazole ring nitrogen by nonionic bonding
- 308.1Having -C(=X)-, wherein X is chalcogen, bonded directly to the diazole ring
- 308.4Acyclic nitrogen bonded directly to the -C(=X)- group
- 308.7Having -C(=X)-X-, wherein the X's are the same or diverse chalcogens, attached indirectly to the diazole ring by acyclic nonionic bonding
- 309.1Chalcogen bonded directly to the benzene ring of the bicyclo ring system
- 309.4Having -C(=X)-, wherein X is chalcogen, bonded directly to the diazole ring
- 309.7Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 310.1Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 310.4Halogen attached directly or indirectly to the diazole ring by acyclic nonionic bonding
- 310.7Benzene ring bonded directly at the 2- position of the diazole ring
- 311.1Additional hetero ring attached directly or indirectly to the diazole ring by nonionic bonding (e.g., 1,3-dioxolan-2-yl methyl-imidazole, etc.)
- 311.4The additional hetero ring is a cyclo in a polycyclo ring system [e.g., 2-(1-isothiochromanyl)-2-imidazoline hydrochloride, etc.]
- 311.7At least two ring hetero atoms in the polycyclo ring system

- 312.1The additional polycyclo ring system is a bicyclo ring system having nitrogen as the only ring hetero atom [e.g., 5-(indolyl-3-methylene)-hydantoin, etc.]
- 312.4The additional hetero ring is a diazole ring (including hydrogenated)
- 312.7Plural 1,3-diazoles
- 313.1Additional diverse hetero ring attached directly or indirectly to a diazole ring by nonionic bonding
- 313.4The diazole rings are bonded directly to each other
- 313.7Ring nitrogens of two diazole rings attached directly to the same atom or chain, which chain may include a ring, by nonionic bonding
- 314.1Acyclic chalcogen bonded directly at the 2- and at the 4- or 5- positions of each of the two diazole rings (e.g., N, N` methylene bis - hydantoin, etc.)
- 314.4Two diazole rings are bonded directly to the same carbon atom or carbon chain, which chain may include a ring
- 314.7The additional hetero ring contains nitrogen as the only ring hetero atom [e.g., N-(cyclopentylcarbonyl-L-histidyl)-pyrrolidine, etc.]
- 315.1The additional hetero ring contains sulfur as the only ring hetero atom [e.g., 5-(2-thienyl) hydantoin, etc.]
- 315.4The additional hetero ring is a five-membered ring having oxygen and four carbons (e.g., pilocarpine; 2-[5-(3,4-dimethoxyphenyl)-2-furyl]imidazole hydrochloride, etc.)
- 315.7Acyclic chalcogen bonded directly to ring carbon of the 1,3-diazole ring
- 316.1Plural acyclic chalcogens bonded directly at the 2- and at the 4- or 5- positions of the 1,3-diazole ring [e.g., N-(5-nitro-2-furfuryliden)-1-amino-hydantoin, etc.]
- 316.4Chalcogen bonded directly to ring carbon of the diazole ring (e.g., N-vinyl-N, N`ethylene urea, etc.)
- 316.7Additional chalcogen attached directly to ring nitrogen of the diazole ring by nonionic bonding
- 317.1Plural chalcogens bonded directly to ring carbons of the diazole ring
- 317.5Three chalcogens bonded directly to ring carbons of the diazole ring
- 318.1Nitrogen attached directly to the diazole ring by nonionic bonding [e.g., (2,5-dioxo-4-imidazolidinyl)urea or allantoin, etc.]
- 318.5Having -C(=X)-, wherein X is chalcogen, bonded directly to the diazole ring
- 319.1Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 319.5The chalcogen, X, is in a -C(=X)- group
- 320.1Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 320.5Halogen attached directly or indirectly to the diazole ring by acyclic nonionic bonding
- 321.1Benzene ring bonded directly to the diazole ring
- 321.5Nitrogen attached directly to the diazole ring by nonionic bonding
- 322.1The nitrogen is attached directly to ring nitrogen of the diazole ring by nonionic bonding (e.g., dinitroethylene urea, etc.)
- 322.5Having -C(=X)-, wherein X is chalcogen, bonded directly to the diazole ring
- 323.1Acyclic nitrogen bonded directly to the -C(=X)- group
- 323.5Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 324.1The chalcogen, X, is in a -C(=X)- group

- 324.5Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 325.1The chalcogen is sulfur or selenium (e.g., 2-mercaptoimidazoline, ethylenethiourea, etc.)
- 325.5Benzene ring bonded directly to the diazole ring
- 326.1The diazole ring is further unsubstituted (e.g., cyclic ethylene urea, etc.)
- 326.5Nitrogen attached directly to the diazole ring by nonionic bonding
- 327.1The nitrogen is part of a nitro group (i.e., -NO), (e.g., 5-nitroimidazole, etc.)
- 327.5The nitro group is bonded directly at the 2-position of the diazole ring
- 328.1Having -C(=X)-, wherein X is chalcogen, bonded directly to the diazole ring
- 328.5Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 329.1The nitrogen is multiply bonded to carbon
- 329.5Benzene ring bonded directly at the 2-position of the diazole ring
- 330.1Chalcogen, not part of a nitro group, attached indirectly to the diazole ring by acyclic nonionic bonding
- 330.5The chalcogen is sulfur
- 331.1Chalcogen or the nitrogen attached directly to diazole ring nitrogen by nonionic bonding
- 331.5The nitrogen is bonded directly at the 2-position of the diazole ring
- 332.1Having -C(=X)-, wherein X is chalcogen, bonded directly to the diazole ring
- 332.5Chalcogen, additional nitrogen, or -C(=X)-, wherein X is chalcogen or nitrogen, attached directly to the nitrogen by nonionic bonding
- 333.1Benzene ring bonded directly to the nitrogen
- 333.5Having -C(=X)-, wherein X is chalcogen, bonded directly to the diazole ring
- 334.1The -C(=X)- is bonded directly to ring nitrogen of the diazole ring
- 334.5The -C(=X)- is part of a -C(=X)X- group, wherein the X's are the same or diverse chalcogens (e.g., imidazole-4,5-dicarboxylic acid, etc.)
- 335.1Two double bonds between ring members of the diazole ring (i.e., imidazole)
- 335.5Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 336.1The nitrogen is multiply bonded to carbon
- 336.5Having a -C=N group bonded directly to the nitrogen (e.g., N-cyano-N'-methyl-N--{2-(4-methyl-5-imidazolyl)-methylthio]-ethyl}guanidine, etc.)
- 337.1The nitrogen is part of a -C=N group which is bonded directly to the diazole ring (e.g., 4,5-dicyanoimidazole, etc.)
- 338.1Having -C(=X)-, wherein X is chalcogen, bonded directly to the nitrogen
- 338.5The chalcogen is sulfur or sulfur attached indirectly to the -C(=X)- group by acyclic nonionic bonding
- 339.1The nitrogen and -C(=X)X-, wherein X's are the same or diverse chalcogens, are bonded directly to the same acyclic carbon atom (e.g., -amino-4(5)-imidazole propionic acid or histidine, etc.)
- 339.5Halogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 340.1Chalcogen attached indirectly to the nitrogen by acyclic nonionic bonding
- 341.1Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 341.5The chalcogen, X, is in a -C(=X)- group
- 342.1The chalcogen is sulfur

- 342.5Benzene ring or halogen attached directly to the diazole ring by nonionic bonding (e.g., 1-hydroxyethyl-4,5-diphenyl-imidazole; 1-ethyloxymethyl-2, 4,5-trichloro-imidazole, etc.)
- 343.1Halogen attached directly or indirectly to the diazole ring by acyclic nonionic bonding
- 343.5Benzene ring bonded directly to the diazole ring
- 344.1The diazole ring and two benzene rings are bonded directly to the same acyclic carbon
- 345.1Cycloaliphatic ring bonded directly to the diazole ring
- 346.1Benzene ring attached indirectly to the diazole ring by acyclic nonionic bonding
- 347.1One double bond between ring members of the diazole ring (i.e., imidazoline)
- 348.1Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 349.1Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 350.1Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding (e.g., hydroxyalkyl glyoxalidine, etc.)
- 351.1The chalcogen is sulfur
- 352.1The chalcogen, X, is in a $C(=X)X-$ group, wherein X's are the same or diverse chalcogens
- 353.1Benzene ring bonded directly to the chalcogen [e.g., 2-(3-aminophenoxymethyl)imidazoline, etc.]
- 354.1Benzene ring bonded directly to the diazole ring
- 355.1Benzene ring and the diazole ring are bonded to the same acyclic carbon atom or carbon chain
- 356.1 ...1,2-diazoles (including hydrogenated)
- 356.5Polycyclo ring system containing anthracene configured ring system having at least one double bond between ring members and having oxygen single bonded or any atom double bonded directly at the 9- or 10-positions (e.g., anthrone, anthraquinone, etc.)
- 357.1Additional polycyclo ring system having at least three cyclos attached directly or indirectly to the anthrone or anthraquinone by nonionic bonding
- 357.5Spiro
- 358.1Polycyclo ring system having the diazole ring as one of the cyclos
- 358.5Tetracyclo ring system having the diazole ring as one of the cyclos
- 359.1Tricyclo ring system having the diazole ring as one of the cyclos
- 359.5At least three ring hetero atoms in the tricyclo ring system
- 360.1Bicyclo ring system having the diazole ring as one of the cyclos (e.g., 2, 4-dichloro-5-nitrophenyl-4,5,6,7-tetrahydro-2H-indazole, etc.)
- 360.5At least three ring hetero atoms in the bicyclo ring system
- 361.1The other ring is a benzene ring
- 361.5Chalcogen bonded directly to ring carbon of the diazole ring
- 362.1Nitrogen attached directly to the diazole ring by nonionic bonding
- 362.5Having chalcogen or nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 363.1Chalcogen bonded directly to ring carbon of the diazole ring
- 364.1Additional hetero ring attached directly or indirectly to the diazole ring by nonionic bonding

- 364.4The additional hetero ring is a cyclo in a polycyclo ring system
- 364.7The polycyclo ring system contains nitrogen as the only ring hetero atom
- 365.1Plural 1,2-diazoles (including hydrogenated)
- 365.4Two diazole rings are bonded directly to each other, to the same acyclic carbon atom or to the same acyclic carbon chain
- 365.7The additional hetero ring contains chalcogen as the only ring hetero atom
- 366.1Chalcogen bonded directly to ring carbon of the diazole ring
- 366.4Plural chalcogens bonded directly to diazole ring carbons
- 366.7Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 367.1Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 367.4Nitrogen attached directly to the diazole ring by nonionic bonding
- 367.7The nitrogen is multiply bonded to acyclic carbon or is bonded to nitrogen of the diazole ring
- 368.1Chalcogen attached directly to the nitrogen by nonionic bonding [e.g., 5- (2-carbethoxyphenoxy)-1,3-dimethyl-4-nitropyrazole, etc.]
- 368.4Having -C(=X)-, wherein X is chalcogen, bonded directly to the nitrogen
- 368.7The nitrogen and the chalcogen are directly bonded to non-adjacent carbons of the diazole ring (e.g., pyrazolone imide or imino pyrazolone, etc.)
- 369.1Chalcogen attached indirectly to the nitrogen by acyclic nonionic bonding
- 369.4Having -C(=X)-, wherein X is chalcogen bonded directly to the diazole ring
- 369.7Acyclic nitrogen or chalcogen bonded directly to the -C(=X)- group
- 370.1Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 370.4Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 370.7The chalcogen is bonded directly at the 4-position of the diazole ring
- 371.1Benzene ring is bonded directly to ring nitrogen of the diazole ring (e.g., 1-phenyl-3-methyl-5-pyrazolone; antipyrine, etc.)
- 371.4Nitrogen attached directly to the diazole ring by nonionic bonding
- 371.7Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 372.1Chalcogen attached directly to the nitrogen by nonionic bonding [e.g., N-(2-hydroxyethyl)-4-nitropyrazole, etc.]
- 372.5Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding [e.g., 1-(2-hydroxyethyl)-3-amino-4(para-chlorophenyl)-pyrazole, etc.]
- 373.1Two double bonds between ring members of the diazole ring (i.e., pyrazole)
- 374.1Having -C(=X)-, wherein X is chalcogen bonded directly to the diazole ring
- 375.1Nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 376.1Chalcogen attached indirectly to the diazole ring by acyclic nonionic bonding
- 377.1Benzene ring bonded directly to the diazole ring
- 379.1One double bond between ring members of the diazole ring (i.e., pyrazoline)
- 379.4Chalcogen or nitrogen attached indirectly to the diazole ring by acyclic nonionic bonding

379.7	.....Plural benzene rings bonded directly to the diazole ring	417	....The polycyclo ring system has at least six cyclos, and has either a ring carbon that is shared by three of the cyclos or has a ring chalcogen
400	..Hetero ring is five-membered consisting of one nitrogen and four carbons (e.g., halopyrrolidines, etc.)	418	...Pentacyclo ring system having the five-membered hetero ring as one of the cyclos
401	...With preservative or stabilizer	419	.....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.)
402	..Heavy metal or aluminum containing	420	...Tetracyclo ring system having the five-membered hetero ring as one of the cyclos
403	....The metal is bonded directly to chalcogen, which chalcogen is attached directly or indirectly to the five-membered hetero ring by nonionic bonding pyrazole ring carbon	421	.....Plural ring hetero atoms in the tetracyclo ring system
404	....Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring (e.g., cyclic imides, etc.)	422	.....Three-membered nitrogen containing hetero ring is cyclo in the tetracyclo ring system (e.g., mitomycin C, etc.)
405	...Boron containing	423	.....Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring (e.g., cyclic imides, etc.)
406	...Silicon containing	424	.....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.)
407	...Spiro	425	.....Benzene ring is cyclo in the tetracyclo ring system
408	....The spiro includes the five-membered hetero ring	426	.....The five-membered hetero ring shares ring members with one other cyclo only
409	.....Both rings which form the spiro are hetero rings	427	...Tricyclo ring system having the five-membered hetero ring as one of the cyclos
410	.....Acyclic chalcogen attached directly to the five-membered nitrogen containing spiro hetero ring by nonionic bonding	428	....Ring nitrogen is shared by two of the cyclos
411	.....Polycyclo ring system having one of the two rings which form the spiro as one of the cyclos	429	.....Plural ring hetero atoms in the tricyclo ring system
412	...Phosphorus attached directly to the five-membered hetero ring by nonionic bonding	430	.....Ring chalcogen in the tricyclo ring system
413	...Phosphorus attached indirectly to the five-membered hetero ring by nonionic bonding	431	.....Chalcogen bonded directly to ring carbon of the five-membered hetero ring (e.g., cyclic imides, etc.)
414	....Polycyclo ring system having the five-membered hetero ring as one of the cyclos	432	.....Pyrano(3,4-b)indoles or thiopyrano(3,4-b) indoles (including hydrogenated)
415	.....Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring		
416	...Polycyclo ring system having the five-membered hetero ring as one of the cyclos		

- 433The tricyclo ring system consists of a benzene ring which shares ring carbons with two nitrogen containing hetero rings (e.g., pyromellitic diimide, etc.)
- 434Two of the cyclos share at least three ring members (i.e., bridged)
- 435Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring (e.g., cyclic imides, etc.)
- 436A ring carbon is shared by three of the cyclos (e.g., peri-fused, etc.)
- 437Chalcogen bonded directly to ring carbon of the five-membered hetero ring (e.g., naphthostyryl, etc.)
- 438Benzene ring, which is not a cyclo in the tricyclo ring system, bonded directly to ring carbon of the five-membered hetero ring
- 439The five-membered hetero ring shares ring carbons with two carbocyclic rings (e.g., tetrahydrocarbazoles, etc.)
- 440The five-membered hetero ring shares ring carbons with two benzene rings (i.e., carbazoles)
- 441Having $-C(=X)-$, wherein X is chalcogen, bonded directly to the tricyclo ring system (e.g., carbazole-3-carboxylic acid, etc.)
- 442One of the benzene rings and an additional carbocyclic ring bonded directly to the same acyclic nitrogen
- 443Azido or sulfonyl attached directly to the tricyclo ring system by nonionic bonding (e.g., carbazole sulfonic acid, etc.)
- 444Chalcogen or nitrogen attached indirectly to the tricyclo ring system by acyclic nonionic bonding
- 445The tricyclo ring system is unsubstituted or is hydrocarbyl substituted only (e.g., N-vinyl carbazole, etc.)
- 446Carbazole per se or alkyl substituted only
- 447Processes of forming by cyclization or alkylation
- 448Having $-C(=X)-$, wherein X is chalcogen, bonded directly to ring carbon of the tricyclo ring system (e.g., 1, 2, 3, 4-tetrahydrocarbazole-3-carboxylic acid, etc.)
- 449Chalcogen or nitrogen attached indirectly to ring nitrogen of the five membered hetero ring by acyclic nonionic bonding
- 450Chalcogen bonded directly to ring carbon of the five-membered hetero ring (e.g., indigoid dyes, etc.)
- 451Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring (e.g., cyclic imides, naphthisatins, etc.)
- 452Bicyclo ring system having the five-membered hetero ring as one of the cyclos (e.g., octahydroindoles, etc.)
- 453Plural ring hetero atoms in the bicyclo ring system, or ring nitrogen is shared by the two cyclos of the bicyclo ring system
- 454Additional polycyclo heterocyclic ring system attached directly or indirectly to the bicyclo ring system by nonionic bonding
- 455The additional polycyclo ring system includes a five-membered nitrogen containing hetero ring
- 456Lactone ring containing (e.g., 3,3-bisindolyl phthalides, etc.)
- 457Ring carbon of one of the five-membered hetero rings is bonded directly to ring carbon of the other (e.g., indigo dyes, etc.)
- 458By a single bond (e.g., leuco indigo, etc.)

- 459Halogen attached directly or indirectly to the bicyclo ring system by nonionic bonding (e.g., dibromoindigo, etc.)
- 460Ring carbon of each of the two five-membered hetero rings is bonded directly to chalcogen or nitrogen (e.g., both rings may be bonded to the same nitrogen atom or to different nitrogen atoms, etc.)
- 461Plural chalcogens bonded directly to ring carbons of each of the two five membered hetero rings (e.g., bisphthalimides, etc.)
- 462The ring nitrogen of each of the two five-membered hetero rings is bonded directly to the same atom or chain, which chain may include a ring (e.g., N,N'-ethylene-bisphthalimide, etc.)
- 463The additional polycyclo heterocyclic ring system has a lactone ring as one of the cyclos
- 464Ring carbon of the five-membered hetero ring is bonded directly to a ring carbon of the hetero ring which is a cyclo in the additional polycyclo heterocyclic ring system (e.g., indigoid dyes, etc.)
- 465Additional hetero ring, attached directly or indirectly to the bicyclo ring system by nonionic bonding
- 466The additional hetero ring is bonded directly to a ring carbon of the bicyclo ring system
- 467Substituent on ring carbon of the bicyclo ring system contains the additional hetero ring
- 468The additional hetero ring and the bicyclo ring system are attached directly to the same acyclic carbon or acyclic carbon chain
- 469The bicyclo ring system consists of the five-membered hetero ring and a benzene ring (e.g., indole, etc.)
- 470The ring nitrogen is bonded directly to two ring carbons of the same cyclo which carbons are members of one cyclo only (i.e., isoindoles or isoindolenines)
- 471Nitrogen bonded directly to ring carbon of the five-membered hetero ring
- 472Chalcogen bonded directly to ring carbon of the five-membered hetero ring (e.g., phthalimidines, etc.)
- 473Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring (e.g., phthalimides, etc.)
- 474Polycyclo carbocyclic ring system having at least three cyclos
- 475Chalcogen or nitrogen attached directly to the ring nitrogen of the five membered hetero ring by nonionic bonding
- 476Benzene ring bonded directly to the ring nitrogen of the five-membered hetero
- 477Nitrogen attached indirectly to the ring nitrogen of the five-membered hetero ring by acyclic nonionic bonding
- 478Chalcogen attached indirectly to the ring nitrogen of the five-membered hetero ring by acyclic nonionic bonding
- 479The chalcogen, X, is in a -C(=X)- group (e.g., beta - phthalimidopropionaldehyde, etc.)
- 480The ring nitrogen of the five-membered hetero ring is unsubstituted or hydrocarbyl substituted only
- 481Chalcogen or nitrogen attached indirectly to ring carbon of the bicyclo ring system by acyclic nonionic bonding

- 482The five-membered hetero ring contains one double bond only (i.e., isoindolines)
- 483Nitrogen attached directly to the five-membered hetero ring by nonionic bonding (e.g., 2-amino indoles, etc.)
- 484Chalcogen bonded directly to ring carbon of the five-membered hetero ring (e.g., 3-indolols, etc.)
- 485Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring (e.g., isatins, etc.)
- 486The chalcogen is bonded directly to a ring carbon of the five-membered hetero ring which is adjacent to the ring nitrogen (e.g., 2-indolinones, etc.)
- 487Two benzene rings bonded directly to the same ring carbon of the five membered hetero ring
- 488Polycyclo carbocyclic ring system bonded directly to a ring carbon of the five-membered hetero ring (e.g., indol-alpha-naphtholindigo, etc.)
- 489Process of forming the bicyclo ring system directly from reactant which contains acyclic nitrogen bonded directly to a benzene ring (e.g., indoxyl from phenylglycine, etc.)
- 490The five-membered hetero ring contains one double bond only (i.e., indolines)
- 491Chalcogen or nitrogen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 492Having $-C(=X)-$, wherein X is chalcogen, bonded directly to ring carbon of the five-membered hetero ring (e.g., indole-2-carboxylic acids, etc.)
- 493Hydrogen or additional carbon bonded directly to the $-C(=X)-$ group (e.g., aldehydes, ketones, etc.)
- 494Having $-C(=X)-$, wherein X is chalcogen, attached indirectly to ring carbon of the five-membered hetero ring by an acyclic carbon or acyclic carbon chain (e.g., indole-3-acetic acid, etc.)
- 495Acyclic nitrogen bonded directly to the acyclic carbon or acyclic carbon chain
- 496The acyclic carbon or acyclic carbon chain is further unsubstituted or alkyl substituted only (e.g., tryptophane, etc.)
- 497Processes
- 498Racemization or optical resolution
- 499Preparing from hydantoins or proteins
- 500Having $-C(=X)-$, wherein X is chalcogen, bonded directly to ring nitrogen of the five-membered hetero ring (e.g., indomethacin, etc.)
- 501Processes
- 502Processes
- 503Nitrogen attached indirectly to ring carbon of the bicyclo ring system by acyclic nonionic bonding
- 504Nitrogen attached indirectly to ring carbon of the five-membered hetero ring by acyclic nonionic bonding (e.g., tryptamine, etc.)
- 505The nitrogen is double or triple bonded directly to carbon
- 506Benzene ring bonded directly or attached indirectly by an acyclic carbon or an acyclic carbon chain to ring carbon of the five-membered hetero ring
- 507Chalcogen or additional nitrogen attached indirectly to ring carbon of the five-membered hetero ring by acyclic nonionic bonding
- 508Processes of forming the bicyclo ring system by cyclization (e.g., forming indole from o-ethyl aniline, etc.)

- 509Chalcogen attached indirectly to the bicyclo ring system by acyclic nonionic bonding
- 510The chalcogen, X, is in a -C(=X)- group
- 511Benzene ring bonded directly or attached indirectly by an acyclic carbon or an acyclic carbon chain to ring carbon of the five-membered hetero ring
- 512Chalcogen bonded directly to ring carbon of the five-membered hetero ring (e.g., adrenochrome, etc.)
- 513Plural chalcogens bonded directly to ring carbons of the five-membered hetero ring (e.g., imides, etc.)
- 514Chalcogen or nitrogen attached directly to ring nitrogen of the five membered hetero ring by nonionic bonding
- 515The ring nitrogen is bonded directly to two ring carbons of the same cyclo which carbons are members of one cyclo only (e.g., cyclopenta(c)pyrroles, etc.)
- 516Two double bonds between ring members of the five-membered hetero ring (e.g., 4,5,6,7-tetrahydroindoles, etc.)
- 517 ...Additional hetero ring, which is attached directly or indirectly to the five-membered hetero ring by nonionic bonding
- 518The additional hetero ring also contains nitrogen
- 519Ring carbon of each of the two nitrogen containing hetero rings is bonded directly to chalcogen (e.g., both rings may be bonded to the same oxygen atom or to different oxygen atoms, etc.)
- 520Plural chalcogens bonded directly to ring carbons of each of the two nitrogen containing hetero rings (e.g., bis-succinimides, etc.)
- 521Double bond between ring carbons in each of the two nitrogen containing hetero rings (e.g., bis-maleimides, etc.)
- 522Processes
- 523Ring nitrogens of the two nitrogen containing hetero rings are bonded directly to the same atom or chain, which chain may include a ring
- 524The atom is carbon or the chain consists of carbons
- 525Polycyclo ring system which includes ring chalcogen
- 526Plural ring chalcogens in the polycyclo ring sytem (e.g., methylenedioxyphenyl containing, etc.)
- 527Sulfur containing hetero ring
- 528 ...Polycyclo carbocyclic ring system having at least three cyclos
- 529Attached directly to the five-membered hetero ring
- 530 ..Having -C(=X)-, wherein X is chalcogen, bonded directly to the five membered hetero ring (e.g., pyrrole carbonyl halides, pyrrole carboxaldehyde, etc.)
- 531The -C(=X)- is part of a -C(=X)X- group, wherein the X's are the same or diverse chalcogens (e.g., pyrrole-3-carboxylic acid, etc.)
- 532And is bonded directly to a ring carbon which is adjacent to the ring nitrogen of the five-membered hetero ring (e.g., 4-hydroxy proline, etc.)
- 533Additional -C(=X) bonded directly to the five-membered hetero ring (e.g., N n-buteryl-L-proline, etc.)
- 534Chalcogen bonded directly to the other ring carbon which is adjacent to the ring nitrogen of the five-membered hetero ring (e.g., 2-pyrrolidone-5 carboxylic acid, etc.)

- 535The five-membered hetero ring is further unsubstituted or alkyl substituted only (e.g., proline, etc.)
- 536Additional -C(=X)- bonded directly to the five-membered hetero ring (e.g., pyrrole-3,4-dicarboxylic acid esters, etc.)
- 537Acyclic nitrogen bonded directly to the -C(=X)- (e.g., 4,5-dihalopyrrole -2 carboxamides, etc.)
- 538The -C(=X)- is bonded directly to the ring nitrogen of the five-membered hetero ring (e.g., 1-pyrrolidine carboxanilides, etc.)
- 539Carbocyclic ring bonded directly to the -C(=X)- (e.g., 3-benzoyl pyrrolidine, etc.)
- 540Acyclic carbon bonded directly to the -C(=X)- (e.g., N-oleoylpyrrolidine, etc.)
- 541 ...Chalcogen attached directly to the five-membered hetero ring by nonionic bonding (e.g., 3-pyrrolidinols, etc.)
- 542Chalcogen attached directly to ring nitrogen of the five-membered hetero ring by nonionic bonding (e.g., pyrrolidine-N-oxides, etc.)
- 543Chalcogen bonded directly to a ring carbon of the five-membered hetero ring which is adjacent to the ring nitrogen (e.g., 2-pyrrolidones, etc.)
- 544And chalcogen bonded directly to a ring carbon of the five membered hetero ring which is not adjacent to the ring nitrogen (e.g., 2,4 pyrrolidinediones, etc.)
- 545And chalcogen bonded directly to the other ring carbon of the five-membered hetero ring which is adjacent to the ring nitrogen (e.g., succinimide, etc.)
- 546Nitrogen attached directly or indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 547Chalcogen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 548Carbon to carbon unsaturation between ring members of the five-membered hetero ring (e.g., maleimide, etc.)
- 549Benzene ring bonded directly to ring nitrogen of the five-membered hetero ring (e.g., N-phenylmaleimide, etc.)
- 550Nitrogen attached directly or indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 551Chalcogen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 552Processes of forming 2-pyrrolidone which is unsubstituted or alkyl or alkenyl substituted only
- 553Directly from a cyano containing compound (e.g., from succinonitrile, etc.)
- 554Directly from a -COO- containing compound (e.g., from methyl acrylate, etc.)
- 555Purification or recovery of 2-pyrrolidone which is unsubstituted or alkyl substituted only
- 556 ...Chalcogen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding (e.g., 4-hydroxy -3-pyrrolidinemethanol, etc.)
- 557 ...Nitrogen attached directly to the five-membered hetero ring by nonionic bonding
- 558 ...The nitrogen is bonded directly to a ring carbon which is adjacent to the ring nitrogen of the five-membered hetero ring
- 559Carbocyclic ring bonded directly to the nitrogen
- 560 ...Two double bonds between ring members of the five-membered hetero ring

- 561 ...Nitrogen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 562 ...Chalcogen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 563 ...Benzene ring bonded directly to ring nitrogen of the five-membered hetero ring
- 564 ...The five-membered hetero ring is unsubstituted or alkyl substituted only (e.g., pyrrole, etc.)
- 565 ...One double bond between ring members of the five-membered hetero ring (i.e., pyrrolines)
- 566 ...Nitrogen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 567 ...The nitrogen is bonded directly to $-C(=X)-$, wherein X is chalcogen (e.g., 2 benzamidomethyl - pyrrolidines, etc.)
- 568 ...Hydrogen or acyclic carbon bonded directly to the $-C(=X)-$ (e.g., 2 pyrrolidine acrylamide, etc.)
- 569 ...The nitrogen is in a substituent attached to the ring nitrogen of the five membered hetero ring
- 570 ...Chalcogen attached indirectly to the five-membered hetero ring by acyclic nonionic bonding
- 571 ...The chalcogen, X, is in a $-C(=X)-$ group (e.g., 1-phenyl - 2-pyrrolidino hexanone-1, etc.)
- 572 ...The $-C(=X)-$ is part of a $-C(=X)X-$ group wherein the X's are the same or diverse chalcogens (e.g., 3-pyrrolidinemethanol propionates, etc.)
- 573The $-C(=X)X-$ group is in a substituent attached to the ring nitrogen of the five-membered hetero ring (e.g., beta-pyrrolidyl ethyl ester of benzoic acid, etc.)
- 574 ...The chalcogen is in a substituent attached to the ring nitrogen of the five membered hetero ring
- 575Carbocyclic ring bonded directly to the chalcogen
- 576The substituent on the ring nitrogen of the five-membered hetero ring contains a bicyclo carbocyclic ring system
- 577 ...Benzene ring bonded directly to the five-membered hetero ring
- 578 ...Benzene ring in a substituent attached to the ring nitrogen of the five membered hetero ring by nonionic bonding
- 579 ...The five-membered hetero ring is unsubstituted or is alkyl substituted only (e.g., pyrrolidine, etc.)
- 950 ..The hetero ring contains four members including nitrogen and carbon
- 951 ...Plural hetero atoms in the hetero ring
- 952 ...Chalcogen bonded directly to ring carbon of the hetero ring
- 953 ...Nitrogen or $-C(=X)-$, wherein X is chalcogen, bonded directly to the hetero ring
- 954 ..Hetero ring is three-membered including nitrogen and carbon
- 955 ...Heavy metal, boron or silicon containing
- 956 ...Phosphorus attached directly or indirectly to the hetero ring by nonionic bonding
- 957Plural phosphori
- 958 ...Spiro
- 959 ...Plural hetero atoms in the hetero ring
- 960Plural nitrogens in the hetero ring
- 961 ...Polycyclo ring system having the hetero ring as one of the cyclos
- 962 ...Additional hetero ring containing
- 963Plural three-membered nitrogen containing hetero rings bonded directly to the same ring

- 964 ...Having -C(=X)-, wherein X is
 chalcogen, in chain between
 the hetero rings
- 965 ...Chalcogen, nitrogen or halogen
 attached directly to the
 hetero ring by nonionic
 bonding
- 966 ...Having -C(=X)-, wherein X is
 chalcogen, bonded directly to
 the hetero ring
- 967 ...Nitrogen, other than as nitro
 or nitroso, attached
 indirectly to the hetero ring
 by nonionic bonding
- 968 ...Chalcogen attached indirectly
 to the hetero ring by nonionic
 bonding
- 969 ...The three-membered hetero ring
 is unsubstituted or alkyl
 substituted only

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