

		9	....The metal is bonded directly to halogen in the anion
This Class 546 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.		10	...Polycyclo ring system having the six-membered hetero ring as one of the cyclos
		11	...Piperidine containing
		12	...Azide or acyclic nitrogen containing
		13	...Boron containing
		14	...Silicon containing
		15	...Spiro
		16	....The spiro includes the six-membered hetero ring
ORGANIC COMPOUNDS (CLASS 532, SUBCLASS 1)		17	....Polycyclo ring system having one of the two rings which form the spiro as one of the cyclos
.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)		18	.....Polycyclo ring system having the six-membered hetero ring as one of the cyclos
1 ..Hetero ring is six-membered consisting of one nitrogen and five carbons		19	....At least three ring hetero atoms in the two rings which form the spiro
2 ..Heavy metal or aluminum containing		20	.....At least three ring nitrogens in the two rings which form the spiro
3 ...Arsenic containing		21	...Phosphorus attached directly to the six-membered hetero ring by nonionic bonding
4 ...The metal bonded directly to carbon, which carbon is a ring carbon of the six-membered hetero ring or which carbon is attached directly or indirectly to the six-membered hetero ring by nonionic bonding		22	...Phosphorus attached indirectly to the six-membered hetero ring by nonionic bonding
5 ...The 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 six-membered hetero ring by nonionic bonding		23	...Polycyclo ring system having the six-membered hetero ring as one of the cyclos
6 ...The metal is bonded directly to chalcogen which chalcogen is attached directly or indirectly to the six-membered hetero ring by nonionic bonding		24	...Chalcogen bonded directly to ring carbon of the six-membered hetero ring
7 .....The chalcogen is bonded directly to ring carbon of a quinoline ring system (including hydrogenated)		25	....The phosphorus is bonded directly to the chalcogen
8 ...The metal is in an anion and the six-membered hetero ring is in a cation		26	...Polycyclo ring system having the six-membered hetero ring as one of the cyclos
		27	...The polycyclo ring system has at least ten cyclos and at least four ring nitrogens
		28	...Nonacyclo ring system having the six-membered hetero ring as one of the cyclos
		29	....The six-membered hetero ring shares ring nitrogen with a five-membered cyclo which contains additional ring nitrogen

- 30Octacyclo ring system having the six-membered hetero ring as one of the cyclos
- 31Plural ring hetero atoms in the octacyclo ring system (e.g., flavanthrone, cepharanthrine, etc.)
- 32At least four ring nitrogens in the octacyclo ring system (e.g., naphthoylene dibenzimidazole, etc.)
- 33Heptacyclo ring system having the six-membered hetero ring as one of the cyclos
- 34Two of the cyclos share at least three ring members (e.g., protoveratrine, etc.)
- 35At least three ring hetero atoms in the heptacyclo ring system
- 36Plural ring hetero atoms in the heptacyclo ring system
- 37Ring carbon is shared by three of the cyclos (e.g., perylene tetracarboxylic acid diimide, etc.)
- 38Hexacyclo ring system having the six-membered hetero ring as one of the cyclos
- 39Two of the cyclos share at least three ring members (e.g., etheno morphides, etc.)
- 40Plural ring nitrogens in the hexacyclo ring system (e.g., reserpine acid lactone, etc.)
- 41Plural ring hetero atoms in the hexacyclo ring system
- 42Pentacyclo ring system having the six-membered hetero ring as one of the cyclos
- 43Two of the cyclos share at least three ring members (i.e., bridged)
- 44One of the five cyclos is five-membered and includes ring chalcogen (e.g., codeine, morphine, etc.)
- 45Nitrogen or divalent chalcogen double bonded directly to carbocyclic ring of the pentacyclo ring system (e.g., morphinones, etc.)
- 46A single chalcogen is bonded directly to ring carbon of the pentacyclo ring system (e.g., desoxy morphine, etc.)
- 47Plural ring hetero atoms in the pentacyclo ring system
- 48Three or more ring hetero atoms in the pentacyclo ring system
- 49Two ring nitrogens in the pentacyclo ring system (e.g., quinacridones, etc.)
- 50Ring nitrogen is shared by two of the cyclos (e.g., yohimbanes, etc.)
- 51Ring nitrogen is shared by five-membered cyclo and six-membered cyclo (e.g., vincamine, etc.)
- 52Additional ring nitrogen in the five-membered cyclo
- 53Having $-C(=X)-$, wherein X is chalcogen, bonded directly to ring carbon of the pentacyclo ring system and also bonded directly to chalcogen or nitrogen
- 54Plural chalcogens bonded directly to the same cyclo as is the $-(C=X)-$ group
- 55Trialkoxybenzoyl bonded directly to at least one of the chalcogens (e.g., reserpine, etc.)
- 56Three or more ring carbons of the pentacyclo ring system are substituted (e.g., substituted quinacridones, etc.)
- 57Three or more chalcogens containing
- 58The pentacyclo ring system consists of five six-membered cyclos (e.g., anthraquinonebenzacridones, etc.)
- 59Nitrogen attached directly to the pentacyclo ring system by nonionic bonding
- 60An additional ring is bonded directly to the nitrogen
- 61Tetracyclo ring system having the six-membered hetero ring as one of the cyclos

- 62Plural ring hetero atoms in the tetracyclo ring system (e.g., acronycines, etc.)
- 63Two of the cyclos share at least three ring member (i.e., bridged)
- 64Three or more ring hetero atoms in the tetracyclo ring system
- 65Plural ring chalcogens in the tetracyclo ring system
- 66Ring carbon is shared by three of the cyclos
- 67The three cyclos consist of two carbocyclic rings and a five-membered hetero ring which includes a ring nitrogen (e.g., ergolines, etc.)
- 68Chalcogen or nitrogen bonded directly to ring carbon of the six-membered hetero ring
- 69Having $-C(=X)-$, wherein X is chalcogen, bonded directly to the six-membered hetero ring (e.g., lysergic acid, etc.)
- 70Two ring nitrogens in the tetracyclo ring system
- 71Ring nitrogen is shared by two of the cyclos
- 72Two of the cyclos share at least three ring members or a ring carbon is shared by three of the cyclos (i.e., bridged or peri-fused)
- 73The six-membered hetero ring shares ring members with one other cyclo only (e.g., pyrrocolines, etc.)
- 74Two of the cyclos share at least three ring members (e.g., morphinans, etc.)
- 75Ring carbon is shared by three of the cyclos
- 76Chalcogen bonded directly to ring carbon of the six-membered hetero ring (e.g., anthrapyridones, etc.)
- 77The six-membered hetero ring shares ring members with one other cyclo only
- 78Plural chalcogens bonded directly to carbocyclic rings of the tetracyclo ring system (e.g., pyridoanthraquinones, etc.)
- 79Tricyclo ring system having the six-membered hetero ring as one of the cyclos
- 80Plural ring hetero atoms in the tricyclo ring system
- 81Plural ring nitrogens in the tricyclo ring system
- 82Three or more ring hetero atoms in the tricyclo ring system
- 83At least one of the ring hetero atoms is chalcogen
- 84One of the cyclos is five-membered
- 85The six-membered hetero ring shares ring members with the five-membered cyclo only (e.g., pyrido-indoles, etc.)
- 86Chalcogen bonded directly to ring carbon of the tricyclo ring system
- 87Nitrogen attached directly or indirectly to the tricyclo ring system by nonionic bonding
- 88Phenanthrolines (including hydrogenated)
- 89Ring oxygen in the tricyclo ring system
- 90Plural ring oxygens in the tricyclo ring system
- 91Tropane and oxirane in the tricyclo ring system
- 92Plural chalcogens bonded directly to ring carbons of the tricyclo ring system
- 93One of the cyclos has at least seven members
- 94Ring nitrogen is shared by two of the cyclos
- 95Benzo(a)quinolizines (including hydrogenated)
- 96Additional polycyclo ring system having ring nitrogen (e.g., emetine, etc.)
- 97Two of the cyclos share at least three ring carbons (e.g., benzomorphans, etc.)

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| 98 |Ring carbon is shared by each of the three cyclos (e.g., 1,8 naphthalimides, etc.) | 112 |Bicyclo ring system having the six-membered hetero ring as one of the cyclos |
| 99 |Nitrogen, other than as nitro or nitroso, attached directly or indirectly to the tricyclo ring system by nonionic bonding | 113 |Plural ring hetero atoms in the bicyclo ring system |
| 100 |The nitrogen is bonded directly to a carbocyclic ring of the tricyclo ring system | 114 |Ring sulfur in the bicyclo ring system |
| 101 |Each of the three cyclos is six-membered (e.g., benzoquinolines, etc.) | 115 |Ring oxygen in the bicyclo ring system |
| 102 |Acridines (including hydrogenated) | 116 |Acyclic chalcogen bonded directly to ring carbon of the bicyclo ring system |
| 103 |Chalcogen bonded directly to ring carbon of the six-membered hetero ring | 117 |At least four ring nitrogens in the bicyclo ring system |
| 104 |Nitrogen, other than as nitro or nitroso, attached directly or indirectly to the acridine ring system by nonionic bonding | 118 |Three ring nitrogens in the bicyclo ring system |
| 105 |The nitrogen is bonded directly to ring carbon of the six-membered hetero ring | 119 |Two of the ring nitrogens are bonded directly to each other |
| 106 |The nitrogen is part of a substituent which contains additional nonionically bonded nitrogen | 120 |Having $-C(=X)-$, wherein X is chalcogen, bonded directly to the bicyclo ring system |
| 107 |Plural nitrogens, other than as nitro or nitroso, attached directly to the carbocyclic rings of the acridine ring system (e.g., 3,6-diaminoacridines, etc.) | 121 |Ring nitrogen is shared by the two cyclos |
| 108 |Phenanthridines (including hydrogenated) | 122 |The other cyclo in the bicyclo ring system is also six-membered (e.g., naphthyridines, etc.) |
| 109 |Unsaturated ring bonded directly to ring carbon of the six-membered hetero ring | 123 |Chalcogen and $-C(=X)-$, wherein X is chalcogen, bonded directly to ring carbons of the bicyclo ring system (e.g., 4-oxo-naphthyridine -3-carboxylic acid, etc.) |
| 110 |Chalcogen or $-C(=X)-$, wherein X is chalcogen, attached directly to the six membered hetero ring by nonionic bonding | 124 |Tropanes (including nor and dehydro forms) |
| 111 |The tricyclo ring system consists of a five-membered carbocyclic ring ortho fused to both a six-membered carbocyclic ring and the six-membered hetero ring (e.g., indenopyridines, etc.) | 125 |Additional hetero ring containing |
| | | 126 |Additional polycyclo ring system having the additional hetero ring as one of the cyclos |
| | | 127 |Chalcogen bonded directly to ring carbon of the tropane ring system |
| | | 128 |Polycyclo-carbocyclic ring system |
| | | 129 |Additional chalcogen attached directly or indirectly to the tropane ring system by nonionic bonding |
| | | 130 |Three or more oxygens attached directly or indirectly to the tropane ring system by nonionic bonding |

- 131Hydroxy containing or containing oxy bonded directly to a Group IA or Group IIA light metal (i.e., -OH or -OM containing)
- 132Having -C(=X)-, wherein X is chalcogen, bonded directly to the tropane ring system
- 133Quinuclidines (including unsaturated)
- 134Quinoline containing (including hydrogenated)
- 135Additional hetero ring containing
- 136Three or more chalcogens attached indirectly to the quinuclidine ring system by nonionic bonding
- 137Chalcogen bonded directly to ring carbon of the quinuclidine ring system
- 138Quinolizines (including hydrogenated)
- 139Isoquinolines (including hydrogenated)
- 140Plural isoquinoline ring systems attached directly or indirectly to each other by nonionic bonding
- 141Chalcogen attached directly to the six-membered hetero ring by nonionic bonding
- 142Plural chalcogens attached directly to the six-membered hetero ring by nonionic bonding
- 143Nitrogen, other than as nitro or nitroso, attached directly to the isoquinoline ring system by nonionic bonding
- 144Unsaturated ring attached directly to the six-membered hetero ring by nonionic bonding
- 145Acyclic nitrogen double or triple bonded to carbon which is attached directly or indirectly to the isoquinoline ring system by nonionic bonding
- 146Having -C(=X)-, wherein X is chalcogen, attached directly or indirectly to the isoquinoline ring system by nonionic bonding
- 147The -C(=X)- is part of a -C(=X)X- group, wherein the X's are the same or diverse chalcogens
- 148Unsaturated hetero ring attached indirectly to the isoquinoline ring system by nonionic bonding
- 149Unsaturated carbocyclic ring attached indirectly to the six-membered hetero ring through an acyclic hydrocarbon chain
- 150Single bond between 3,4-positions
- 151N-alkyl or N-alkenyl isoquinoliniums which are otherwise unsubstituted or alkyl or alkenyl substituted only
- 152Quinolines (including hydrogenated)
- 153Chalcogen attached directly to the six-membered hetero ring by nonionic bonding
- 154Polycyclo-carbocyclic ring system bonded directly to the six-membered hetero ring (e.g., quinophthalones, etc.)
- 155Plural chalcogens attached directly to the six-membered hetero ring by nonionic bonding
- 156Having -C(=X)-, wherein X is chalcogen, bonded directly to the six-membered hetero ring
- 157Chalcogen attached directly at 2-position by nonionic bonding
- 158Single bond between 3,4-positions
- 159Nitrogen, other than as nitro or nitroso, attached directly to the six membered hetero ring by nonionic bonding
- 160Unsaturated carbocyclic ring bonded directly to the nitrogen
- 161Having -C(=X)-, wherein X is chalcogen, bonded directly to the carbocyclic ring

162	.....Nitrogen attached indirectly to the six-membered hetero ring through the directly attached nitrogen by nonionic bonding	177	.....Chalcogen attached directly to the carbocyclic ring of the quinoline ring system by nonionic bonding
163	.....Both nitrogens bonded directly to the same acyclic hydrocarbon group	178	.....Chalcogen attached directly to the carbocyclic ring of the quinoline ring system by nonionic bonding
164	.....Fully saturated quinolines	179	.....The chalcogen is in an -OH, -SH, -OM or -SM group (M is Group IA or Group IIA light metal)
165	.....Single bond between 1,2-positions and single bond between 3,4-positions	180	.....Halogen or nitro attached directly or indirectly to the quinoline ring system by nonionic bonding
166	.....The six-membered hetero ring is unsubstituted or alkyl substituted only	181	.....Quinolines which are unsubstituted or which are alkyl or alkenyl substituted only, or salt thereof
167	.....Unsaturated hetero ring attached directly to the quinoline ring system by nonionic bonding	182	.....Addition salts
168	.....Having -C(=X)-, wherein X is chalcogen, bonded directly to the quinoline ring system	183	.....Chalcogen bonded directly to ring carbon of the bicyclo ring system
169	.....Acyclic nitrogen bonded directly to the -C(=X)- group	184	...Piperidines
170	.....The -C(=X)- is part of a -C(=X)X- group, wherein the X's are the same or diverse chalcogens	185	...Process of forming a piperidine ring from a pyridine ring or from a partially hydrogenated pyridine ring
171	.....Nitrogen, other than as nitro or nitroso, attached directly to the carbocyclic ring of the quinoline ring system by nonionic bonding	186	...Plural piperidine rings
172	.....Acyclic sulfur bonded directly to oxygen and directly or indirectly to the quinoline ring system by nonionic bonding	187	...Additional hetero ring containing
173	.....Unsaturated carbocyclic ring attached directly to the quinoline ring system by nonionic bonding (e.g., quinophthalones, etc.)	188	.....Chalcogen attached directly to a ring carbon of a piperidine ring by nonionic bonding
174	.....Having -C(=X)-, wherein X is chalcogen, attached indirectly to the quinoline ring system by nonionic bonding	189	.....Having -C(=X)-, wherein X is chalcogen, bonded directly to a piperidine ring
175	.....Nitrogen bonded directly to the -C(=X)- group	190	...Having -C(=X)-, wherein X is chalcogen, attached indirectly to a piperidine ring by nonionic bonding
176	.....Nitrogen, other than as nitro or nitroso, attached indirectly to the quinoline ring system by nonionic bonding	191	.....Carbocyclic ring containing
		192	...Additional ring containing
		193	.....Pyridine ring or partially hydrogenated pyridine ring
		194	.....Carbocyclic ring containing
		195	.....The additional ring is one of the cyclos in a polycyclo ring system
		196	.....Hetero ring in the polycyclo ring system
		197	.....Plural ring hetero atoms in the polycyclo ring system

198	.....Ring nitrogen in the polycyclo ring system	220	.....Having -C(=X)-, wherein X is chalcogen, attached directly or indirectly to the piperidine ring by nonionic bonding
199	.....Plural ring nitrogens in the polycyclo ring system	221	.....Having -C(=X)-, wherein X is chalcogen, attached directly or indirectly to the piperidine ring by nonionic bonding
200	.....Ring nitrogen in the polycyclo ring system	222	.....The -C(=X)- group and the piperidine ring are bonded directly to the same chalcogen
201	.....Bicyclo ring system which is indole (including hydrogenated)	223	.....Nitrogen attached directly to the piperidine ring by nonionic bonding
202	.....Ring sulfur in the polycyclo ring system	224	.....Acyclic nitrogen bonded directly to a -C(=X)- group, wherein X is chalcogen
203	.....The polycyclo ring system is tricyclo-carbocyclic	225	.....Having -C(=X)-, wherein X is chalcogen, bonded directly to the piperidine ring
204	.....Chalcogen bonded directly to the tricyclo-carbocyclic ring system	226	.....At 1-position
205	.....The polycyclo ring system is bicyclo-carbocyclic	227	.....The -C(=X)- is part of a -C(=X)X- group, wherein the X's are the same or diverse chalcogens
206	.....Chalcogen bonded directly to the bicyclo-carbocyclic ring system	228	.....Carbocyclic ring bonded directly at 4-position
207	.....The additional ring is a hetero ring	229	.....Nitrogen attached indirectly to the piperidine ring by nonionic bonding
208	.....Ring nitrogen in the additional hetero ring	230	.....Cyano attached indirectly to the piperidine ring by nonionic bonding
209	.....Ring sulfur or ring oxygen in the additional hetero ring	231	.....Plural acyclic nitrogens bonded directly to the same carbon or single bonded directly to each other
210	.....Plural ring nitrogens in the additional hetero ring	232	.....Chalcogen attached indirectly to the piperidine ring by nonionic bonding
211	.....1,2-diazole (including hydrogenated)	233	.....Acyclic nitrogen bonded directly to a -C(=X)- group, wherein X is chalcogen
212	.....The additional hetero ring consists of one sulfur and four carbons	234	.....Plural carbocyclic rings containing
213	.....Carbocyclic ring containing	235	.....The chalcogen, X, is in a -C(=X)- group
214	.....The additional hetero ring consists of one oxygen and four carbons	236	.....Chalcogen attached indirectly to the piperidine ring by nonionic bonding
215	.....Cyano bonded directly to the piperidine ring	237	.....The chalcogen, X, is in a -C(=X)- group
216	.....Chalcogen bonded directly to ring carbon of the piperidine ring		
217	.....Chalcogen and a carbocyclic ring bonded directly at 4-position		
218	.....The chalcogen, X, is part of a -C(=X)X- group, wherein the X's are the same or diverse chalcogens		
219	.....Plural chalcogens bonded directly to ring carbons of the piperidine ring		

- 238The $-C(=X)-$ is part of a $-C(=X)X-$ group, wherein the X's are the same or diverse chalcogens
- 239Plural carbocyclic rings containing
- 240The chalcogen is in an $-OH$ or $-OM$ group (M is Group IA or Group IIA light metal)
- 241The $-OH$ or $-OM$ is bonded to an acyclic carbon, which carbon is bonded directly to two rings
- 242 ...Chalcogen bonded directly to ring carbon of the piperidine ring
- 243At 2-position
- 244 ...Nitrogen attached directly to the piperidine ring by nonionic bonding
- 245 ...Having $-C(=X)-$, wherein X is chalcogen, bonded directly to the piperidine ring
- 246 ...Nitrogen attached indirectly to the piperidine ring by nonionic bonding
- 247Acyclic nitrogen bonded directly to a $-C(=X)-$ group, wherein X is chalcogen
- 248 ...Chalcogen attached indirectly to the piperidine ring by nonionic bonding
- 249 ...Process of forming partially hydrogenated pyridine ring
- 250 ...Process of forming pyridine ring
- 251 ...The pyridine ring is unsubstituted or hydrocarbyl substituted only
- 252Starting materials include a nitrogen containing hetero ring (e.g., starting materials include a piperidine ring, etc.)
- 253Starting materials include a hydrocarbon
- 254Starting materials include an acyclic hydrocarbyl ether or an acyclic hydrocarbyl alcohol
- 255 ...Plural pyridine or partially hydrogenated pyridine rings
- 256 ...Additional hetero ring containing
- 257 ...Pyridine or partially hydrogenated pyridine rings are bonded directly to each other
- 258Halogen containing or process utilizing halogen or halogen containing compound
- 259Metal containing catalyst utilized
- 260Metal containing catalyst utilized
- 261 ...Chalcogen bonded directly to ring carbon of pyridine or partially hydrogenated pyridine ring
- 262 ...Having $-C(=X)-$, wherein X is chalcogen, bonded directly to pyridine or partially hydrogenated pyridine ring
- 263The $-C(=X)-$ is part of a $-C(=X)X-$ group, wherein the X's are the same or diverse chalcogens
- 264 ...Acyclic nitrogen attached directly or indirectly to pyridine or partially hydrogenated pyridine ring by nonionic bonding
- 265Having $-C(=X)-$, wherein X is chalcogen, bonded directly to the acyclic nitrogen
- 266 ...Chalcogen attached indirectly to pyridine or partially hydrogenated pyridine ring by nonionic bonding
- 267The chalcogen, X, is in a $-C(=X)-$ group
- 268.1 ...Additional hetero ring containing
- 268.4 ...The additional hetero ring is five-membered having two or more ring hetero atoms of which at least one is nitrogen
- 268.7Thiadiazoles (including hydrogenated)
- 269.1Oxadiazoles (including hydrogenated)
- 269.4Oxadiazole ring bonded directly to the six-membered hetero ring
- 269.71,3-thiazoles (including hydrogenated)
- 270.1Polycyclo ring system having the 1,3-thiazole ring as one of the cyclos

- 270.41,3-thiazole ring bonded directly to the six-membered hetero ring
- 270.7Nitrogen attached directly to the 1,3-thiazole ring by nonionic bonding
- 271.11,2-thiazoles (including hydrogenated)
- 271.41,3-oxazoles (including hydrogenated)
- 271.7Polycyclo ring system having the 1,3-oxazole ring as one of the cyclos
- 272.11,2-oxazoles (including hydrogenated)
- 272.41,2,4-triazoles (including hydrogenated)
- 272.71,3-diazoles (including hydrogenated)
- 273.1Polycyclo ring system having the 1,3-diazole ring as one of the cyclos
- 273.4Bicyclo ring system which is benzimidazole (including hydrogenated)
- 273.7Chalcogen bonded directly to a ring carbon of the 1,3-diazole ring
- 274.1The 1,3-diazole ring is bonded directly to the six-membered hetero ring
- 274.4Chalcogen attached directly to the 1,3-diazole ring by nonionic bonding
- 274.7Nitrogen or $-C(=X)-$, wherein X is chalcogen, attached directly to the 1,3-diazole ring by nonionic bonding
- 275.1Chalcogen attached indirectly to the 1,3-diazole ring by acyclic nonionic bonding
- 275.41,2-diazoles (including hydrogenated)
- 275.7Polycyclo ring system having the 1,2-diazole ring as one of the cyclos
- 276.1Chalcogen attached directly to the 1,2-diazole ring by nonionic bonding
- 276.4The additional hetero ring is five-membered consisting of one nitrogen and four carbons
- 276.7Polycyclo ring system having the five-membered hetero ring as one of the cyclos
- 277.1Bicyclo ring system which is isoindole (including hydrogenated)
- 277.4Bicyclo ring system which is indole (including hydrogenated)
- 277.7Chalcogen attached directly to the five-membered hetero ring by nonionic bonding
- 278.1Having $-C(=X)-$, wherein X is chalcogen, bonded directly to the five-membered hetero ring
- 278.4Chalcogen attached directly to the five-membered hetero ring by nonionic bonding
- 278.7Plural chalcogens attached directly to the five-membered hetero ring by nonionic bonding
- 279.1Nitrogen or $-C(=X)-$, wherein X is chalcogen, attached directly to the five-membered ring by nonionic bonding
- 279.4Nicotine, per se, or its salts
- 279.7Ring sulfur in the additional hetero ring
- 280.1The additional hetero ring is six-membered
- 280.4The additional hetero ring is five-membered
- 280.7Plural ring sulfurs in the additional hetero ring
- 281.1Polycyclo ring system having the additional hetero ring as one of the cyclos
- 281.4Nitrogen attached directly to the six-membered hetero ring or to the additional hetero ring by nonionic bonding
- 281.7Ring oxygen in the additional hetero ring
- 282.1The additional hetero ring is six-membered
- 282.4Plural ring oxygens in the additional hetero ring
- 282.7Polycyclo ring system having the additional hetero ring as one of the cyclos

283.1	.....Chalcogen attached directly to the additional hetero ring by nonionic bonding	298	...Having -C(=X)-, wherein X is chalcogen, bonded directly to the six-membered hetero ring
283.4	....The additional hetero ring is five-membered	299	....Plural -C(=X)- groups, wherein X is chalcogen, bonded directly to the six membered hetero ring
283.7	.....Plural ring oxygens in the additional hetero ring	300	...Nitrogen attached indirectly to the six-membered hetero ring by nonionic bonding
284.1	.....Polycyclo ring system having the additional hetero ring as one of the cyclos	301	...Chalcogen attached indirectly to the six-membered hetero ring by nonionic bonding
284.4	.....Chalcogen attached directly to the additional hetero ring by nonionic bonding	302	....Halogen attached directly or indirectly to the six-membered hetero ring by nonionic bonding
284.7	.....Nitrogen or -C(=X)-, wherein X is chalcogen, attached directly to the additional hetero ring by nonionic bonding	303	...Halogen attached directly or indirectly to the six-membered hetero ring by nonionic bonding
285	...Polycyclo-carbocyclic ring system having at least three cyclos	304	...Nitrogen attached directly to the six-membered hetero ring by nonionic bonding
286	...Cyano bonded directly to the six-membered hetero ring	305	...Sulfur and acyclic nitrogen bonded directly to the same carbon
287	...Additional cyano containing	306	...Plural acyclic nitrogens bonded directly to the same carbon or single bonded directly to each other
288	...Chalcogen bonded directly to ring carbon of the six-membered hetero ring	307	...Plural nitrogens attached directly to the six-membered hetero ring by nonionic bonding
289	...Nitrogen attached directly to the six-membered hetero ring by nonionic bonding	308	....Acyclic nitrogen bonded directly to a -C(=X)- group, wherein X is chalcogen
290	...Chalcogen bonded directly to ring carbon of the six-membered hetero ring	309	...Acyclic nitrogen bonded directly to a -C(=X)- group, wherein X is chalcogen
291	...Chalcogen and acyclic nitrogen bonded directly to the same carbon	310	...Having -C(=X)-, wherein X is chalcogen, bonded directly to the six-membered hetero ring
292	....The chalcogen or the acyclic nitrogen is bonded directly to the six membered hetero ring	311	...The nitrogen bonded additionally only to hydrogen
293	...Sulfur bonded directly to acyclic nitrogen	312	...Chalcogen attached indirectly to the six-membered hetero ring by nonionic bonding
294	...Chalcogen bonded directly to chalcogen	313	...Thiocarbonyl bonded directly to the six-membered hetero ring
295	....Halogen bonded directly to the six-membered hetero ring by nonionic bonding	314	...Carbonyl bonded directly to the six-membered hetero ring
296	...Plural chalcogens bonded directly to ring carbons of the six-membered hetero ring	315	....At 3-position
297	...Nitrogen attached directly to the six-membered hetero ring by nonionic bonding		

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| 316 |Acyclic nitrogen bonded directly to the carbonyl | 336 |Acyclic nitrogen bonded directly to a $-C(=X)-$ group, wherein X is chalcogen |
| 317 |Processes of obtaining nicotinamide per se | 337 |Additional ring containing |
| 318 |The carbonyl is in a $-COO-$ group | 338 |Acyclic nitrogen bonded directly to chalcogen |
| 319 |Processes of obtaining nicotinic acid per se or a derivative of nicotinic acid wherein the only substituents are $-COO-$ groups, or salt thereof | 339 | ...Chalcogen attached indirectly to the six-membered hetero ring by nonionic bonding (e.g., sulfato betaines, etc.) |
| 320 |By oxidation | 340 | ...The chalcogen, X, is in a $-C(=X)-$ group |
| 321 |Additional $-COO-$ group bonded directly to the six-membered hetero ring | 341 |The $-C(=X)-$ is part of a $-C(=X)X-$ group, wherein the X's are the same of diverse chalcogens |
| 322 |Carbocyclic ring containing | 342 |Additional ring containing |
| 323 | ...Acyclic nitrogen bonded directly to the carbonyl | 343 | ...The six-membered hetero ring and another ring bonded directly to the same carbon |
| 324 | ...Acyclic nitrogen single bonded directly to acyclic nitrogen | 344 | ...The chalcogen is in an $-OH$ or $-OM$ group (M is Group IA or Group IIA light metal) |
| 325 |Carbon double bonded directly to one of the acyclic nitrogens | 345 | ...Halogen attached directly to the six-membered hetero ring by nonionic bonding |
| 326 | ...The carbonyl is in a $-COO-$ group | 346 | ...Halogen attached indirectly to the six-membered hetero ring by nonionic bonding |
| 327 |Processes | 347 | ...The ring nitrogen of the six-membered hetero ring is pentavalent (e.g., quaternary pyridinium salts, etc.) |
| 328 | ...Acyclic nitrogen attached indirectly to the six-membered hetero ring by nonionic bonding | 348 | ...Unsubstituted or hydrocarbyl substituted only, or salt thereof |
| 329 | ...Nitrogen attached indirectly to the six-membered hetero ring by nonionic bonding | 349 | ...Alkylation or dealkylation process |
| 330 | ...Cyano attached indirectly to the six-membered hetero ring by nonionic bonding | 350 | ...Unsaturated hydrocarbyl side chain |
| 331 | ...Sulfur and acyclic nitrogen bonded directly to the same carbon | 351 |Stabilized alkenyl pyridines |
| 332 | ...Plural acyclic nitrogens bonded directly to the same carbon or single bonded directly to each other | 352 |Process of forming the unsaturated hydrocarbyl side chain |
| 333 | ...The six-membered hetero ring and another ring bonded directly to the same carbon | 353 | ...Purification or recovery |
| 334 | ...Chalcogen attached indirectly to the six-membered hetero ring by nonionic bonding | | |
| 335 |The chalcogen, X, is part of a $-C(=X)X-$ group, wherein the X's are the same or diverse chalcogens | | |

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