

This Class 564 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.

<b>ORGANIC COMPOUNDS (CLASS 532, SUBCLASS 1)</b>			
1	.AMINO NITROGEN CONTAINING (E.G., UREA, SULFONAMIDES, NITROSAMINES, OXYAMINES, ETC., AND SALTS THEREOF)		
1.5	..Adducts or inclusion compounds of urea per se or of thiourea per se with organic compounds (e.g., urea-alkane inclusion compounds, etc.)	15	..Phosphorus attached indirectly to amino nitrogen by nonionic bonding
2	..With preservative or stabilizer	16	...The phosphorus is a ring member
3	...Ureas or thioureas with preservative or stabilizer	17	..Thioureas (i.e., HNH-C(=S)-HNH, wherein substitution may be made for hydrogen only)
4	...Carboxamides with preservative or stabilizer	18	...Thiocarbazides or thiosemicarbazides (i.e. HNH-NH-C(=S)-HNH, wherein the N bonded directly to the thiourea N is an amino N and substitution may be made for hydrogen only)
5	...Benzene ring containing compound with preservative or stabilizer	19	...Thiocarbazonones or thiosemicarbazonones (i.e., HCH=N-NH-C(=S)-HNH, wherein substitution may be made for hydrogen only)
6	....Inorganic preservative or stabilizer	20	....Benzene ring containing
7	....Sulfur or phenol containing preservative or stabilizer	21	.....Additional nitrogen attached indirectly to the thiocarbonyl by nonionic bonding
8	..Boron containing (e.g., boron containing complexes, salts, etc.)	22	...Thiobiurets (i.e., HNH-C(=S)-NH-C(=X)-HNH, wherein X is S or O and substitution may be made for hydrogen only)
9	...Boron attached directly to amino nitrogen by nonionic bonding	23	..Carbonyl, sulfur, or cyano attached directly to thiourea nitrogen by nonionic bonding
10	....The boron and amino nitrogen are members of the same ring	24	...Processes utilizing carbon disulfide
11	....Polycyclo ring system having the nitrogen and boron containing ring as one of the cyclos	25	...Processes utilizing cyano containing compound
12	..Phosphorus attached directly to amino nitrogen by nonionic bonding	26	...Benzene ring containing
13	...The phosphorus and nitrogen are members of the same ring	27	...Nitrogen attached indirectly to the thiocarbonyl by nonionic bonding
14	..Chalcogen and plural nitrogens bonded directly to the same phosphorus	28	...Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
		29	....Halogen attached indirectly to the thiocarbonyl by nonionic bonding
		30	...Acyclic
		31	...Thiourea per se or salt thereof

32	..Ureas (i.e., HNH-CO-HNH, wherein substitution may be made for hydrogen only)	50	....The benzene ring is part of a substituent which contains nitrogen
33	...Nitro or nitroso bonded directly to nitrogen	51	.....The substituent nitrogen is attached indirectly to the benzene ring by acyclic nonionic bonding
34	...Carbazides or semicarbazides (i.e., HNH-NH-CO-HNH, wherein substitution may be made for hydrogen only)	52	....The benzene ring is part of a substituent which contains oxygen
35	....Carbonyl or sulfur attached directly to carbazide or semicarbazide nitrogen by nonionic bonding	53	....The benzene ring is part of a substituent which contains halogen bonded directly to carbon
36	....Carbazones or semicarbazones (i.e., HCH=N-NH-CO-HNH, wherein substitution may be made for hydrogen only)	54	.....The halogen is fluorine
37	....Acyclic	55	....Plural benzene rings bonded directly to urea nitrogen
38	..Biurets (i.e., HNH-CO-NH-CO-HNH, wherein substitution may be made for hydrogen only)	56	...Aralkyl bonded directly to urea nitrogen
39	...Sulfur attached directly to urea nitrogen by nonionic bonding	57	...Alicyclic ring containing
40	....The sulfur is part of a substituent which contains nitrogen	58	...Additional carbon bonded directly to urea nitrogen
41	.....The substituent nitrogen is the nitrogen of a benzamido group (e.g., Cl benzene-CO-NH-HCH-(O=S(=O))-, bonded directly to urea nitrogen, etc.)	59	...The additional carbon is part of a substituent which contains nitrogen
42	....The sulfur is part of a monocyclic benzene ring containing substituent	60	...The additional carbon is part of a substituent which contains oxygen
43	.....Alicyclic ring bonded directly to urea nitrogen	61	....Processes
44	...Additional carbonyl bonded directly to urea nitrogen	62	....Preparing directly from compound having carbon to carbon unsaturation
45	....The additional carbonyl is in a substituent which is acyclic	63	...Urea per se or salt thereof
46	....Carbon to carbon unsaturation in the substituent	64	....Preparing directly from cyano containing compound
47	...Benzene ring containing	65	....Preparing directly from ammonia and carbonmonoxide or carbon oxysulfide (e.g., from ammonia and COS, etc.)
48	....Benzene ring bonded directly to urea nitrogen (i.e., anilides)	66	....Preparing directly from ammonium carbamate (i.e., from HNH-COO-HHNHH)
49	.....The benzene ring is part of a substituent which contains sulfur	67	....Preparing directly from ammonia and carbon dioxide
		68	....With corrosion inhibiting of reactor
		69	....With ammonia synthesis
		70	....With decomposition of by-product ammonium carbamate (i.e., decomposition of HNH-COO-HHNHH)
		71	.....Utilizing indirect heat exchange
		72	.....In plural stages

- 73 ....Purification or recovery
- 74 ..Thiocarboxamides (i.e., compounds containing -C(=S)-HNH, wherein substitution may be made for hydrogen only)
- 75 ...Sulfur bonded directly to the thiocarbonyl
- 76 ....Thiuram sulfides (e.g., HNH-C(=S)-S-S-C(=S)-HN-alkyl, etc.)
- 77 ...Thiooxamides (i.e., HNH-C(=S)-C(=X)-HNH, wherein X is S or O and substitution may be made for hydrogen only)
- 78 ...Acyclic
- 79 ..Sulfamides (i.e., HNH-(O=S(=O))-HNH, wherein substitution may be made for hydrogen only)
- 80 ..Sulfonamides (i.e., Q-(O=S(=O))-HNH, wherein Q is a substituent and wherein any substituent replacing one or both hydrogens shown will be referred to as E)
- 81 ...Hydrazine containing
- 82 ...Plural sulfonamide groups containing or containing plural sulfonyls bonded directly to the same nitrogen
- 83 ....Two sulfonamido sulfonyls having no sulfonamido nitrogen between the sulfonyls
- 84 ...Substituent Q contains benzene ring
- 85 ....Sulfur in substituent Q
- 86 ....Nitrogen in substituent Q
- 87 ....Nitro or nitroso in substituent Q
- 88 ....Carbonyl in substituent Q
- 89 ....Hydroxy, bonded directly to carbon, or ether in substituent Q (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 90 ....Substituent Q is monocyclic
- 91 ....Carbonyl, cyano, nitro, nitroso, halogen, or sulfur attached directly to the sulfonamide nitrogen or to an amino nitrogen in a substituent E by nonionic bonding
- 92 ....Benzene ring in a substituent E
- 93 ....Hydroxy, bonded directly to carbon, or ether in a substituent E (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 94 ....Nitrogen in an acyclic substituent E
- 95 ...Substituent Q is acyclic
- 96 ...Halogen in substituent Q attached indirectly to the sulfonamide sulfur by nonionic bonding
- 97 ....Benzene ring in a substituent E
- 98 ...Substituent Q is alkyl
- 99 ....Benzene ring in a substituent E
- 100 ..Sulfur and amino nitrogen attached directly to the same sulfur by nonionic bonding
- 101 ..Plural amino nitrogens attached directly to the same sulfur, or oxygen double bonded and amino nitrogen attached directly to the same sulfur, all by nonionic bonding (e.g., sulfinamides, etc.)
- 102 ..Sulfur attached directly to amino nitrogen by nonionic bonding (e.g., sulfenamides, etc.)
- 103 ..Cyanamides (i.e., compounds containing cyano bonded directly to amino nitrogen)
- 104 ...Cyanoguanidines (i.e., HNH-C(=NH)-HNH, wherein -CN is substituted for one of the hydrogens and substitution may be made for the remaining hydrogens only)
- 105 ...Benzene ring containing
- 106 ...Acyclic
- 107 ..Nitramines (i.e., compounds containing nitro bonded directly to amino nitrogen)
- 108 ...Containing nitrogen double bonded directly to carbon (e.g., nitroguanidines, etc.)
- 109 ...Acyclic
- 110 ...Containing nitro bonded directly to carbon (i.e., plural nitro groups containing)

111	....Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	132	...Preparing directly from carbon monoxide or carbon dioxide
112	..Nitrosamines (i.e., compounds containing nitroso bonded directly to amino nitrogen)	133	...Preparing directly by amidation of -C(=O)X group, where X is O- or halogen
113	...Acyclic	134	....Of carboxylic acid ester
114	..Haloamines (i.e., compounds containing halogen attached directly to amino nitrogen by nonionic bonding)	135	....Having acyclic acid moiety
115	...Containing nitrogen double bonded directly to carbon	136	.....Additional oxygen in the acid moiety
116	....Amidine containing (i.e., containing -C(=N)-HNH, wherein substitution may be made for hydrogen only)	137	.....Lower fatty acid
117	...Alicyclic ring containing	138	....Of carboxylic acid
118	...Acyclic	139	.....Benzene ring containing
119	....Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	140	.....Hydroxy naphthoic
120	....Carbon to carbon unsaturation containing	141	....Lower fatty acid
121	....Plural difluoramine groups containing	142	....Of carboxylic acid halide
122	.....Plural difluoramine groups bonded directly to the same carbon	143	....Acyclic
123	..Carboxamides (i.e., Q-CO-HNH, wherein Q is a substituent having carbon bonded directly to the carbonyl or is hydrogen and wherein any substituent replacing one or both hydrogens shown will be referred to as E)	144	....Of acyclic carboxylic acid anhydride
124	...Preparing directly from cyano containing compound	145	...Preparing directly by reacting sulfur or sulfur containing compound with ammonia; or directly from ammonium polysulfide
125	....From HCN or cyanogen	146	...Preparing directly by nitration
126	....Catalytic hydration only of nitrile	147	...Aminimine containing
127	....Copper containing catalyst utilized	148	...Hydrazine containing
128	.....Of acrylonitriles	149	...Substituent Q contains benzene ring
129	....Acid hydrolysis only of nitrile	150	....Hydroxy, bonded directly to carbon, or ether in substituent Q (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
130	....From acyclic nitrile	151	...Substituent Q is acyclic
131	....Which contains carbon to carbon unsaturation	152	..Plural carboxamide groups containing or containing plural carbonyls bonded directly to the same nitrogen
		153	...Three or more carboxamide groups
		154	....Sulfur containing
		155	....Benzene ring containing
		156	....Two carboxamido carbonyls having benzene ring between the carbonyls and no carboxamido nitrogen between the carbonyls
		157	....Amino nitrogen, not bonded directly to carbonyl, containing

- 158 .....Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 159 ....Acyclic
- 160 .....Two carboxamido carbonyls having no carboxamido nitrogen between the carbonyls
- 161 ...Substituent Q contains benzene ring
- 162 ....Sulfur in substituent Q
- 163 ....Nitrogen in substituent Q
- 164 .....The substituent nitrogen is an amino nitrogen attached indirectly to a ring by acyclic nonionic bonding
- 165 .....Hydroxy, bonded directly to carbon, or ether in substituent Q (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 166 .....Nitro in substituent Q
- 167 .....Hydroxy, bonded directly to carbon, or ether in substituent Q (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 168 .....Ring in a substituent E
- 169 ...Carbonyl in substituent Q
- 170 ...Hydroxy, bonded directly to carbon, or ether in substituent Q (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 171 .....Plural rings in substituent Q
- 172 .....Polycyclo ring system in substituent Q
- 173 .....Q contains an ortho-hydroxy naphthyl bicyclo ring system, or its partially hydrogenated form, bonded directly to the carbonyl (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 174 .....Ring in a substituent E
- 175 .....Oxygen, bonded directly to the benzene ring, is part of an acyclic chain between the benzene ring and the carbonyl
- 176 .....Benzene ring bonded directly to the carbonyl
- 177 .....Hydroxy bonded directly to the benzene ring (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 178 .....Preparing directly by halogenation
- 179 .....Benzene ring in a substituent E
- 180 ...Polycyclo ring system in substituent Q
- 181 ...Two rings bonded directly to the same carbon in substituent Q
- 182 ...Substituent Q is monocyclic
- 183 .....The ring is bonded directly to the carbonyl
- 184 .....Benzene ring in a substituent E
- 185 .....Ring or polycyclo ring system in substituent E is attached indirectly to the carboxamide nitrogen or to an amino nitrogen in substituent E by acyclic nonionic bonding
- 186 .....Oxygen in a substituent E
- 187 .....Acyclic carbon to carbon unsaturation in a substituent E
- 188 ...Plural alicyclic rings in substituent Q
- 189 ...Five-membered ring in substituent Q
- 190 ...Three-membered ring in substituent Q
- 191 ...Alicyclic ring and an atom other than oxygen, carbon, or hydrogen in substituent Q
- 192 ...Substituent Q is acyclic
- 193 ...Nitrogen in substituent Q
- 194 .....Benzene ring in a substituent E
- 195 .....Two rings bonded directly to the same carbon in a substituent E

196	.....A ring or polycyclo ring system in a substituent E is attached indirectly to the carboxamide nitrogen or to an amino nitrogen in substituent E by acyclic nonionic bonding	213	.....Nitro and hydroxy, bonded directly to carbon, or ether in the substituent E (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
197	.....The compound is acyclic	214	.....The compound is monocyclic
198	.....The carboxamide nitrogen is unsubstituted	215	....Q is hydrogen or a lower saturated alkyl substituent
199	....Carbonyl in substituent Q	216	....Purification or recovery
200	....Benzene ring in a substituent E	217	....Ring in a substituent E
201	....Hydroxy, bonded directly to carbon, or ether in substituent Q (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	218	.....Benzene ring in a substituent E
202	....Benzene ring in a substituent E	219	.....A ring or polycyclo ring system in a substituent E is attached indirectly to the carboxamide nitrogen or to an amino nitrogen in substituent E by acyclic nonionic bonding
203	....Hydroxy, bonded directly to carbon, or ether in an acyclic substituent E (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	220	.....Amino nitrogen in the substituent E (i.e., plural amino nitrogens containing)
204	....Carbon to carbon unsaturation in substituent Q	221	.....Plural rings in a substituent E
205	.....Process which includes forming the unsaturation	222	.....Polycyclo ring system in a substituent E
206	....Purification or recovery	223	.....Hydroxy, bonded directly to carbon, or ether in a substituent E (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
207	....Benzene ring in a substituent E	224	....Hydroxy, bonded directly to carbon, ether or nitrogen in a substituent E (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
208	....Hydroxy, bonded directly to carbon, or ether in an acyclic substituent E (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	225	..Amidines (i.e., HN=CH-HNH, wherein substitution may be made for hydrogen only)
209	....Halogen, bonded directly to carbon, in substituent Q	226	...Amidino hydrazines or hydrazones (i.e., HNH-N=CH-HNH or HN=CH-NH-HNH, wherein substitution may be made for hydrogen only)
210	....Ring in a substituent E	227	...Guanyl hydrazines or hydrozones (i.e., HNH-N=C(-HNH)-HNH or HN=C(-HNH)-NH HNH, wherein substitution may be made for hydrogen only)
211	.....Benzene ring in a substituent E	228	....Benzene ring containing
212	.....A ring or polycyclo ring system in a substituent E is attached indirectly to the carboxamide nitrogen or to an amino nitrogen in substituent E by acyclic nonionic bonding	229	...Amidoximes (i.e., HON=CH-HNH, wherein substitution may be made for hydrogen only)

230	...Guanidines (i.e., $\text{HN}=\text{C}(-\text{HNH})-\text{HNH}$ , wherein substitution may be made for hydrogen only)	252	...Carbodiimides (i.e., $\text{HN}=\text{C}=\text{NH}$ , wherein substitution may be made for hydrogen only)
231	....Preparing from thioureas	253	...Oximes ( $\text{HCH}=\text{N}-\text{OH}$ , i.e., wherein substitution may be made for hydrogen only)
232	....Preparing by reacting cyanogen halide with amino nitrogen containing compound	254	...O-esters (i.e., H of oxime - OH replaced by ester forming group)
233	...Biguanides (i.e., $\text{HN}=\text{C}(-\text{HNH})-\text{NH}-(\text{HNH})-\text{C}=\text{NH}$ , wherein substitution may be made for hydrogen only)	255	....O-carbamoyl
234	.....Benzene ring containing	256	...O-ethers (i.e., H of oxime - OH replaced by ether forming group)
235	.....Plural rings containing		
236	....Polyguanidines	257	....Polycyclo ring system
237	....Benzene ring containing	258	...Oxygen double bonded, or hydroxy or ether oxygen bonded directly to an alpha carbon (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group Ia or IIA light metal)
238	.....Benzene ring bonded directly to guanidine nitrogen		
239	.....Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	259	...Preparing directly by reacting carbonyl with hydroxylamine or salt thereof
240	....Acyclic	260	...Preparing directly by reducing nitronic acid salt
241	....Guanidine per se or salt thereof	261	...Preparing directly by reducing nitro group
242	.....Guanidine nitrate	262	...Preparing directly by oxidizing a hydroxyl amine
243	...Polyamidines	263	...Preparing directly by nitrosation of olefin
244	...Benzene ring containing	264	...Purification or recovery
245	...N(prim)-aryl formimidines (i.e., benzene- $\text{N}=\text{CH}-\text{HNH}$ , wherein substitution may be made for hydrogen, including those bonded directly to the benzene ring only)	265	...Benzene ring containing
246	...Additional nitrogen attached indirectly to amidine nitrogen by nonionic bonding	266	....The oxime carbon is acyclic and has two rings bonded directly thereto
247	...Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	267	...Six-membered alicyclic ring double bonded directly to the oxime nitrogen
248	..Containing nitrogen double bonded directly to carbon	268	...Acyclic
249	...Azines (i.e., $\text{HCH}=\text{N}=\text{N}=\text{HCH}$ , wherein substitution may be made for hydrogen)	269	...Nitrogen double bonded and two rings bonded directly to the same acyclic carbon (e.g., auramines, etc.)
250	...Hydrazones (i.e., $\text{HCH}=\text{N}-\text{HNH}$ , wherein substitution may be made for hydrogen only)	270	...Polycyclo ring system
251	...Benzene ring containing	271	...Aldimines or ketimines which contain benzene ring (i.e., $\text{HCH}=\text{NH}$ , wherein substitution may be made for hydrogen only but a hydrogen or carbon must be bonded directly to the carbon)

272	....Benzylidene imines (i.e., Q-benzene-CH=NH, wherein Q is a substituent or hydrogen and substitution may be made for hydrogen only)	292	....Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
273	.....Substituent Q contains nitrogen bonded directly to carbon	293	....Choline, beta-alkylcholines, ethers thereof, and salts thereof
274	.....Substituent Q contains hydroxy, bonded directly to carbon, or ether (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	294	.....Polyoxyalkylene
275	.....Q is hydrogen only	295	....Polyquaternary ammonium
276	....Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	296	....Processes
277	....Unsubstituted phenyl bonded directly to the aldimine or ketimine nitrogen	297	..Amine oxides
278	...Aldimines or ketimines which are acyclic	298	...Processes
279	....Carbon to carbon unsaturation containing	299	..Benzene ring containing
280	..Phenol or thiophenol addition salts	300	..Nitroxides, oxyamines or hydroxylamines (i.e., HNH-O or HNH-OH, wherein substitution may be made for hydrogen only, including O-ether and O-ester derivatives)
281	..Quaternary ammonium containing	301	...Acyclic
282	...Benzene ring containing	302	..Racemization per se or with resolution of optical isomers
283	....Two rings bonded directly to the same carbon	303	..Resolution per se of optical isomers
284	....Nitro or nitroso, bonded directly to carbon containing	304	...Of benzene ring containing compounds
285	....Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)	305	..Benzene ring containing
286	.....Polyquaternary ammonium	306	...Alicyclic ring or ring system, having plural amino nitrogens attached directly or indirectly thereto by acyclic nonionic bonding, attached indirectly to an aryl ring or ring system by acyclic nonionic bonding
287	.....The hydroxy or ether oxygen is bonded directly to a ring	307	...Amino nitrogen and a ring bonded directly to the same ring, and any other amino nitrogen in the compound is bonded directly to one of the rings
288	....Acyclic carbon to carbon unsaturation containing	308	....Polycyclo ring system
289	....Halogen attached indirectly to the ammonium nitrogen by nonionic bonding	309	....Benzidines
290	....Polyquaternary ammonium	310	...Hydrazines
291	...Acyclic	311	....Symmetrical diaryl hydrazines
		312	.....Preparing directly by reducing nitrogen containing group with metal and metallic hydroxide
		313	....Aralkyl hydrazines
		314	....Processes
		315	...Two aryl rings or ring systems bonded directly to the same carbon

- 316 ....Amino nitrogen attached to the carbon by an acyclic carbon or chain
- 317 .....Oxygen or sulfur is bonded directly to the carbon and is part of the chain
- 318 .....Processes
- 319 .....Oxygen, carbonyl or carbon to carbon unsaturation in the chain; or ether, carbonyl, carbon to carbon unsaturation or hydroxy, bonded directly to carbon, is part of a substituent bonded directly to the acyclic carbon or chain (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 320 .....Hydroxy or ether oxygen bonded directly to the carbon (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 321 ....Amino nitrogen bonded directly to the carbon
- 322 ....The carbon is a ring member of an alicyclic ring or ring system
- 323 ....Amino nitrogen attached to aryl ring or ring system by an acyclic carbon or chain
- 324 .....Oxygen or sulfur is bonded directly to the aryl ring or ring system and is part of the chain
- 325 .....Additional similar chain
- 326 ....Amino nitrogen is bonded directly to the aryl ring or ring system and is part of the chain
- 327 ....Benzhydrols or benzthiols (i.e., -OH or -SH bonded directly to the carbon)
- 328 ....Benzophenones or benzothiophenones (i.e., the carbon is part of a carbonyl or thiocarbonyl)
- 329 .....Processes
- 330 ....Diamino diphenyl methanes (i.e., two phenyls, each having amino nitrogen bonded directly thereto, bonded directly to the carbon)
- 331 .....Preparing by reacting carbonyl containing compound with amino nitrogen containing compound
- 332 .....Solid catalyst utilized
- 333 .....Hydrochloric acid utilized
- 334 .....Purification or recovery
- 335 ....Halogen or sulfur attached directly or indirectly to the carbon by nonionic bonding
- 336 ...Amino nitrogen attached to aryl ring or ring system by an acyclic carbon or chain
- 337 ...The aryl ring or ring system is bonded directly to another ring
- 338 .....The other ring is alicyclic
- 339 .....Double bonded oxygen, ether or hydroxy, bonded directly to carbon, is attached directly or indirectly to the alicyclic ring by acyclic nonionic bonding (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 340 ....Sulfur is part of the chain or is attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding with no amino nitrogen between the sulfur and the aryl ring or ring system
- 341 .....The sulfur is bonded directly to the aryl ring or ring system
- 342 ...Carbonyl is part of the chain or is attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding with no amino nitrogen between the carbonyl and the aryl ring or ring system
- 343 .....Processes
- 344 ....Hydroxy or ether oxygen bonded directly to the aryl ring or ring system
- 345 ....Halogen bonded directly to the aryl ring or ring system
- 346 ...Ether oxygen is part of the chain
- 347 .....The ether oxygen is bonded directly to the aryl ring or ring system

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|-----|--|-----|---|
| 348 | .....Hydroxy, bonded directly to carbon, or ether oxygen is attached directly or indirectly to the chain by acyclic nonionic bonding with no amino nitrogen between the hydroxy or attached ether oxygen and the aryl ring or ring system (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)     | 360 | ....Additional hydroxy, bonded directly to carbon, or ether oxygen attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding with no amino nitrogen between the additional hydroxy or ether oxygen and the aryl ring or ring system (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal) |
| 349 | .....Alkanol group only between the amino nitrogen and the ether oxygen which is bonded directly to the aryl ring or ring system (i.e., aryloxy alkanol amines)  | 361 | ....Plural hydroxy groups bonded directly to the aryl ring or ring system (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)  |
| 350 | .....Nitrogen bonded directly to the aryl ring or ring system  | 362 | ....Four or more substituents on the aryl ring or ring system   |
| 351 | .....Halogen bonded directly to the aryl ring or ring system   | 363 | ....Beta hydroxy phenethylamines (i.e., hydroxy and the benzene ring are bonded directly to the same carbon of the chain which consists of two carbons; H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)   |
| 352 | .....The aryl ring or ring system is polycyclic  | 364 | .....Acyclic hydrocarbyl alpha substituent  |
| 353 | .....Hydrogen or acyclic hydrocarbyl substituents only bonded directly to the part of the chain between the ether oxygen and amino nitrogen  | 365 | ....Hydroxy or ether oxygen bonded directly to the aryl ring or ring system (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)  |
| 354 | .....The part of the chain between the ether oxygen and amino nitrogen consists of two unsubstituted saturated carbons   | 366 | ...Halogen attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding with no amino nitrogen between the halogen and the aryl ring or ring system   |
| 355 | ...Hydroxy, bonded directly to carbon, or ether oxygen attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding with no amino nitrogen between the hydroxy or ether oxygen and the aryl ring or ring system (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal) | 367 | ...The chain contains nitrogen between the aryl ring or ring system and amino nitrogen  |
| 356 | ....Preparing directly by reduction, other than by reductive amination   | 368 | ....Ethylene diamines   |
| 357 | .....By direct hydrogenation   | 369 | .....Mono ethylene diamines   |
| 358 | .....Group VIII noble metal containing catalyst utilized   | 370 | .....Plural aryl rings, which are not part of the same polycyclic ring system, or ring systems containing   |
| 359 | ....Preparing directly by hydrolysis   |     |   |

- 371 .....Methylene diamines
- 372 ....Additional amino nitrogen attached directly or indirectly to the acyclic carbon or chain by acyclic nonionic bonding
- 373 ....Alpha aralkyl benzyl amines
- 374 ....The chain consists of two or more carbons which are unsubstituted or have acyclic hydrocarbyl substituents only
- 375 .....Forming amine group directly by reduction, other than by reductive amination
- 376 .....Forming directly by amination which replaces halogen
- 377 .....Preparing directly by hydrolysis
- 378 .....The aryl ring or ring system is polycyclo
- 379 .....Tricyclo ring system
- 380 .....The chain contains carbon to carbon unsaturation
- 381 .....Phenethylamines having alpha alkyl substituent
- 382 .....Phenethylamines having beta alkyl substituent
- 383 .....The chain contains carbon to carbon unsaturation
- 384 ....The aryl ring or ring system and amino nitrogen are bonded directly to the same acyclic carbon, which carbon additionally has only hydrogen or acyclic hydrocarbyl substituents bonded directly thereto
- 385 .....Forming amine group directly by reduction, other than by reductive amination
- 386 .....Forming directly by amination which replaces halogen or forming amine group directly by hydrolysis
- 387 .....The aryl ring or ring system is polycyclo
- 388 .....Plural amino methylene groups bonded directly to the same benzene ring
- 389 .....Benzyl amines having hydroxy or ether oxygen bonded directly to the benzene ring (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 390 .....Ortho hydroxy benzyl amines
- 391 .....Benzyl amines wherein the benzene ring has no other substituents
- 392 .....Acyclic hydrocarbyl group bonded directly to the methylene carbon
- 393 ...Preparing directly from ester other than by reduction of nitrile
- 394 ...Preparing directly from organic acid, acid halide or salt
- 395 ...Preparing directly by amination
- 396 ...Of carbonyl containing compound
- 397 .....By reductive amination
- 398 .....Group VIII noble metal containing catalyst utilized
- 399 ...Of ether or alkylene oxide
- 400 ...Of halohydrin
- 401 ...Of acyclic hydroxy containing compound
- 402 ...By replacing hydroxy
- 403 .....In compound having plural hydroxys bonded directly to benzene ring
- 404 ...Of halogen containing compound
- 405 .....Which also contains benzene ring
- 406 .....And nitro
- 407 .....Preparing primary amines
- 408 ...Of hydrocarbon
- 409 ...Preparing directly by ring alkylation or dealkylation
- 410 ...Preparing directly by nitrosation
- 411 ...Preparing directly by nitration
- 412 ...Preparing of halogen containing compound directly by halogenation or dehalogenation
- 413 ...Preparing directly from hetero ring containing compound

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|-----|--|-----|---|
| 414 | ...Preparing directly from an amide (e.g., preparing directly from a sulfenamide, nitrosamine, carboxamide, thiourea, etc.)                  | 439 | ...Of compound having amino nitrogen and hydroxy bonded directly to the benzene ring (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal) |
| 415 | ...Forming amine group directly by reduction   | 440 | ...Sulfur attached indirectly to the amino nitrogen by nonionic bonding   |
| 416 | ....Of nitro or nitroso  | 441 | ...Nitro or nitroso, bonded directly to carbon, containing  |
| 417 | ....Preparing compound which contains halogen bonded directly to carbon  | 442 | ...Halogen, bonded directly to carbon, containing   |
| 418 | ....Preparing compound which contains hydroxy, bonded directly to carbon, or ether   | 443 | ...Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)                           |
| 419 | .....With initial nitration step   | 444 | ..Preparing alicyclic ring containing compound directly by isomerization  |
| 420 | .....By direct hydrogenation   | 445 | ..Preparing alicyclic ring containing compound directly by amination  |
| 421 | .....Group VI metal containing catalyst utilized   | 446 | ...Of aldehyde or ketone containing compound  |
| 422 | .....Group VIII metal containing catalyst utilized   | 447 | ...Of hydroxy containing compound   |
| 423 | .....Group VIII noble metal containing catalyst utilized   | 448 | ..Forming amine group of alicyclic ring containing compound directly by reduction   |
| 424 | ...Separating isomers  | 449 | ...Including hydrogenating benzene ring   |
| 425 | ...By salt formation   | 450 | ..Preparing alicyclic ring containing compound directly by hydrogenating benzene ring   |
| 426 | ...Polycyclo ring system   | 451 | ...Plural amino nitrogens containing  |
| 427 | ...Tricyclo ring system  | 452 | ..Plural alicyclic rings, which are not part of the same polycyclo ring system, or ring systems bonded directly to the same carbon  |
| 428 | ...Bicyclo ring system   | 453 | ..Alicyclic ring or ring system and amino nitrogen are attached indirectly by an acyclic carbon or chain  |
| 429 | ....Naphthyl ring system and benzene ring bonded directly to the same nitrogen   | 454 | ...The chain consists of two or more carbons which are unsubstituted or have acyclic hydrocarbyl substituents only  |
| 430 | ...Two benzene rings bonded directly to the same oxygen, sulfur, or polysulfide chain  |     |   |
| 431 | ...Two carbocyclic rings, at least one of which is benzene, bonded directly to the same nitrogen   |     |   |
| 432 | ....Condensation products and processes of acyclic ketone and compound which contains two benzene rings bonded directly to the same nitrogen |     |   |
| 433 | ....Two benzene rings bonded directly to the same nitrogen   |     |   |
| 434 | ....Additional amino nitrogen containing   |     |   |
| 435 | .....Preparing directly by condensing a primary amine  |     |   |
| 437 | ...Purification or recovery  |     |   |
| 438 | ...By salt formation   |     |   |

- 455 ...The alicyclic ring and amino nitrogen are bonded directly to the same acyclic carbon, which carbon additionally has only hydrogen or acyclic hydrocarbyl substituents bonded directly thereto
- 456 ....Polycyclo ring system
- 457 ..Plural alicyclic rings
- 458 ...Polycyclo ring system
- 459 ....Tricyclo ring system
- 460 ....Bicyclo ring system
- 461 ..Alicyclic ring and plural amino nitrogens containing
- 462 ..Cyclohexyl ring containing
- 463 ..Acyclic
- 464 ...Aminimine or hydrazine containing
- 465 ....Preparing directly by reducing a nitrosamine
- 466 ....Preparing directly by condensing a haloamine
- 467 ...Preparing directly utilizing carbon monoxide
- 468 ...Preparing directly from ester, organic acid or salt, other than by reduction of nitrile
- 469 ...Preparing directly by amination
- 470 ....By transamination
- 471 ....Of aldehyde or ketone containing compound
- 472 .....By reductive amination
- 473 .....Of aldehyde containing compound
- 474 ....Of ether containing compound
- 475 .....Of an alkylene oxide
- 476 .....Of an epihalohydrin
- 477 .....Producing monohydroxy alkyl amines
- 478 ....Of hydroxy containing compound
- 479 .....Catalyst utilized
- 480 .....Group VI or VIII metal containing catalyst utilized
- 481 ....Of halogen containing compound
- 482 .....Of an alkylene dihalide
- 483 .....Of compound which contains an atom other than carbon, hydrogen, and halogen
- 484 .....Of compound which contains carbon to carbon unsaturation
- 485 ....Of compound which contains carbon to carbon unsaturation
- 486 ...Preparing directly by dealkylation
- 487 ...Preparing directly from hetero ring containing compound
- 488 ...Preparing directly from an amide (e.g., preparing directly from a carboxamide, etc.)
- 489 ...Forming amine group directly by reduction
- 490 ....Of cyano
- 491 .....Of plural cyanos
- 492 .....Preparing hexamethylene diamine
- 493 .....Preparing a primary monoamine
- 494 ....Of nitro or nitroso
- 495 .....The nitro or nitroso is in a compound which contains hydroxy, bonded directly to carbon, or ether
- 496 ...Preparing directly by halogenation
- 497 ...Purification or recovery
- 498 ....Of an alkylene polyamine
- 499 ...Separating primary, secondary, or tertiary amines from each other
- 500 ...Sulfur attached indirectly to the amino nitrogen by nonionic bonding
- 501 ....Thioether containing
- 502 ...Aldehyde or ketone containing
- 503 ...Hydroxy, bonded directly to carbon, or ether containing (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 504 ....Polyether
- 505 .....Polyoxyalkylene
- 506 ....Polyhydroxy (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 507 .....Plural hydroxys in the same substituent on the amino nitrogen (H of -OH may be replaced by a substituted or unsubstituted ammonium ion or a Group IA or IIA light metal)
- 508 ....Monoether
- 509 ...Carbon to carbon unsaturation containing

- 510 ...Halogen, bonded directly to  
carbon, containing
- 511 ...Plural amino nitrogens  
containing
- 512 ...Three or more amino nitrogens  
containing

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