

This Class 524 is considered to be an integral part of Class 520 (see the Class 520 schedule for the position of this Class in schedule hierarchy). This Class retains all pertinent definitions and class lines of Class 520

		9	...Cellular material derived from plant or animal source DNRM other than: cotton, farinaceous meals or flours, blood, diatomaceous earth, chalk, or other fossilized matter
		10	....Animal derived
		11	.....Leather
		12	.....Hair removed from pelt, e.g., wool, etc.
		13	...Wood or wood cellulose fiber or flour
		14	.....At least one solid polymer or SICP derived from at least one nonethylenic reactant
		15	...Vegetable shell, hull, or cob ingredient, e.g., nut shells, pits, etc.
		16	....Bark or cork
1	...Adding a NRM to a preformed solid polymer or preformed specified intermediate condensation product, composition thereof; or process of treating or composition thereof	17	...Protein or biologically active polypeptide DNRM excluding wheat flour or natural cereals which may contain protein ingredient
2	...Water settable inorganic compound as nonreactive material	18	...With natural resin or carbohydrate DNRM
3	....Solid polymer or specified intermediate condensation product derived from reactant-containing atom other than C, H, O, N, or halogen and which is devoid of a fused or bridged ring system	19	...Hydrocarbon material DNRM which is nonsolid polymer, e.g., wax, etc.
4	....Solid polymer or specified intermediate condensation product derived from at least one oxygen-containing reactant and which is devoid of a fused ring or bridged ring system	20	...Two or more diverse proteins or polypeptides
5	.....Derived from carboxylic acid or derivative	21	...Animal derived protein or polypeptide other than casein, e.g., blood, egg albumin, etc.
6	.....Derived from phenolic compound or aldehyde-containing reactant	22	.....Gelatin
7	....Solid polymer derived from halogen-containing reactant	23	.....Solid polymer derived from ethylenic reactants only
8	....Solid polymer derived from ethylenically unsaturated hydrocarbon only	24	.....Derived from carboxylic acid or derivative
		25	...Casein or derivative or soy protein
		26	.....Solid polymer or SICP derived from carboxylic acid or derivative
		27	...Carbohydrate or derivative DNRM
		28	...Algin or derivative
		29	...Atom other than O, H, C, S, or Group IA metal
		30	....Atom other than N, O, H, C, S, or Group IA metal
		31	.....Cellulose derivative

32	.....Solid polymer derived from ethylenic reactants only	61	....With nitrogen-containing additive DNRM
33	.....Solid polymer or SICP derived from at least one aldehyde or aldehyde derivative reactant	62	...With hydrocarbon DNRM additive which is nonresinous and which is nonbituminous, or noncoal derived, e.g., cutback asphalt, kerosene, paraffin wax, etc.
34	....Paper plant solid waste material or cotton, e.g., white liquor, etc.	63	....Coke additive
35	....Cellulose	64	....Asphaltene or maltene additive
36	.....Sulfur-containing ester, e.g., viscose, xanthate, etc.	65	....Coal derived additive, e.g., lignite, etc.
37	.....Carboxylic acid ester	66	.....Tar or pitch
38	.....Mixed carboxylate ester	67	....Oil shale
39	.....Acetate	68	....Two or more solid polymers, or graft or graft-type, or block or block-type solid copolymer
40	.....At least one solid polymer derived from ethylenic reactants only	69	....Solid polymer derived from ethylenic reactants only at least one of which contains a carboxylic acid or derivative
41	.....Acetate	70	....Solid polymer derived from ethylenic reactants only, at least one of which is propylene
42	.....Ether group containing, other than solely linking carbohydrate groups directly to each other	71	....Solid polymer derived from ethylenic reactants only, at least one of which is a hydrocarbon other than ethylene
43	.....Hydroxyalkyl	72	...Lignin or tannin or derivative DNRM
44	.....Hydroxyethyl	73	....Reaction product of lignin or tannin or derivative with an oxygen or nitrogen-containing organic reactant
45	.....Carboxyalkyl or alkali metal salt thereof	74	....Solid polymer or specified intermediate condensation product derived from a phenolic compound
46	.....Alkyl	75	...Solid polymer contains halogen
47	....Starch or derivative or farinaceous meal or flour	76	....Solid polymer derived from ethylenically unsaturated hydrocarbon only
48	....Dextrin or derivative	77	...Natural resin or modified forms thereof other than rosin or its modified forms DNRM, e.g., shellac, dammar, etc.
49	....Aldehyde reaction product		
50	....Ether group, other than solely linking of carbohydrate groups directly to each other		
51	.....Ester		
52	.....Solid polymer derived from ethylenic reactants only		
53	.....At least one carboxylic acid ester		
54	....Dextran or derivative		
55	....Gum or derivative		
56	....Disaccharide or trisaccharide, e.g., sucrose, etc.		
57	.....Ester		
58	....Monosaccharide, e.g., glucose, fructose, etc.		
59	...Coal, bituminous additive, extract, or derivative thereof; or oil shale; or fatty still residue DNRM		
60	....With water additive DNRM		

78	...Residue of undetermined constitution derived from destructive distillation of a plant or animal source or plant or animal extract of undetermined constitution DNRM	98	.....Nitrogen ring having at least seven ring members
79	...DNRM is derived from pyrolysis of previously formed solid synthetic polymer	99	.....Six-membered nitrogen ring, e.g., pyridine, etc.
80	...DNRM which is other than silicon dioxide, glass, titanium dioxide, water, halohydrocarbon, hydrocarbon, or elemental carbon	100	.....Six-membered nitrogen ring having two or more ring nitrogen atoms
81	....Organic DNRM	101	.....Three oxygen atoms are directly bonded to three nuclear carbon atoms of the nitrogen ring, e.g., (iso) cyanurate, etc.
82	.....Sulfur atom as part of a hetero ring DNRM	102	.....Two or more nitrogen rings
83	.....Hetero ring contains sulfur and at least one diverse hetero atom	103	.....Nonhetero nitrogen
84	.....Five-membered sulfur ring	104	.....Five-membered nitrogen ring
85	.....Three-membered sulfur ring	105	.....Two or more nitrogen rings
86	....Nitrogen atom as part of a hetero ring DNRM	106	.....Five-membered nitrogen ring having two or more ring nitrogen atoms
87	.....Nitrogen ring directly fused or bridged to a ring system	107	....At least one chalcogen atom as part of a hetero ring (chalcogen=O, Se, Te) DNRM
88	.....Tetrabenzoporphyrzine nucleus containing, e.g., phthalocyanine, etc.	108	.....Two or more chalcogen atoms in the same hetero ring
89	.....Nitrogen ring is part of a ring system having three or more rings fused or bridged together	109	.....Two or more chalcogen rings
90	.....Nitrogen ring is part of a ring system having five or more rings fused or bridged together	110	.....Six-membered chalcogen ring
91	.....Three or more nitrogen atoms in the fused or bridged ring system	111	.....Five-membered chalcogen ring
92	.....Two nitrogen atoms in the fused or bridged ring system	112	.....Cyclic polycarboxylic acid anhydride
93	.....1,3-diazole	113	.....Tetrahydrofuran per se
94	.....Five-membered nitrogen containing ring	114	.....Three-membered chalcogen ring
95	.....At least one diverse hetero atom in same ring	115	....Phosphorus organic compound DNRM
96	.....Six-membered nitrogen ring having at least one diverse hetero atom, e.g., morpholine, etc.	116	.....Phosphorus is part of a covalent ring
97	.....Two or more nitrogen rings	117	.....Oxygen ring atom
		118	.....Halogen
		119	.....Two or more phosphorus rings
		120	.....Spiro ring
		121	.....Two or more phosphorus atoms directly or indirectly bonded together by only covalent bonds
		122	.....Phosphorus double bonded to an atom other than C or O
		123	.....Phosphorus bonded directly to three chalcogen atoms and having only one P-C linkage, e.g., phosphonate, etc.
		124	.....Nitrogen
		125	.....Aryl group

126	.....Phosphorus bonded directly to only two chalcogen atoms and having at least one P-C linkage, e.g., phosphinate, phosphonite, etc.	153	.....Triphenyl phosphite per se
127	.....Phosphorus bonded directly to four chalcogen atoms, e.g., phosphate, etc.	154	.....Phosphorus directly bonded to carbon atoms only
128	.....Phosphorus bonded directly to three chalcogen atoms only, e.g., phosphite, etc.	155	.....Organic compound having a sulfur bonded directly to oxygen DNRM
129	.....Phosphorus directly bonded to at least one chalcogen and only H or C, e.g., phosphine oxide, etc.	156	.....Sulfur bonded directly to four oxygen atoms
130	.....Phosphorus bonded to three chalcogen atoms and having only one P-C linkage	157	.....Sulfur bonded directly to three oxygen atoms
131	.....Chalcogen other than directly bonded to P	158	.....Aryl group
132	.....Aryl group	159	.....Nitrogen
133	.....Phosphorus bonded to only two chalcogen atoms and having at least one P-C linkage	160	.....Fused or bridged ring system
134	.....Sulfur	161	.....Metal
135	.....Aryl group	162	.....At least two separate aryl groups
136	.....Pentavalent phosphorus atom directly bonded to at least one oxygen atom	163	.....Halogen
137	.....P directly bonded to S	164	.....Halogen
138	.....P directly bonded to two or more N	165	.....Halogen
139	.....Phosphorus directly bonded to at least one O and at least one H or C only	166	.....Metal
140	.....P directly bonded to oxygen only	167	.....Sulfur bonded directly to two oxygen atoms, e.g., sulfones, etc.
141	.....Aryl group	168	.....Sulfur bonded directly to nitrogen
142	.....Halogen	169	.....Aryl group which is not fused or bridged
143	.....Cresyl phosphate, e.g., di, etc.	170	.....Aryl group
144	.....Halogen	171	.....Oxygen atom other than as part of a sulfur bonded directly to two oxygen atoms
145	.....-C-O-P-O-C, or C-O-P-OH group, e.g., phosphate ester, lecithin, etc.	172	.....Atom other than C, H, S, O, or metal
146	.....Phosphorus directly bonded to sulfur	173	.....Sulfur directly bonded to oxygen and devoid of an aryl group, e.g., dimethyl sulfoxide, etc.
147	.....Phosphorus directly bonded to oxygen	174	.....Organic compound having at least one metal atom directly bonded to a carbon or hydrogen atom DNRM
148	.....Atom other than C, O, H, P, or Hal	175	.....Heavy metal directly bonded to carbon or hydrogen atom
149	.....Halogen	176	.....Transition metal (at. no. 21-29, 39-47, 57-79)
150	.....Five or more aryl groups	177	.....Group VA metal (Sb, Bi, As)
151	.....Two or more aryl groups	178	.....Tin atom
152	.....OH group	179	.....At least one sulfur atom
		180	.....Sulfur directly bonded to tin
		181	.....With additional tin compound DNRM

182	.....At least two tin atoms	213	.....Atom other than C, N, H, or chalcogen; or contains nitrogen or chalcogen atom other than as part of a N(C=X)
183	.....Boron organic compound DNRM	214	.....Carbocyclic group
184	.....Atom other than B, O, H, or C	215	.....With water NRM
185	.....Atom is N	216	.....At least one solid polymer derived from ethylenic reactants only
186	.....Organo nitrogen compound other than unsubstituted ammonium salt as sole nitrogen atom DNRM	217	.....N atom other than as part of a N-C=X group
187	.....Contains rosin or derivative DNRM	218	.....C=X group other than as part of a N-C=X group
188	.....Silicon atom	219	.....(C=X)X group
189	.....Nitrogen to nitrogen bond	220	.....C-O-C group
190	.....N=N group	221	.....C-OH group
191	.....X=C-N group wherein X is a chalcogen	222	.....Aryl-OH group
192	.....Two or more N-N bonds	223	.....Two or more N-C=X groups or two or more C-OH groups
193	.....Aryl-OH	224	.....At least one solid polymer derived from ethylenic reactants only
194	.....Aryl-OH	225	.....Atom other than N, C, H, or oxygen
195	.....N=C=N or N=C-N- group, e.g., carbodiimide, isourea, etc.	226	.....Carbocyclic group
196	.....N=C=X group wherein X is a chalcogen, e.g., isocyanate, etc.	227	.....Two or more N-C=O groups
197	.....At least one solid polymer derived from ethylenic reactants only	228	.....At least one solid polymer derived from ethylenic reactants only
198	.....N-(C=O)-O-, e.g., urethane, carbamate, etc.	229	.....At least one solid polymer derived from acyclic monoethylenic hydrocarbon reactant
199	.....Oxygen other than as part of a N-(C=O)-O- group	230	.....N-(C=O)alkyl wherein alkyl group contains eight or more carbon atoms
200	.....Atom other than N, H, C, or O	231	.....Two or more organo N-C=O compounds DNRM or with nonreactant organo nitrogen compound DNRM
201	.....N(C=X)X wherein X is a chalcogen, e.g., thiocarbamate, etc.	232	.....At least one solid polymer derived from ethylenic hydrocarbon reactants only
202	.....Metal or ammonium group	233	.....Dialkyl amides, e.g., dimethyl formamide, dimethyl acetamide, etc.
203	.....With chalcogen nonreactive organic compound	234	.....Two or more N-C nitrogen nonreactant materials or with an organo oxygen or nitrogen- containing nonreactant material
204	.....Heavy metal or aluminum	235	.....At least one solid polymer derived from nitrile- containing ethylenic reactant
205	.....Nitrile group		
206	.....Nitrogen atom other than as part of a nitrile group		
207	.....Atom other than C, H, or N		
208	.....Atom other than C, H, or N		
209	.....Two or more nitrile groups		
210	.....N-C=X group wherein X is a chalcogen		
211	.....N-(C=X)N, e.g., urea, etc.		
212	.....Two or more -N-(C=X)N groups		

236	.....Trivalent or tetravalent nitrogen atom other than unsubstituted ammonium	267	.....Two or more Si atoms and at least one Si-C or Si-H group
237	.....Carbon bonded to three N atoms, -C=NH, or C=N-C group	268	.....Silicon containing SICP or solid polymer
238	.....(C=X)X group wherein X is chalcogen	269	.....Solid polymer derived from ethylenic reactants only
239	.....Two or more (C=X)X groups	270	.....Rosin or tall oil or modified forms thereof as DNRM, e.g., colophony, abietic acid, ester gum, etc.
240	.....Aryl group	271	.....Two or more solid polymers or at least one solid polymer and at least one specified intermediate condensation product
241	.....C=X group where X is chalcogen	272	.....Solid polymer derived from at least one ethylenic compound containing a carboxylic acid or derivative
242	.....Two or more C=X groups	273	.....Solid polymer contains halogen
243	.....C-O-C group	274	.....Solid polymer derived from ethylenically unsaturated hydrocarbon only
244	.....C-OH	275	.....Oxygen wax DNRM
245	.....Two or more C-OH groups	276	.....With water NRM
246	.....Aryl group	277	.....Carnauba wax, beeswax, montan wax, or oxidized microcrystalline wax or modified forms thereof
247	.....C-OH group	278	.....Solid polymer contains halogen
248	.....Aryl-OH group	279	.....Solid polymer contains nitrogen
249	.....Two or more nitrogen atoms or two or more C-OH groups	280	.....X(C=X)X wherein X is chalcogen DNRM, e.g., carbonate, etc.
250	.....Four or more C-OH groups	281	.....Aryl group
251	.....N, C, and H atoms only	282	.....C(C=X)X wherein at least one X is a chalcogen other than oxygen DNRM
252	.....Two or more nitrogen atoms	283	.....Oxygen atom which is not part of the -C(C=X)X group
253	.....With water NRM	284	.....Carboxylic acid or derivative and wherein the derivative is other than a metal salt DNRM
254	.....Aryl	285	.....Cycloaliphatic group or bridged or fused ring system, e.g., camphoric acid, etc.
255	.....Two or more separate aryl ring systems	286	.....Naphthenic acid or derivative
256	.....At least one aryl ring which is part of a fused or bridged ring system	287	.....Aryl group
257	.....Aryl	288	.....Atom other than C, H, or O
258	.....Two or more separate aryl ring systems	289	.....Sulfur
259	.....Nitrogen as part of a nitro group		
260	.....Nitro compound has an atom other than C, H, N, or O or has an oxygen or nitrogen atom other than as part of a nitro group		
261	.....Organic silicon compound having at least one oxygen atom DNRM		
262	.....Atom other than Si, O, C, or H		
263	.....Halogen		
264	.....Ethylenic group		
265	.....Oxygen atom other than as Si-O-Si and at least one Si-C or Si-H group		
266	.....Silicon containing SICP or solid polymer		

290	.....Oxygen atom other than as part of a carboxylic acid or ester group	310	.....OH group other than as part of a COOH group, e.g., castor oil, etc.
291	.....OH group other than as part of a COOH group, e.g., salicylic acid, etc.	311	.....Three or more carboxylic acid ester groups
292	.....Carbonyl of a carboxylic acid or ester group directly attached to an aryl group, e.g., dipropylene glycol dibenzoate, etc.	312	.....Derived from glycerol
293	.....Carboxylic acid or ester groups each directly attached to separate aryl groups through the carbonyl of the carboxylic acid or ester group	313	.....Fatty acid triglyceride, e.g., drying oil, etc.
294	.....Two or more carboxylic acids or ester groups each directly attached to a nuclear carbon of the same aryl group through the carbonyl of the carboxylic acid or ester group	314	.....Ester derived from dicarboxylic acid
295	.....A single aryl group	315	.....Carboxylic acid ester
296	.....Only two carboxylic acid or ester groups directly attached to an aryl group, e.g., phthalic acid, etc.	316	.....Atom other than C, H, or O
297	.....Dioctyl or dibutyl ester, e.g., di-(2-ethylhexyl) phthalate, etc.	317	.....Oxygen atom other than as part of a carboxylic acid group, e.g., glycolic ester, etc.
298	.....Three or more carboxylic acid or ester groups	318	.....Acyl group of the carboxylic acid has at least fifteen carbon atoms, e.g., butyl stearate, etc.
299	.....Two or more aryl groups	319	.....Halogen
300	.....Two or more carbon atoms	320	.....Oxygen atom other than as part of a COOH or derivative group
301	.....Metal	321	.....Two or more carboxylic acid or derivative groups
302	.....Sulfur, e.g., factice, etc.	322	.....Acyl group of the carboxylic acid or derivative has at least fifteen carbon atoms, e.g., stearic acid, etc.
303	.....Only two carboxylic acid or ester groups, e.g., distearyl thiodipropionate, etc.	323	.....Aryl-OH or salt or aryl-O-metal bond DNRM
304	.....With a nonreactive material	324	.....Fused or bridged ring system
305	.....Nonreactive material contains atom other than C, H, or O	325	.....Fused or bridged ring system having at least three rings
306	.....Ester having at least two carboxylic acid ester groups	326	.....Cycloaliphatic group
307	.....Atom other than C, H, or O	327	.....Metal
308	.....Oxygen atom other than as part of a carboxylic acid ester group	328	.....Group VIII metal (i.e., Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt)
309	.....C=O group other than as part of COO group	329	.....Group IVA metal (i.e., Ge, Sn, Pb)
		330	.....Atom other than C, H, O, or halogen
		331	.....Two or more sulfur atoms
		332	.....S-S linkage
		333	.....Two or more separate aryl-OH groups
		334	.....Oxygen other than as part of an aryl-OH group

335	.....C=O group	360	.....Carbocyclic ring wherein one of the nuclear carbons thereof is double bonded directly to an oxygen atom so as to form a C=O group therewith, e.g., cyclohexanone, etc.
336	.....A single C=O group	361	.....Only C, H, and oxygen atoms
337	.....Aryl group having two or more OH groups directly attached to nuclear carbons thereof	362	.....Ten or more carbon atoms
338	.....Two or more aryl-OH groups	363	.....Two or more C=O DNRM compounds
339	.....C-O-C linkage	364	.....With water, hydrocarbon, halohydrocarbon, or organic oxygen containing nonreactive material
340	.....Aryl compound having only one aryl ring and having one or more OH groups directly attached to nuclear carbons of the aryl	365	.....Solid polymer derived from ethylenic reactants only
341	.....Halogen	366	.....C-O-C compound DNRM
342	.....Two or more separate aryl-OH groups	367	.....Fused or bridged ring system or a cycloaliphatic group
343	.....Only two aryl-OH groups	368	.....Atom other than C, H, O, or halogen
344	.....Aryl group other than as part of an aryl-OH	369	.....Aryl group other than as part of a phenoxy group
345	.....Polyhydric aryl-OH compound	370	.....Aryl-O-aryl
346	.....1,3-dihydroxy, e.g., resorcinol, etc.	371	.....Halogen
347	.....1,4-dihydroxy, e.g., hydroquinone, etc.	372	.....Two or more phenoxy groups
348	.....Two or more aryl-OH DNRM compounds	373	.....Halogen
349	.....Three or more substituents on the aryl-OH compound	374	.....At least two diverse halogen atoms
350	.....With other nonreactive material	375	.....Phenoxy group
351	.....Two substituents on the aryl-OH compound	376	.....OH group, e.g., Cellosolve, etc.
352	.....A single substituent on the aryl-OH compound	377	.....Two or more OH groups
353	.....With nonreactive organic material	378	.....Only C, H, and O atoms
354	.....Aldehyde DNRM, i.e., C-(C=O)H	379	.....Carbon atom single bonded to an oxygen atom and wherein the carbon atom is not double bonded to a chalcogen atom DNRM, e.g., alcohols, etc.
355	.....Aryl	380	.....Halogen or ethylenic unsaturation
356	.....Ketone or ketene DNRM, i.e., C(C=O)C or C=C=O	381	.....Non C-OH oxygen atom, or element other than C, O, or H, e.g., tartaric acid metal salt, etc.
357	.....Two or more C(C=O)C groups	382	.....Heavy metal
358	.....Carbocyclic ring wherein at least two of the nuclear carbons thereof are double bonded directly to oxygens atom so as to form two or more C=O groups therewith, e.g., quinone, etc.	383	.....Carbocyclic ring
359	.....Carbocyclic ring, e.g., benzophenone, etc.	384	.....Aryl group
		385	.....Only a single -C-OH group and at least six carbon atoms
		386	.....At least two -OH groups
		387	.....At least four -OH groups, e.g., pentaerythritol, etc.

388	.....At least one solid polymer derived from ethylenic reactants only	411	.....With halogenated nonreactant material
389	.....Two or more compounds containing -OH groups, or with water NRM	412	.....Halogen atom other than Cl
390	.....With hydrocarbon or halogenated hydrocarbon NRM	413	.....Transition metal other than Group VIII DNRM (i.e., Sc, Ti, Mn, Cu, Y, Zr, Tc, Hf, Re)
391	.....Solid polymer or SICP derived from at least one nonethylenic reactant	414	.....Phosphorus atom DNRM
392	.....Organic chalcogen other than oxygen as DNRM	415	.....Atom other than P, O, H, or a metal
393	.....Atom other than S, C, H, or a metal	416	.....Ammonium phosphate
394	.....Oxygen atom or metal atom DNRM, e.g., metal stearate, etc.	417	.....Phosphorus atom directly bonded to four oxygen atoms, e.g., phosphoric acid, etc.
395	.....Atom other than C, O, H, or a metal	418	.....Sulfur atom DNRM
396	.....Carbocyclic group, e.g., aryl, etc.	419	.....Two or more sulfur atoms; or at least one atom other than S, O, H, or a metal
397	.....Ethylenic group; or at least two (C=O)O groups bonded to each other directly or only by carbon atoms	420	.....Devoid of an oxygen atom, e.g., sulfide, etc.
398	.....Transition metal atom (atomic no. 21-29, 39-47, 57-79)	421	.....At least one hydrogen atom
399	.....Heavy metal or aluminum (atomic no. 13, 30-33, 48-51, 80-83)	422	.....Sulfuric acid
400	.....Group IIA metal (Be, Mg, Ca, Sr, Ba)	423	.....Sulfate group, e.g., calcium sulfate, etc.
401	.....Inorganic compound devoid of a silicon atom DNRM	424	.....Carbon atom DNRM
402	.....Chalcogen atom other than sulfur or oxygen DNRM	425	.....Calcium carbonate, e.g., limestone, marble, etc.
403	.....At least one element of the lanthanide series (atomic no.57-71) or contains a noble metal atom (i.e., Au, Ag, Hg, Pt, Pd, Ir, Rh, Ru, Os)DNRM	426	.....Solid polymer derived from at least one diene monomer
404	.....Boron atom DNRM	427	.....Solid polymer derived from unsaturated hydrocarbon monomer
405	.....Boron directly bonded to oxygen	428	.....Nitrogen atom DNRM
406	.....Group VIB metal atom DNRM (i.e., Cr, Mo, W)	429	.....Nitrogen directly bonded to an oxygen atom, e.g., nitric acid, etc.
407	.....Chromium	430	.....A single type of metal atom and only oxygen atoms DNRM, e.g., metal oxide, etc.
408	.....Group V metal atom DNRM (i.e., V, Nb, Ta, As, Bi, Sb)	431	.....Transition metal atom (i.e., Fe,Co,Ni)
409	.....Antimony	432	.....Group IIB metal atom (i.e., Zn or Cd)
410	.....Atom other than Sb and oxygen	433	.....Group IIA metal atom (i.e., Be, Mg, Ca, Sr, Ba)
		434	.....Heavy metal atom DNRM
		435	.....Transition metal atom (i.e., Fe, Co, Ni)
		436	.....Group IIA metal DNRM (i.e., Be, Mg, Ca, Sr, Ba)
		437	.....Aluminum DNRM
		438	.....Nonmetal compound DNRM
		439	.....Elemental metal DNRM
		440	.....Transition metal atom DNRM
		441	.....Aluminum DNRM

442	....Soil or inorganic silicon DNRM (other than silicon dioxide, glass, quartz, novaculite, or silicon dioxide type)	464	...Mixing with chlorine- or bromine-containing organic compound hydrocarbon mixture or composition or product thereof DNRM
443	....Atom other than Si, O, H, Al, Fe, or a Group IA or IIA metal atom DNRM, e.g., slag, mineral wool, etc.	465	...Mixing with two or more chlorine- or bromine- containing organic compounds; or with a chlorine- or bromine-containing organic compound other than carbon tetrachloride, chloroform, or methylene chloride, and having numerical limitations other than amount, e.g., included herein, are m.p., b.p., m.w., structure, etc., or composition or product thereof, DNRM
444	....Aluminum atom DNRM	466	...Two or more chlorine-or bromine-containing organic compounds
445	.....Clay, e.g., fullers earth, fire clay, etc.	467	...Chlorine or bromine organic compound containing a bridged, fused, or cycloaliphatic ring
446	.....With water NRM	468	...Chlorine or bromine organic compound containing ethylenic unsaturation
447	.....Kaolin or bentonite	469	...Bromine-containing organic compound
448	.....Diatomite or diatomaceous earth, e.g., kieselguhr, infusorial earth, etc.	470	...Chlorine-containing aromatic compound
449	.....Mica	471	....Aromatic compound containing two or more aromatic rings
450	.....Metal atom other than aluminum, e.g., zeolites, etc.	472	...Chlorine-containing wax
451	.....Talc (soapstone) DNRM	473	...Organic compound containing two or more chlorine atoms
452	.....Asbestos DNRM	474	...Mixing two or more hydrocarbons; or a hydrocarbon other than benzene, toluene, or xylene per se and having numerical limitations other than amount, e.g., included herein are m.p., b.p., viscosity, structure, m.w., etc. or composition or product thereof, DNRM
453	.....Aldehyde-nitrogen SICP or solid polymer thereof	475	....With water NRM
454	.....SICP or solid polymer thereof	476	....Two or more hydrocarbons
455	.....Halogen containing polymer	477	.....At least two solid hydrocarbons
456	....Group IIA metal atom DNRM	478	.....At least one microcrystalline wax
457	...Polymerizing an ethylenic monomer in the presence of a preformed SICP or solid polymer and in the presence of a nonreactive material so as to form an aqueous dispersion, latex, suspension, or emulsion therewith; or product thereof	479	.....Mixture contains three or more waxes
458	...Polymerizing in the presence of water and in the presence of a solid polymer derived from ethylenic reactants only		
459	.....Solid polymer utilized contains vinyl alcohol units		
460	.....Solid polymer utilized is derived from an unsaturated carboxylic acid or salt		
461	...Polymerizing in the presence of a solid polymer derived from ethylenic reactants only		
462	..Mixing with fluorine- or iodine-containing organic compound or composition; or product thereof DNRM		
463	....Contains two or more fluorine or iodine organic compounds		

480	.....Mixture contains microcrystalline wax having specified melting point	498	...Solid polymer or solid SICP derived from or reacted with protein or biologically active polypeptide or product thereof
481	....Unsaturated hydrocarbon	499	...Solid polymer derived from monomer from unsaturated petroleum hydrocarbon fraction or product thereof
482	....Unsaturated hydrocarbon contains a bridged or fused ring	500	...Containing two or more solid polymers; solid polymer or SICP and a SICP, SPFI, or an ethylenic reactant or product thereof
483	....Unsaturated hydrocarbon contains plural unsaturation	501	...Producing an aqueous system by mixing two or more aqueous emulsions, suspensions, dispersions, or solutions, or any of the above in admixture with one another and wherein each individually contains a solid polymer or SICP
484	....Aromatic hydrocarbon	502	...At least one solid polymer derived from ethylenic reactants only
485	....Aromatic hydrocarbon contains a bridged or fused ring	503	....Polyvinyl alcohol or modified form thereof
486	....Aromatic hydrocarbon contains two or more aromatic rings	504	....Solid graft or solid graft-type copolymer with other solid polymer, SICP, or SPFI
487	....Hydrocarbon wax	505	....Solid block or solid block-type copolymer with other solid polymer, SICP or SPFI
488	....Microcrystalline wax	506	....With solid polymer derived from at least one Si-H or Si-C reactant wherein at least one of the reactants forming the solid polymer is saturated; or with SPFI or SICP derived from a Si-H or Si-C reactant wherein at least one of the necessary reactants is saturated
489	....Wax having melting point above 120 deg. F (49 deg. C)	507	....With solid polymer derived from at least one -N=C=X (X is chalcogen) reactant wherein at least one of the reactants forming the solid polymer is saturated; or with SPFI or SICP derived from a -N=C=X reactant wherein at least one of the necessary reactants is saturated
490	....Hydrocarbon having a specified name, molecular weight or chain length		
491	....Hydrocarbon having a specified viscosity		
492	...Mixing inorganic silicon-containing material having color or numerical limitations other than amount, e.g., included herein are m.p., chemical composition, particle size, surface area, etc., or composition or product thereof, DNRM		
493	....Inorganic silicon-containing material having specified dimensions		
494	....Material contains glass		
495	..Mixing with carbon, e.g., graphite, etc., having numerical limitations, other than amount, e.g., included herein are particle size, surface area, etc., or composition or product thereof, DNRM		
496	....Carbon particle having specified dimension		
497	...Mixing with titanium dioxide material having numerical limitations other than amount, e.g., included herein are particle size, etc., composition or product thereof, DNRM		

508	.....With solid polymer derived from at least one reactant wherein at least one of the reactants forming the solid polymer is a phenol or inorganic phenolate; or with SPFI or SICP derived from phenol or inorganic phenolate wherein at least one of the necessary reactants is saturated	521	.....Solid polymer derived from a monomer containing an atom other than C, O, H, or chlorine
509	.....With aldehyde or aldehyde-type reactant	522	.....Solid polymer derived from carboxylic acid-containing monomer
510	.....Water DNRM containing	523	.....Solid polymer derived from carboxylic acid ester monomer
511	.....Ethylenic polymer derived from at least one reactant containing two or more ethylenic groups	524	.....Ester derived from an unsaturated alcohol and a saturated acid, e.g., vinyl acetate, etc.
512	.....With solid polymer derived from at least one reactant wherein at least one of the reactants forming the solid polymer is an aldehyde or derivative; or with SPFI or SICP derived from an aldehyde or derivative wherein at least one of the necessary reactants is saturated	525	.....Solid polymer derived from monomer containing two or more ethylenic groups
513	.....With polycarboxylic acid or derivative and a polyol at least one of which is saturated or with solid polymer thereof	526	.....Two or more polymers derived from reactant containing two or more ethylenic groups
514	.....With polycarboxylic acid or derivative and a polyamine, or with nitrogen containing carboxylic acid or derivative reactant at least one of which is saturated or with solid polymer thereof	527	.....Solid polymer derived from chlorine-containing reactant
515	.....Two or more solid polymers derived from ethylenic reactants only	528	.....Solid polymer derived from acyclic hydrocarbon
516	.....Solid polymer derived from nitrogen heterocycle monomer	529	.....Solid polymer derived from ethylenic monomers only admixed with ethylenic monomer
517	.....Solid polymer from oxygen heterocycle monomer	530	.....Ethylenic monomer contains a nitrogen heterocycle
518	.....Solid polymer derived from fused or bridged ring monomer	531	.....Ethylenic monomer contains a chalcogen heterocycle
519	.....Solid polymer derived from halogen-containing monomer other than vinyl or vinylidene chloride	532	.....Ethylenic monomer contains a fused or bridged ring system
520	.....Fluorine-containing monomer	533	.....Ethylenic monomer contains at least one carboxylic acid ester group
		534	.....Ethylenic monomer contains at least two ethylenic groups
		535	.....Ethylenic monomer contains at least one atom which is other than C, H, or O
		536	.....Ethylenic monomer is an acyclic hydrocarbon
		537	.....Solid polymer or SICP derived from an -O-(C=O)O- or hal-(C=O)-O- containing reactant
		538	.....Solid polymer or SICP derived from at least one nitrogen-containing carboxylic acid or derivative reactant or from a carboxylic acid or derivative and a polyamine
		539	.....Solid polymer or SICP derived from at least one carboxylic acid or derivative reactant

540	....Solid polymer or SICP derived from at least one phenol or inorganic phenolate reactant	560	.....From ester derived from at least one unsaturated carboxylic acid and a saturated alcohol, e.g., methyl methacrylate, etc.
541	.....Aldehyde or derivative reactant	561	.....Interpolymerized with diverse carboxylic acid ester
542	....Solid polymer or SICP derived from at least one aldehyde or derivative or ketone reactant	562	.....Interpolymerized with hydrocarbon containing a single ethylenic group
543	...Polymer derived from ethylenic reactants only	563	....From ester derived from ethylenically unsaturated alcohol and saturated carboxylic acid, e.g., vinyl acetate, etc.
544	....From fluorine-containing monomer	564	.....Interpolymerized with diverse carboxylic acid ester or with carboxylic acid reactant
545	.....Fluorine-containing monomer contains F and C only or only F, C, and H	565	...From acrylonitrile or methacrylonitrile monomer
546	.....Four or more fluorine atoms	566	.....Inorganic nonreactive material
547	....From reactant-containing atom other than O, N, C, halogen, or hydrogen	567	...From halogen-containing monomer
548	....From heterocyclic monomer	568	....Vinylidene chloride
549	.....Five-membered oxygen ring, e.g., coumarone-indene, etc.	569	....Plasticizer additive
550	....From acetylenic monomer	570	...From hydrocarbon monomer
551	....From halogen-containing monomer containing three or more carbon atoms and wherein at least one halogen atom is present in other than salt form	571	....Conjugated diene hydrocarbon monomer
552	.....Diene	572	.....Adding nonreactive material to chemically modified solid polymer
553	....From cycloaliphatic or fused or bridged ring monomer	573	.....Interpolymer of two or more diene monomers
554	.....Cycloaliphatic, fused, or bridged monomer contains at least two unsaturated groups	574	.....Interpolymer with at least one aliphatic hydrocarbon monomer, e.g., butyl rubber, etc.
555	....From nitrogen-containing monomer other than acrylonitrile or methacrylonitrile	575	.....Interpolymer with at least one aromatic hydrocarbon monomer
556	....From carboxylic acid or ester thereof monomer	575.5	.....Natural rubber
557	.....Polyvinyl alcohol or modified forms thereof	576	....Adding nonreactive material to chemically modified solid polymer
558	.....Acid or ester contains an oxygen atom which is other than part of a free carboxyl group or carboxylic acid ester group	577	....From aromatic hydrocarbon monomer
559	.....Ester contains two or more ester groups or at least one carboxylic ester group and at least one free acid group; or carboxylic acid contains two or more free carboxyl groups	578	.....Interpolymer with at least one aliphatic hydrocarbon monomer
		579	.....From hydrocarbon containing four or more carbon atoms

580	.....Adding nonreactive material to solid polymer and subsequently chemically modifying the polymer or product	607	.....Two or more carboxylic acids or derivatives, or two or more nitrogen containing compounds
581	.....Solid polymer derived from ethylene	608	.....Water DNRM containing
582	.....From propylene as sole reactant monomer	609	...From sulfur-containing reactant
583	.....Organic NRM additive	610	...From reactant-containing atom other than N, C, H, O, or halogen
584	.....Inorganic NRM additive other than water	611	...From phenol reactant
585	.....From ethylene as sole reactant monomer	612	...From at least one oxygen or nitrogen-containing reactant
586	.....Inorganic NRM additive	650	..Inorganic water settable material containing
587	.....High density polymer	700	..Preparation of intentional or desired composition by formation of a solid polymer (SP) or SICP in presence of a designated nonreactant material (DNRM) other than solely water, hydrocarbon, silicon dioxide, glass, titanium dioxide or elemental carbon, composition thereof; or process of treating or composition thereof
588	...From silicon-containing reactant	701	...Boron-containing DNRM
589	...From -N=C=X reactant or blocked N=C=X reactant (X is chalcogen)	702	...Cellular material derived from biological source as DNRM other than farinaceous flour or cotton or diatomaceous earth
590	...With reactant containing at least one C-OH, (C=O)-OH or -C-O-C- group	703	...Corncob, bark, or cork
591	.....Water DNRM	704	...Protein or biologically active polypeptide as DNRM
592	...From ketone or ketene reactant	705	...Coal or bituminous material, extract or derivative thereof, oil shale, or fatty still residue thereof, as DNRM
593	...From aldehyde or derivative reactant	706	...P-containing DNRM
594	...With phenol or inorganic phenolate	707	...Nitrogen
595	.....Containing reactant having atom other than C, H, or O	708	.....Phosphorus bonded directly to nitrogen
596	.....Water DNRM	709	...Tri organo phosphine or phosphonium compound
597	...Nitrogen-containing reactant	710	...Organic compound having phosphorus bonded directly to oxygen or sulfur
598	.....Water DNRM	711	.....Containing a metal atom DNRM
599	...From carboxylic acid or derivative reactant	712	.....Containing halogen DNRM
600	...Carboxylic acid contains three or more acid groups or derivative thereof	713	...Containing phenol or carboxylic acid or derivative DNRM
601	...From dicarboxylic acid or derivative and at least one polyol; or from a diester of a polycarboxylic acid as sole reactant		
602	.....Nitrogen-containing reactant		
603	.....Reactant contains atom other than C, H, or O		
604	.....At least one polyol containing only two -C-OH groups reactant		
605	.....Derived from terephthalic acid or derivative		
606	...Nitrogen-containing reactant		

714	...N-containing organic compound excluding unsubstituted ammonium as sole nitrogen in DNRM	739	....Plural separate aryl-OH or salt groups bonded through carbon or a chalcogen containing radical, e.g., bisphenol A, etc.
715	...N=N linkage, e.g., azo dyes, etc.	740	...Aryl-OH or salt compound having at least one chalcogen-containing substituent, e.g., hydroxy anisole, etc.
716	...Carbohydrate or derivative, e.g., nitrocellulose, etc.	741	...Aryl-OH or salt compound having two or more substituents
717	...Heterocyclic structure other than per se N-alkyl pyrrolidone	742	...Elemental or organic sulfur compound as DNRM
718	....Hetero nitrogen	743	...Sulfone, e.g., sulfolane, etc.
719	.....Containing hetero chalcogen DNRM	744	...DMSO with additional oxygen or halogen compound DNRM
720	.....Plural hetero N, i.e., same or different ring	745	...Sulfate, sulfonate ester, sulfonic acid, or salt thereof
721	...Containing aryl-OH or salt thereof DNRM	746	....Halogenated
722	...Amine nitrogen directly bonded to aromatic ring	747	.....Containing ether or hydroxyl group DNRM
723	...Sulfur, e.g., sulfonamides, etc.	748	.....Containing COOH or salt thereof or ester thereof DNRM
724	...ROH or COOH, or salts thereof, e.g., alkanol amine or amino acid, etc.	750	...Mercaptan, mercaptide, or thioether, e.g., aryl-SH, etc.
725	...Nitrile	751	...Heterocyclic chalcogen compound as DNRM
726	...Formamide or N,N-dialkyl amide or N-alkyl pyrrolidone	752	...With organic chalcogen compound, hydrocarbon, or halogenated hydrocarbon DNRM
727	....With metal-containing material DNRM	753	...Carboxylic acid ester linkage, e.g., oxyalkylated sorbitan ester, etc.
728	...(C=O)N	754	...Plural hetero oxygen
729	...X(C=X)X wherein X is chalcogen DNRM, e.g., carbonate, etc.	755	...Ether compound DNRM, e.g., aryl ether, dimethylether, etc.
730	...Si-C, Si-H contains DNRM, metal-C or metal-H bond or organic compound containing Si	757	...Mixture of ether compounds; or only two ether oxygens bonded to a carbon atom, e.g., formal, acetal, etc.
731	...Diorgano siloxane contains units of -(R)Si(R)-O-* where * is subscript two or more	758	...Halogenated
732	...Carbohydrate or derivative as DNRM	759	...Containing carboxylic acid or derivative DNRM
733	...Cellulose or derivative, e.g., cotton, paper pulp, etc.	760	....Carboxylic acid or derivative has two or more ether linkages
734	...Starch or derivative, farinaceous flour or meal	761	...Containing hydroxyl group DNRM
735	...Lignin, tannin, or derivative as DNRM	762	.....Two or more ether linkages in the hydroxyl group bearing molecule
736	...Aryl-OH or salt thereof as DNRM		
738	....Plural separate aryl-OH groups or polyhydric aryl-OH, or salts thereof: e.g., resorcinol, etc.		

763	...Oxygen containing wax as DNRM, e.g., carnauba, montan, ceresin, bees wax, oxidized petroleum wax, etc.	788	....Calcium, e.g., calcium carbonate, etc.
764	...Natural resin or derivative as DNRM, e.g., rosin, shellac, etc., excluding tall oil per se	789	...Elemental silicon, soil, or inorganic silicon compound as DNRM
765	...Alcohol compound as DNRM, i.e., R-OH	790	...With reactive coupling agent
766	....Two or more alcohols	791	...Alkali or alkali earth silicate
767	....With water NRM	792	...Halogenated hydrocarbon DNRM
768	....With hydrocarbon or halogenated hydrocarbon NRM	793	...Halogenated hydrocarbon contains ethylenic unsaturation
769	....Chalcogen other than as R-OH	794	....With water NRM
770	...Ketone or aldehyde as DNRM	795	....Fluorinated
771	....With hydrocarbon or halogenated hydrocarbon NRM	796	...Nitrogen, halogen, or compounds thereof DNRM
772	....Carboxylic acid or derivative, e.g., acetoacetic acid or ester or salt thereof, etc.	797	..Solid polymer or SICP derived from protein or biologically active polypeptide and ethylenic monomer or SPFI
773	...Carboxylic acid or derivative not containing a heavy metal atom as DNRM, e.g., anhydride, acyl halide, ester or salt, etc.	798	..Solid polymer or SICP derived from natural resin or natural resin derivative and ethylenic monomer or SPFI, e.g., shellac, rosin, etc.
774	....Cycloaliphatic group, e.g., dimer acids containing thirty six carbon atoms, tall oil, etc.	799	..Solid polymer or SICP derived from lignin or tannin and ethylenic monomer or SPFI
775	....Aryl group	800	..Preparation of intentional or desired composition by formation of solid polymer or SICP in the presence of water as a designated nonreactant material (DNRM), or products thereof
776	....Solid polymer derived from ethylenic monomers only	801	...Process of preparing water-in-oil emulsion or dispersion, or product thereof
777	....Group IA, unsubstituted ammonium, or Group IIA salt	802	...Aqueous carboxyl-bearing solid polymer or SICP composition chemically treated with aziridine, mono 1,2-epoxide, or cyclic sulfonium compound
778	....Solid polymer or SICP derived from at least one nonethylenic monomer	803	...Polyvinyl alcohol or partially hydrolyzed polyvinyl acetate or chemically modified forms thereof
779	...Elemental metal or metal compound not containing silicon DNRM	804	...Solid polymer derived from ethylenic monomers only
780	....Heavy metal	805	....Fluorine-containing monomer
781	....Copper	806	....Silicon-containing monomer
783	....Group IV or Group IIB, i.e., Ge, Sn, Pb, Zr, Ti, Hf, Zn, Cd, Hg	807	...Monomer-containing element other than C, H, O, N, S, Hal, or Group IA metal atom
784	....Tin		
785	....Group VIII, i.e., Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt		
786	....Al		
787	...Inorganic metal compound having S, C, or N, e.g., KSCN, etc.		

808	....Monomer contains nitrogen atom as part of a heterocyclic ring	835	.....Two or more halogenated hydrocarbon monomers
809	.....Two or more nitrogen atoms in a single ring	836	...Hydrocarbon monomer only
811	....Monomer contains chalcogen atom as part of heterocyclic ring	837	...Solid polymer or SICP derived from Si-containing reactant
812	....N-containing monomer other than: unsubstituted ammonium as sole nitrogen, acrylamide, methylol acrylamide, acrylonitrile and the corresponding methacryl compounds or mixtures thereof	838	....N-containing reactant
813	.....Nitrogen-carbon-oxygen bond containing monomer, e.g., allyl isocyanate, etc.	839	...Solid polymer or SICP derived from -N=C=X (X is chalcogen) containing reactant
814	.....N-monomer contains S	840	....N=C=X reactant has ionic group attached thereto, e.g., carboxyl sulfonic, etc.
815	.....Quaternary nitrogen-containing monomer, e.g., tetramethyl ammonium, etc.	841	...Solid polymer or SICP derived from a phenolic reactant
816	.....N-monomer contains carboxylic acid or salt thereof	842	...With carbohydrate reactant, e.g., starch, cellulose, or sugar, etc.
817	....S-containing monomer	843	...Solid polymer or SICP derived from an aldehyde or aldehyde derivative reactant
818	...Aldehyde or ketone containing monomer	844	...With carbohydrate reactant, e.g., starch, cellulose, cork, etc.
819	...Hydrocarbon monomer with carboxylic acid, salt, or nonnitrogen containing derivative monomer	845	...Solid polymer derived from a reactant which is a carboxylic acid or derivative
820	.....With N monomer	846	...Polymer of an ethylenic reactant with a saturated reactant
821	.....Hydrocarbon monomer contains at least two ethylenic groups	847	..Carbon, titanium dioxide, glass, or silicon dioxide having specified crystalline form or numerical limitation other than amount, e.g., included herein are particle size, shape, etc., as DNRM
822	.....Two or more hydrocarbon monomers	848	..Hydrocarbon material other than solely a fused ring, or cycloaliphatic hydrocarbon, benzene, toluene, or xylene or mixtures thereof; said material or mixture of materials having specified numerical limitations other than amount, e.g., included herein are m.p., b.p., viscosity, particle size, etc., as DNRM
823	.....Two or more monomers-containing carboxylic acid or derivative	849	..Solid polymer from ethylenic monomer only, said polymer formed in the presence of a nonreactant material
824	.....Aromatic monomer	850	...N-containing monomer
825	.....With halogenated hydrocarbon monomer	851	...Halogen-containing monomer
827	....N-containing monomer		
828	.....With hydrocarbon monomer		
829	.....Two or more N monomers		
831	.....With unsaturated carboxylic acid or ester monomer		
832	....Monomer is carboxylic acid or derivative		
833	.....Two or more carboxylic acids or derivatives		
834	...Halogenated hydrocarbon monomer		

- 913 .Contains nitrogen nonreactant material
- 914 FLOOR COVERING COMPOSITIONS
- 915 CARPET BACKING ADHESIVES
- 916 HYDROGEL COMPOSITIONS
- 917 OIL SPILL RECOVERY COMPOSITIONS
- 918 WOOD PATCHING COMPOSITION
- 919 METAL PATCHING COMPOSITION, E.G.,
BODY SOLDER, ETC.
- 920 COILABLE PIPE COMPOSITIONS
- 921 ELASTIC MEMORY OR HEAT SHRINKABLE
COMPOSITIONS
- 922 FLOCCULATING, CLARIFYING, OR
FINING COMPOSITIONS
- 923 TREATING OR PREPARING A
NONAQUEOUS DISPERSION OR
EMULSION OF A SOLID POLYMER OR
SPECIFIED INTERMEDIATE
CONDENSATION PRODUCT
- 924 TREATING OR PREPARING A
NONAQUEOUS SOLUTION OF A SOLID
POLYMER OR SPECIFIED
INTERMEDIATE CONDENSATION
PRODUCT
- 925 NATURAL RUBBER COMPOSITIONS
HAVING NONREACTIVE MATERIALS
(DNRM) OTHER THAN: CARBON,
SILICON DIOXIDE, GLASS
TITANIUM DIOXIDE, WATER,
HYDROCARBON, HALOHYDROCARBON
- 926 .With water as NRM, exemplified
- 927 ..Before 1930
- 928 .Before 1930, exemplified
- 929 .Natural rubber broadly
disclosed, nonclaimed

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

524 - 20

CLASS 524 SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS
520 SERIES

October 2002