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

SECTION I - CLASS DEFINITION

Class 524 is a continuation of Class 523. Class 523, subclass 1 is the parent subclass of all the Class 524 subclasses.

The Class 523 Class Definition is applicable to both Class 523 and Class 524.

SUBCLASSES

1 Adding a NRM to a preformed solid polymer or preformed specified intermediate condensation product, composition thereof; or process of treating or composition thereof:

This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein a nonreactant material (NRM) is admixed with a preformed solid polymer (SP) or preformed specified intermediate condensation product (SICP), or the product of such an admixing process.

(1) Note. In many instances wherein a composition is claimed the claims do not indicate the mode of production of the composition. In the absence of such information it is necessary to review the disclosure to determine the mode of preparation of the composition. If it is disclosed that the composition can be prepared by admixing a NRM with a preformed solid polymer or specified intermediate, a notation into this area is required.

(2) Note. This subclass and the indented subclasses hereunder provide for chemical or physical treatments and the products thereof of compositions containing a solid polymer or a preformed specified intermediate composition and a NRM when the claims fails to recite the mode of preparation of the composition and the specification is as noted in the (1) Note, above.

SEE OR SEARCH CLASS:

588, Hazardous or Toxic Waste Destruction or Containment, subclass 255 for polymer or resin containing compositions which contain hazardous or toxic waste to prevent its release into the environment.

2 Water settable inorganic compound as nonreactive material:

This subclass is indented under subclass 1. Subject matter wherein the added nonreactant material is an inorganic material hardenable by hydration to produce a solid mass, e.g., Portland cement, gypsum cement, etc.

(1) Note. This subclass takes an inorganic material claimed or disclosed by the term “cement” or “setting agent”, e.g., aluminum oxide cement, etc.

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:

This subclass is indented under subclass 2. Subject matter wherein a solid polymer or specified intermediate condensation product derived from at least one reactant containing an atom other than carbon, hydrogen, oxygen, nitrogen, or halogen, and which reactant is devoid of fused or bridged-ring system is present.

(1) Note. See Class 520 Glossary for a definition of the term “fused or bridged ring system”.

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:

This subclass is indented under subclass 2. Subject matter wherein a solid polymer or specified intermediate condensation product is derived from at least one oxygen containing reactant and devoid of fused-or bridged-ring system is present.

5 Derived from carboxylic acid or derivative:
This subclass is indented under subclass 4. Subject matter wherein at least one of the oxygen reactants of the solid polymer or specified intermediate product is a carboxylic acid or derivative.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative".

6 Derived from phenolic compound or aldehyde-containing reactant:
This subclass is indented under subclass 4. Subject matter wherein at least one of the oxygen reactants of the solid polymer or specified intermediate condensation product is an aryl-OH containing compound or a compound containing an aldehyde group.

(1) Note. See the Class 520 Glossary for a definition of the term "aldehyde".

7 Solid polymer derived from halogen-containing reactant:
This subclass is indented under subclass 2. Subject matter wherein a solid polymer derived from a halogen containing reactant is present.

8 Solid polymer derived from ethylenically unsaturated hydrocarbon only:
This subclass is indented under subclass 2. Subject matter wherein a solid polymer derived from ethylenically unsaturated hydrocarbon monomer only is present.

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:
This subclass is indented under subclass 1. Subject matter wherein a solid polymer or specified intermediate condensation product is admixed with a designated nonreactant naturally occurring material or chemically modified naturally occurring material and wherein the natural or modified material still retains a certain amount of the original tissue structure of the animal or plant.

(1) Note. Included within the term are materials which are chopped, cut, comminuted, pulverized, milled, sliced, etc. Included herein is soybean and wood flour.

(2) Note. An extract is considered to be devoid of original cellular structure.

(3) Note. Although cotton, whole blood, farinaceous meals and flours, and diatomaceous earth or chalk may have cellular structure they have been specifically excluded from this subclass and are to be found in other subclasses in this schedule.

(4) Note. In the absence of information to the contrary a protein is presumed to be devoid of cellular structure unless indicated otherwise.

(5) Note. In the absence of information to the contrary a cellulose or cellulose derivative is considered to be devoid of cellular structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
17+, for a proteinaceous extract.
21, for whole blood.
34, for cotton.
35+, for a cellulosic extract.
47+, for starch, starch derivatives, farinaceous meal or flour.
448, for diatomaceous earths.
702+, wherein cellular material from biological source is present as DNRM during formation of a solid polymer or SICP.

10 Animal derived:
This subclass is indented under subclass 9. Subject matter wherein the cellular DNRM is derived from a plant source.

11 Leather:
This subclass is indented under subclass 10. Subject matter wherein the cellular DNRM is the hide or skin of an animal, i.e., leather.

12 Hair removed from pelt, e.g., wool, etc.:
This subclass is indented under subclass 10. Subject matter wherein the cellular DNRM is hair that has been removed from the skin or pelt of an animal, e.g., wool, etc.

13 Wood or wood cellulose fiber, or flour:
This subclass is indented under subclass 9. Subject matter wherein the cellular DNRM is wood or wood cellulose fiber or flour derived from wood cellulose.

(1) Note. In the absence of information of the contrary cellulose or derivatives thereof will be assumed to be devoid of cellular structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
35+, for a cellular product devoid of cellular structure.

14 At least one solid polymer or SICP derived from at least one nonethylenic reactant:
This subclass is indented under subclass 13. Subject matter wherein the wood or wood cellulose fiber or flour is admixed with a solid polymer or specified intermediate condensation product derived from at least one nonethylenic reactant.

15 Vegetable shell, hull, or cob ingredient, e.g., nut shells, pits, etc.:
This subclass is indented under subclass 9. Subject matter wherein the cellular DNRM is a vegetable shell, hull, or cob ingredient.

(1) Note. Included herein are shell, hull, or cob materials which need not be specifically removed from the original vegetable material, as well as materials which have been removed from the vegetable and then admixed with the polymer or SICP.

16 Bark or cork:
This subclass is indented under subclass 9. Subject matter wherein the cellular DNRM is bark or cork.

(1) Note. Bark is any portion of a stem or root of a tree outside of the cambrium circle.

(2) Note. Cork is the exterior layer of the bark of certain trees.

SEE OR SEARCH THIS CLASS, SUBCLASS:
13+, for wood to which the bark or cork is still attached.

17 Protein or biologically active polypeptide DNRM excluding wheat flour or natural cereals which may contain protein ingredient:
This subclass is indented under subclass 1. Subject matter wherein a solid polymer or specified intermediate condensation product is admixed with a designated nonreactant material which is a protein or a biologically active polypeptide.

(1) Note. Cereal flours which may contain protein have been excluded herefrom.

(2) Note. Glue absent disclosure to the contrary is considered as being animal derived and is classified in subclass 21.

(3) Note. See the Class 520 Glossary for a definition of the terms “protein” and “biologically active polypeptide”.

SEE OR SEARCH THIS CLASS, SUBCLASS:
21, for glue.
47+, for cereal flours which may contain protein.

18 With natural resin or carbohydrate DNRM:
This subclass is indented under subclass 17. Subject matter wherein the protein or polypeptide DNRM is admixed with an additional DNRM which is a natural resin or a modified form thereof or carbohydrate.

(1) Note. Included herein is shellac, copal, rosin, etc.

(2) Note. See the Class 520 Glossary for a definition of the terms “carbohydrates” or “natural resin”.

19 Hydrocarbon material DNRM which is nonsolid polymer, e.g., wax, etc.:
This subclass is indented under subclass 17. Subject matter wherein the protein or polypeptide DNRM is admixed with a hydrocarbon DNRM and which hydrocarbon DNRM is

other than a solid polymer, e.g., hydrocarbon wax, etc.

20 Two or more diverse proteins or polypeptides:
This subclass is indented under subclass 17. Subject matter wherein the DNRM contains at least two proteins, two polypeptides, or at least one protein and at least one polypeptide NRM.

21 Animal derived protein or polypeptide other than casein, e.g., blood, egg albumin, etc.:
This subclass is indented under subclass 17. Subject matter wherein the protein or polypeptide DNRM is other than casein or a derivative thereof and is derived from an animal source.

(1) Note. Included herein is blood, egg albumin, glue, etc.

(2) Note. Glue absent disclosure to the contrary is considered as being animal derived and proper for this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
25+, for a casein or derivative.

22 Gelatin:
This subclass is indented under subclass 21. Subject matter wherein the protein is gelatin or a derivative thereof.

(1) Note. Gelatin is a protein obtained from collagen by usually boiling skin, ligaments, tendons or bones with water.

23 Solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 22. Subject matter wherein the gelatin DNRM is admixed with a solid polymer derived form ethylenic reactants only.

24 Derived from carboxylic acid or derivative:
This subclass is indented under subclass 23. Subject matter wherein at least one of the ethylenic reactants is a carboxylic acid or derivative.

(1) Note. See the Class 520 Glossary for a definition of the term “carboxylic acid or derivative.

25 Casein or derivative or soy protein:
This subclass is indented under subclass 17. Subject matter wherein the protein or polypeptide DNRM is casein or derivative or a protein or polypeptide derived form the soybean plant.

(1) Note. Casein is the principal protein in milk. It is a phosphoprotein consisting of about 15 amino acids and has a molecular weight ranging from 75,000 to 375,000.

26 Solid polymer or SICP derived from carboxylic acid or derivative:
This subclass is indented under subclass 25. Subject matter wherein the casein or soy protein DNRM is admixed with at least one solid polymer or specified intermediate condensation derived from at least one carboxylic acid or derivative.

(1) Note. See the Class 520 Glossary for a definition of the term “carboxylic acid or derivative”.

27 Carbohydrate or derivative DNRM:
This subclass is indented under subclass 1. Subject matter wherein a solid polymer or specified intermediate condensation product is admixed with a designated nonreactant material which is a carbohydrate, or derivative.

(1) Note. Included within the definition are cellulose, starch, farinaceous meals or flours, sugars, 0-glycosides, n-glycosides, and s-glycosides.

(2) Note. Tannins, lignins, and derivatives thereof have been excluded herein from being carbohydrates.

(3) Note. See the Class 520 Glossary for a definition of the term carbohydrate or derivative.

SEE OR SEARCH THIS CLASS, SUBCLASS:
72+, for lignins or tannins utilized as DNRM's materials and appropriate subclasses below for sugar acids or sugar alcohols as well as carbohydrate reaction products which contain fewer than five carbon atoms, or for carbo-

hydrate reaction products wherein the carbohydrate nucleus has been destroyed.

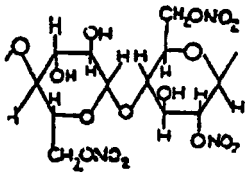
28 Algin or derivative:
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate DNRM is algin or a derivative thereof.

(1) Note. Algin is a carbohydrate product usually extracted from giant brown seaweed (e.g., giant kelp, etc.).

29 Atom other than O, H, C, S, or Group IA metal:
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate DNRM contains an atom other than oxygen, hydrogen, carbon, sulfur, or a group IA metal atom (Li, Na, K, Rb, Cs).

30 Atom other than N, O, H, C, S, or Group IA metal:
This subclass is indented under subclass 29. Subject matter wherein the carbohydrate DNRM contains an atom other than nitrogen, oxygen, sulfur, hydrogen, carbon, or a Group IA metal atom.

31 Cellulose derivative:
This subclass is indented under subclass 29. Subject matter wherein the carbohydrate is a nitrogen compound containing repeating glucose units, which repeating units have the following structure:



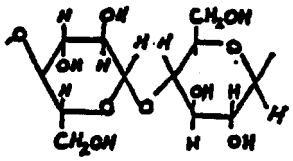
32 Solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 31. Subject matter wherein the carbohydrate is mixed with a solid polymer derived from only ethylenic reactants.

33 Solid polymer or SICP derived from at least one aldehyde or aldehyde derivative reactant:
This subclass is indented under subclass 31. Subject matter wherein the carbohydrate is admixed with a solid polymer or specified intermediate condensation product derived from at least one aldehyde or aldehyde derivative.

(1) Note. See the Class 520 Glossary for a definition of the terms “aldehyde” and “aldehyde derivative”.

34 Paper plant solid waste material or cotton, e.g., white liquor, etc.:
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate is a material in a paper making process, e.g., paper, etc., or is cotton.

35 Cellulose:
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate contains repeating glucose units, which repeating units have the following structure:

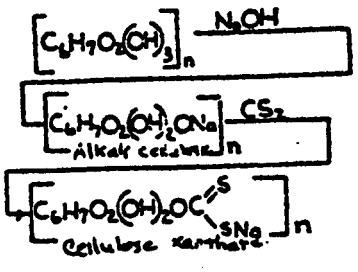


SEE OR SEARCH THIS CLASS, SUBCLASS:
31+, for a NRM which is a nitrogen containing cellulose compound.

36 Sulfur containing ester, e.g., viscose, xanthate, etc.:
This subclass is indented under subclass 35. Subject matter wherein the cellulose DNRM contains at least one sulfur atom.

(1) Note. Included herein is viscose as a DNRM and which is usually made by reacting carbon disulfide with the sodium salt of cellulose to yield a xanthate, which forms a viscous collodial solution in dilute aqueous alkali.

(2) Note. This subclass provides for the colloidal solution as well as the cellulose xanthate.



37 **Carboxylic acid ester:**
This subclass is indented under subclass 35. Subject matter wherein the cellulose contains at least one carboxylic acid ester group therein.

(1) Note. See the Class 520 Glossary wherein the term "carboxylic acid ester group" is defined under "carboxylic acid or derivative".

38 **Mixed carboxylate ester:**
This subclass is indented under subclass 37. Subject matter wherein the cellulose contains at least two diverse carboxylic acid ester groups.

(1) Note. Included herein are, e.g., cellulose acetate butyrate, cellulose butyrate benzoate, etc.

39 **Acetate:**
This subclass is indented under subclass 38. Subject matter wherein at least one of the carboxylic acid ester groups of the cellulose is a -O - - CH_3 group.

40 **At least one solid polymer derived from ethylenic reactants only:**
This subclass is indented under subclass 39. Subject matter wheren the carbohydrate is mixed with a solid polymer derived from only ethylenic reactants.

41 **Acetate:**
This subclass is indented under subclass 37. Subject matter wherein the cellulose contains at least one -O-- CH_3 group.

42 **Ether group containing, other than solely linking of carbohydrate groups directly to each other:**
This subclass is indented under subclass 35. Subject matter wherein the cellulose has the general formula R-O-R', wherein R-O- is a cellulose moiety and R' is a carbon atom of a noncarbohydrate containing organic radical.

43 **Hydroxyalkyl:**
This subclass is indented under subclass 42. Subject matter wherein the cellulose has the general formula R-O-R'-OH wherein R-O- is a cellulose moiety and -R'-OH is a noncarbohydrate containing organic radical wherein a carbon of the R' group is directly bonded to an oxygen of the O-R group.

44 **Hydroxyethyl:**
This subclass is indented under subclass 43. Subject matter wherein the R'-OH group of the cellulose DNRM contains the -O-C-C-OH group.

45 **Carboxyalkyl or alkali metal salt thereof:**
This subclass is indented under subclass 42. Subject matter wherein the cellulose DNRM has the general formula R-O-R'--OH or R-O-R'- metal, wherein R-O- is a cellulose moiety and - R'--OH or -R'- metal are noncarbohydrate containing organic radicals and wherein a carbon of the R' group is directly bonded to an oxygen atom of the O-R group.

46 **Alkyl:**
This subclass is indented under subclass 42. Subject matter wherein the cellulose DNRM has the general formula R-O-R', wherein R-O- is a cellulose moiety and R' is a carbon atom of a noncarbohydrate containing acyclic organic moiety.

47 **Starch or derivative or farinaceous meal or flour:**
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate DNRM is a compound containing amylose and amylopectin as its main components or deriva-

tives thereof; or wherein the DNRM is a farinaceous meal or flour.

(1) Note. Starches are heterogenous in that the amylose and amylopectin occur in different ratios to each other.

(2) Note. Starches yield dextrin upon extensive degradation and yield glucose upon complete hydrolysis.

(3) Note. Farinaceous meal or flour is intended to include the starch products derived from cereal grains and cereal grasses (e.g., corn, wheat, rice, oats, barley, sorghum, etc.) and starch materials derived from tuber plants (e.g., potato, yams, arrowroot, etc.).

(4) Note. Included herein are starch fractions such as amylose and amylopectin as well as modified starches (e.g., thin boiling starches, etc.).

(5) Note. Although some farinaceous materials, e.g., flour, contain minor amounts of proteinaceous materials, such materials will be considered proper for this area rather than in the protein area.

48 Dextrin or derivative:
This subclass is indented under subclass 47. Subject matter wherein the starch is a gummy polysaccharide produced by thermal or acid degradation of starch, and derivatives of such compounds.

(1) Note. Dextrins are carbohydrates, intermediate between starch and sugars. Degradation of dextrin yields maltose and glucose.

49 Aldehyde reaction product:
This subclass is indented under subclass 47. Subject matter wherein the starch contains at least two aldehyde groups and is the product generally resulting from the reaction between starch or a derivative thereof and a reactant containing the functional group --OH and derivatives of such compounds.

50 Ether group, other than solely linking of carbohydrate groups directly to each other:
This subclass is indented under subclass 47. Subject matter wherein the starch has the general formula R-O-R', wherein -R-O is a starch moiety and R' is a carbon atom of a noncarbohydrate containing organic radical and which carbon is not directly bonded to a chalcogen atom by a double bond.

51 Ester:
This subclass is indented under subclass 47. Subject matter wherein the starch is a compound resulting from the reaction of a hydroxyl group of a starch and an acid.

52 Solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 47. Subject matter wherein the carbohydrate is mixed with a solid polymer derived from only ethylenic reactants.

53 At least one carboxylic acid ester:
This subclass is indented under subclass 52. Subject matter wherein the solid polymer derived from ethylenic reactants only is derived from at least one carboxylic acid ester.

(1) Note. See the Class 520 Glossary wherein the term “carboxylic acid ester” is defined under “carboxylic acid or derivative”.

54 Dextran or derivative:
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate is higher molecular weight polysaccharide containing D-glucose units linked predominately as D (1! 6).

(1) Note. Dextrans yield only glucose on hydrolysis but differ from starch and glycogen as to molecular structure.

(2) Note. Dextrans are a group of compounds differing according to the bacteria used to ferment the sugar.

55 Gum or derivative:
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate is a highly branched polysaccharide composed of

two or more monosaccharides and which are exudations of plants which are produced by the plant to cover wounds and to prevent attack by organisms.

56 Disaccharide or trisaccharide, e.g., sucrose, etc.:
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate contains only two or three monomeric units each of which contains at least five carbon atoms.

(1) Note. Included within the definition of the di- and tri- saccharides are, e.g., sucrose, lactose, maltose, cellobiose, etc.

57 Ester:
This subclass is indented under subclass 56. Subject matter wherein the di or trisaccharide is a compound resulting from the reaction of a hydroxyl group of a di or trisaccharide and an acid.

58 Monosaccharide, e.g., glucose, fructose, etc.:
This subclass is indented under subclass 27. Subject matter wherein the carbohydrate contains only a single unit containing at least five or more carbon atoms.

(1) Note. Included within the definition of a monosaccharide are, e.g., glucose, fructose, ribose, etc.

59 Coal, bituminous additive, extract, or derivative thereof; or oil shale; or fatty still residue DNRM:
This subclass is indented under subclass 1. Subject matter wherein a solid polymer or specified intermediate condensation product is admixed with a designated nonreactant material which is coal or a derivative or extract thereof; or is a bituminous material or a derivative or extract thereof; or is a fatty still residue.

(1) Note. Included within the subclass are oil shale or shale material from which oil has or has not been recovered as well as stearine pitch, coke products, coal tar and pitches.

(2) Note. Chemical compounds which are the result of a synthesis reaction utilizing a petroleum or coal source as a reactant are not the type of material which will generally qualify as a DNRM under this subclass.

(3) Note. Included within this subclass are materials generally described as asphalt. Asphalt derived from natural deposits, e.g., gilsonite, etc., coal or petroleum is included herein.

(4) Note. Bitumen refers to solid or semi-solid materials which are often black or dark brown and which occur naturally or are obtained by refining petroleum or are the components of coal which are soluble in organic solvents. The term also applies generically to include natural and synthetic asphalts, tar and pitches. For example, natural asphalts such as Trinidad, Bermuda, glisonite, grahamite and Cuban, etc. Petroleum asphalt may be used such as these obtained from California crudes, Smack over Arkansas crudes, Mid-Continental air-blown oils, Mexican petroleum asphalts, tarry residues known as cracked asphalts by-products during the cracking of gas oil, or other heavier petroleum fractions to obtain gasoline or other lighter fractions, etc. Further still, bituminous materials may be used such as coal tar, wood tar, petroleum pitches, and pitches obtained from various industrial processes such as a fatty acid pitch, etc.

(5) Note. Materials which are substantially known as to chemical constitution are excluded from this subclass and are classified below in the schedule on the basis of chemical constitution. If any doubt exists as to whether a material is of sufficient chemical identify so as to be classified as a specific DNRM, then such doubt is to be resolved by classifying the claim as an original in this area and cross-referencing to the appropriate DNRM area. Certain hydrocarbon materials which have been designated as not being proper herein are hydrocarbon waxes, fluxing oils, low molecular weight addition polymers, hydrocarbon petroleum distillation products, petroleum and petroleum crude oils.

SEE OR SEARCH THIS CLASS, SUBCLASS:

64, for a material designated as asphaltene.

474+, for a hydrocarbon DNRM which is derived from coal.

60 With water additive DNRM:

This subclass is indented under subclass 59. Subject matter wherein the DNRM is in admixture with free water as a DNRM.

61 With nitrogen containing additive DNRM:

This subclass is indented under subclass 60. Subject matter wherein a nitrogen containing DNRM is in admixture with the DNRM and water DNRM.

62 With hydrocarbon DNRM additive which is nonresinous and which is nonbituminous, or noncoal derived, e.g., cutback asphalt, kerosene, paraffin wax, etc.:

This subclass is indented under subclass 59. Subject matter wherein the DNRM is admixed with a DNRM which is a hydrocarbon material and which is other than coal or a bituminous material or a hydrocarbon material proper for this subclass as a designated nonreactant material.

(1) Note. Included within this subclass as hydrocarbon materials are hydrocarbon waxes, fluxing oils, low molecular weight hydrocarbon addition polymers, hydrocarbon petroleum distillation products, petroleum, petroleum crude oils, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

59, for substances derived from coal or bituminous material. Certain special hydocarbon compounds specifically excluded from subclass 59 (see notes 2 and 5 therein) will qualify for this subclass when in admixture with a designated nonreactant material proper under the definition of subclass 59.

63 Coke additive:

This subclass is indented under subclass 59. Subject matter wherein the DNRM is coke.

(1) Note. Coke for purposes of this subclass is the carbonaceous reside (70-78%) remaining after the volatile constituents have been removed by destructive distillation from coal, petroleum, pitch, or other carbonaceous material.

64 Asphaltene or maltene additive:

This subclass is indented under subclass 59. Subject matter wherein the DNRM is asphaltene or a maltene additive.

(1) Note. It is recognized that asphaltene or maltene occur in asphalt and that therefor every asphaltene product would have these constituents. For purposes of this subclass, there must be an expressed desire to limit other than completely removed or increase or in some other way select that added material for its critical maltene or asphaltene content.

(2) Note. Asphalt is a collodial system which has a disperse phase and a continuous phase. The components of highest molecular weight, i.e., micelles constitute the disperse phase and are known as asphaltenes. The continuous or intermicellular phase represents the compounds of lower molecular weight and are called maltenes.

65 Coal derived additive, e.g., lignite, etc:

This subclass is indented under subclass 59. Subject matter wherein the DNRM is coal or a material derived therefrom.

(1) Note. Solid resin materials produced by subjecting coal tar distillate fractions to elevated temperature and pressure are not deemed to be resins for purposes of the Class 520 series of classes and therefore can be a DNRM when admixed with a solid polymer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

474+, appropriate subclasses for specific chemical compounds or mixtures which are coal derived.

498, through 612, for a solid polymer or specified intermediate condensation product in admixture with a hydrocar-

bon derived from coal and which hydrocarbon fails to meet the definition of subclasses 474+.

66 Tar or pitch:
This subclass is indented under subclass 65. Subject matter wherein the DNRM is a mixed aromatic hydrocarbon product obtained by the distillation of bituminous coal.

67 Oil shale:
This subclass is indented under subclass 59. Subject matter wherein the DNRM is oil shale rock.

(1) Note. Oil shale is a sedimentary rock that contains little or no oil and contains organic material derived from aquatic organisms, waxy spores, and pollen grains which are converted to oil by thermal cracking. The pyrobituminous organic material which forms oil by pyrolysis is called kerogen.

(2) Note. Included herein is oil shale which contains the organic material as well as spent oil shale rock.

68 Two or more solid polymers, or graft or graft-type, or block or block-type solid copolymer:
This subclass is indented under subclass 59. Subject matter wherein the DNRM is admixed with two or more solid polymers, or with a block, block type, graft or graft type solid copolymer.

(1) Note. See the Class 520 Glossary for a definition of the terms "block, block type, graft, or graft type solid copolymer".

(2) Note. For purposes of this subclass, a SICP is treated as a solid polymer.

69 Solid polymer derived from ethylenic reactants only at least one of which contains a carboxylic acid or derivative:
This subclass is indented under subclass 59. Subject matter wherein the DNRM is admixed with a solid polymer derived from only ethylenic reactants at least one of which is a carboxylic acid or derivative.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative".

70 Solid polymer derived from ethylenic reactants only, at least one of which is propylene:
This subclass is indented under subclass 59. Subject matter wherein the DNRM is admixed with a solid polymer derived from ethylenic reactants only, at least one of which is propylene.

71 Solid polymer derived from ethylenic reactants only, at least one of which is a hydrocarbon other than ethylene:
This subclass is indented under subclass 59. Subject matter wherein the DNRM is admixed with a solid polymer derived form ethylenic reactants only at least one of which is a hydrocarbon other than ethylene.

72 Lignin or tannin or derivative DNRM:
This subclass is indented under subclass 1. Subject matter wherein a solid polymer or specified intermediate condensation product is admixed with a designated nonreactant material which is lignin or tannin or derivative thereof:

(1) Note. See the Class 520 Glossary for a definition of the term "lignin or derivative".

(2) Note. Chemically, tannins appear to be esters of Gallic acid whose -COOH is estrified by a second Gallic acid molecule or glucosioes thereof.

(3) Note. Lignin derivatives include those generally recovered from sulfite spent liquors of the wood-pulping industry, e.g., lignosulfonate, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

13+, for compositions wherein the lignin is associated with a carbohydrate which contains some cellular structure, e.g., wood flour, hydrolyzed wood, etc.

73 Reaction product of lignin or tannin or derivative with an oxygen or nitrogen containing organic reactant:

This subclass is indented under subclass 72. Subject matter wherein the DNRM is a reaction product of a lignin or tannin or derivative and an organic reactant containing an oxygen or nitrogen atom, e.g., formaldehyde reacted lignin, etc.

74 Solid polymer or specified intermediate condensation product derived from a phenolic compound:

This subclass is indented under subclass 72. Subject matter wherein a solid polymer or a specified intermediate condensation product derived from a phenolic monomer is present, e.g., resole resin, etc.

75 Solid polymer contains halogen:

This subclass is indented under subclass 72. Subject matter wherein the DNRM is admixed with a halogen-containing solid polymer.

(1) Note. To be proper herein, the solid polymer need not be derived from a halogen-containing reactant.

76 Solid polymer derived from ethylenically unsaturated hydrocarbon only:

This subclass is indented under subclass 72. Subject matter wherein a solid polymer derived from ethylenically unsaturated hydrocarbon monomer only is present.

77 Natural resin or modified forms thereof other than rosin or its modified forms DNRM, e.g., shellac, dammar, etc.:

This subclass is indented under subclass 1. Subject matter wherein a solid polymer or specified intermediate condensation product is admixed with a designated nonreactant material which is a natural resin and is other than a rosin or a modified form thereof, e.g., shellac, dammar, copal, etc.

(1) Note. The material "vinsol" is included herein as a natural resin since rosin has been separated from the resinous pinewood extract which is the raw material. Wood tar, wood pitch, or pine tar are excluded herefrom unless disclosure specifically denotes these materials as being resinous.

SEE OR SEARCH THIS CLASS, SUBCLASS:

78, for wood tar, wood pitch, or pine tar not disclosed as being resinous.

270+, for rosin or tall oil as a DNRM, e.g., colophony, abietic acid, etc.

485, for a DNRM which is turpentine, turpentine oil, oil of turpentine, or spirits of turpentine.

78 Residue of undetermined constitution derived from destructive distillation of a plant or animal source or plant or animal extract of undetermined constitution DNRM:

This subclass is indented under subclass 1. Subject matter wherein a solid polymer or specified intermediate condensation product is admixed with a designated nonreactant material, which material is a residue of undetermined constitution and is obtained from a destructive distillation process or from solvent extraction of a plant or animal source, e.g., pine tar, wood tar, or pitch, etc.

(1) Note. The residue obtained must be the material obtained directly by the destructive distillation or solvent extraction step. Any subsequent step to remove by solvent extraction or by any other means in order to obtain a fraction which may yield a residue, such as by evaporation of the solvent, is not proper herein and will be classified below on the particular fraction obtained.

SEE OR SEARCH THIS CLASS, SUBCLASS:

485, for a DNRM which is turpentine, turpentine oil, oil of turpentine, or spirits of turpentine.

79 DNRM is derived from pyrolysis of previously formed solid synthetic polymer:

Subject matter or specified intermediate condensation product is admixed with a designated nonreactant material which is the product resulting from the decomposition of a solid synthetic polymer by heat.

80 DNRM which is other than silicon dioxide, glass, titanium dioxide, water, halohydrocarbon, hydrocarbon, or elemental carbon:
This subclass is indented under subclass 1. Subject matter wherein the added nonreactant material is a designated nonreactant material (DNRM), and wherein the designated nonreactant material is other than silicon dioxide, glass, hydrated silicon dioxide, water in any of its physical states, elemental carbon in any of its physical states, compounds containing only carbon and hydrogen, or compounds containing only carbon, hydrogen, and halogen, or only carbon and halogen.

(1) Note. See the class definition of Class 523 for a definition of the term "designated nonreactant material".

(2) Note. Mixtures of the excluded DNRM materials are also excluded herefrom and are searchable in the appropriate subclasses below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

462+, for a DNRM organic compound containing a fluorine or iodine atom, and only carbon and/or hydrogen atoms.

464+, for a DNRM organic compound containing a chlorine or bromine atom, and only carbon and/or hydrogen atoms.

474+, for a mixture of hydrocarbons or a numerically described hydrocarbon DNRM.

492+, for a numerically defined inorganic silicon-containing DNRM.

495+, for an elemental carbon DNRM which is numerically defined.

497+, for titanium dioxide DNRM which is numerically defined.

498, thru 612, for a solid polymer or SICP admixed with a nonreactant material and for a solid polymer or SICP admixed with DNRM's which are excluded from subclasses 80+.

81 Organic DNRM:
This subclass is indented under subclass 80. Subject matter wherein the designated nonreactant material is an organic material.

(1) Note. See the Class 520 Glossary for a definition of the term "organic compound".

82 Sulfur atom as part of a hetero ring DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing a hetero ring with at least one sulfur atom in the ring.

(1) Note. See the Class 520 Glossary for the definition of "heterocyclic".

(2) Note. The hetero ring herein may be fused or bridged to a ring system.

83 Hetero ring contains sulfur and at least one diverse hetero atom:
This subclass is indented under subclass 82. Subject matter wherein the hetero ring contains at least one hetero atom other than sulfur, i.e., oxygen, nitrogen, selenium, or tellurium.

84 Five-membered sulfur ring:
This subclass is indented under subclass 82. Subject matter wherein the hetero ring is a five-membered ring.

85 Three-memered sulfur ring:
This subclass is indented under subclass 82. Subject matter wherein the hetero ring is a three-membered ring.

86 Nitrogen atom as part of a hetero ring DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing a hetero ring with at least one nitrogen atom in the ring.

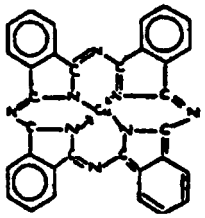
(1) Note. See the Class 520 Glossary for the definition of "heterocyclic".

87 Nitrogen ring directly fused or bridged to a ring system:
This subclass is indented under subclass 86. Subject matter wherein the hetero nitrogen ring is directly fused or bridged to a ring system.

(1) Note. A ring system herein may contain more than one ring.

(2) Note. See the Class 520 Glossary for a definition of the term "fused or bridged ring system".

88 Tetrabenzoporphyrazine nucleus containing, e.g., phthalocyanine, etc:
This subclass is indented under subclass 87. Subject matter wherein the fused or bridged nitrogen ring system contains a tetrabenzoporphyrazine nucleus (four benzopyrrole nuclel joined by four nitrogen atoms, e.g., phthalocyanine pigment



89 Nitrogen ring is part of a ring system having three or more rings fused or bridged together:
This subclass is indented under subclass 87. Subject matter wherein the fused or bridged nitrogen ring system contains at least three rings.

90 Nitrogen ring is part of a ring system having five or more rings fused or bridged together:
This subclass is indented under subclass 89. Subject matter wherein the fused or bridged nitrogen ring system has at least five rings.

91 Three or more nitrogen atoms in the fused or bridged ring system:
This subclass is indented under subclass 87. Subject matter wherein the fused or bridged hetero nitrogen ring containing ring system contains three or more nitrogen atoms.

(1) Note. The nitrogen atoms may be in the same ring or different rings.

SEE OR SEARCH THIS CLASS, SUBCLASS:

92+, for a compound containing two or more fused- or bridged-ring nitrogen containing systems wherein each of the fused or bridged ring systems contains no more than two hetero nitrogens.

92 Two nitrogen atoms in the fused or bridged ring system:
This subclass is indented under subclass 87. Subject matter wherein the fused- or bridged-hetero ring containing ring system contains only two nitrogen atoms.

93 1,3-diazole:
This subclass is indented under subclass 92. Subject matter wherein the fused- or bridged-hetero ring containing ring system contains a 1,3-diazole ring, e.g., imidazole;

94 Five-membered nitrogen containing ring:
This subclass is indented under subclass 87. Subject matter wherein the fused- or bridged-hetero ring is a five-membered nitrogen containing ring.

95 At least one diverse hetero atom in same ring:
This subclass is indented under subclass 86. Subject matter wherein the hetero ring contains at least one hetero atom other than nitrogen, i.e., oxygen, sulfur, selenium, or tellurium.

96 Six-membered nitrogen ring having at least one diverse hetero atom, e.g., morpholine, etc.:
This subclass is indented under subclass 95. Subject matter wherein the hetero ring is a six-membered nitrogen containing ring, e.g., morpholine, etc.

97 Two or more nitrogen rings:
This subclass is indented under subclass 96. Subject matter wherein the heterocyclic compound contains at least one nitrogen hetero-containing ring in addition to the six-membered hetero ring.

98 Nitrogen ring having at least seven ring members:
This subclass is indented under subclass 86. Subject matter wherein the nitrogen hetero ring contains at least seven ring members, e.g., caprolactam, etc.

99 Six-membered nitrogen ring, e.g., pyridine, etc.:
This subclass is indented under subclass 86. Subject matter wherein the nitrogen hetero ring is a six-membered ring, e.g., pyridine, etc.

100 Six-membered nitrogen ring having two or more ring nitrogen atoms:
This subclass is indented under subclass 99. Subject matter wherein the six-membered N hetero ring contains two or more ring nitrogen atoms.

101 Three oxygen atoms are directly bonded to three nuclear carbon atoms of the nitrogen ring, e.g., (iso) cyanurate, etc.:
This subclass is indented under subclass 100. Subject matter wherein three nuclear carbon atoms of the six-membered hetero ring are directly bonded to three oxygen atoms, e.g., as illustrated below, etc.

102 Two or more nitrogen rings:
This subclass is indented under subclass 99. Subject matter wherein the heterocyclic compound contains at least one hetero nitrogen containing ring in addition to the six-membered hetero ring.

103 Nonhetero nitrogen:
This subclass is indented under subclass 102. Subject matter wherein the heterocyclic compound contains a nitrogen atom other than the nitrogen atom in a hetero ring.

104 Five-membered nitrogen ring:
This subclass is indented under subclass 86. Subject matter wherein the nitrogen hetero ring is a five-membered ring.

105 Two or more nitrogen rings:
This subclass is indented under subclass 104. Subject matter wherein the heterocyclic compound contains at least one nitrogen hetero ring in addition to the five-membered hetero ring.

106 Five-membered nitrogen ring having two or more ring nitrogen atoms:
This subclass is indented under subclass 104. Subject matter wherein the five-membered hetero ring contains at least two ring nitrogen atoms, e.g., as illustrated below, etc.

107 At least one chalcogen atom as part of a hetero ring (chalcogen=O, Se, Te) DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing a hetero ring with at least one chalcogen atom (i.e., oxygen, selenium, or tellurium) in the ring.

(1) Note. See the Class 520 Glossary for the definition of "heterocyclic".

(2) Note. The hetero ring herein may be fused or bridged to a ring system; and see the Class 520 Glossary for a definition of "fused or bridged ring system".

SEE OR SEARCH THIS CLASS, SUBCLASS:
277, for a beeswax containing a lactone.

108 Two or more chalcogen atoms in the same hetero ring:
This subclass is indented under subclass 107. Subject matter wherein the hetero ring contains at least two chalcogen atoms therein.

109 Two or more chalcogen rings:
This subclass is indented under subclass 107. Subject matter wherein the heterocyclic compound contains two or more hetero rings.

(1) Note. Fused or bridged rings sharing one or more hetero chalcogen atoms are viewed as containing two heterocyclic rings.

(2) Note. Epoxidized plural unsaturated fatty acids or esters, in the absence of information to the contrary, are viewed as containing at least two epoxy rings, e.g., epoxidized soybean oil, and are therefore proper for this subclass.

110 Six-membered chalcogen ring:
This subclass is indented under subclass 107. Subject matter wherein the hetero ring is a six-membered ring.

111 Five-membered chalcogen ring:
This subclass is indented under subclass 107. Subject matter wherein the hetero ring is a five-membered ring.

112 Cyclic polycarboxylic acid anhydride:
This subclass is indented under subclass 111. Subject matter wherein the five-membered hetero ring contains an oxygen hetero atom as part of a cyclic polycarboxylic acid anhydride, e.g., illustrated below, etc.

(1) Note. See the Class 520 Glossary under carboxylic acid or derivative for the definition of an “anhydride”.

113 Tetrahydrofuran per se:
This subclass is indented under subclass 111. Subject matter wherein the five-membered hetero ring is tetrahydrofuran, per se, i.e., C_4H_8O.

114 Three-membered chalcogen ring:
This subclass is indented under subclass 107. Subject matter wherein the hetero ring is a three-membered ring.

(1) Note. Included herein are epoxidized monounsaturated fatty acid oils.

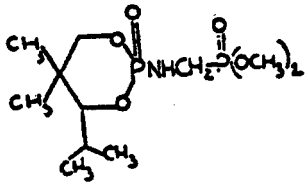
115 Phosphorus organic compound DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing a phosphorus atom.

116 Phosphorus is part of a covalent ring:
This subclass is indented under subclass 115. Subject matter wherein the phosphorus atom is covalently bonded in a ring system.

(1) Note. For purposes of this subclass, a ring system may contain a ring atom other than carbon or phosphorus.

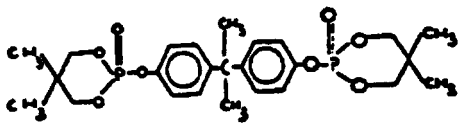
(2) Note. See appropriate subclasses below for a phosphorus atom as part of a chelation ring.

117 Oxygen ring atom:
This subclass is indented under subclass 116. Subject matter wherein the phosphorus ring contains at least one oxygen ring atom, e.g., as illustrated below, etc.



118 Halogen:
This subclass is indented under subclass 117. Subject matter wherein the phosphorus ring compound contains a halogen atom.

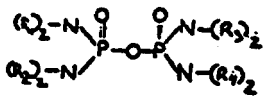
119 Two or more phosphorus rings:
This subclass is indented under subclass 117. Subject matter wherein the phosphorus ring compound contains two or more phosphorus rings, e.g., as illustrated below, etc.



120 Spiro ring:
This subclass is indented under subclass 119. Subject matter wherein the phosphorus compound contains a spiro ring system, e.g., distearyl pentaerythritol diphosphite, as illustrated below, etc.

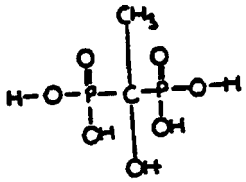
(1) Note. A spiro ring denotes the sharing of one common ring member only by exactly two rings.

121 Two or more phosphorus atoms directly or indirectly bonded together by only covalent bonds:
This subclass is indented under subclass 115. Subject matter wherein the phosphorus compound contains two or more phosphorus atoms bonded directly or through other atoms to each other by only covalent bonds, e.g., as illustrated below, etc.



122 Phosphorus double bonded to an atom other than C or O:
This subclass is indented under subclass 121. Subject matter wherein at least one of the phosphorus atoms is double bonded to an atom other than carbon or oxygen.

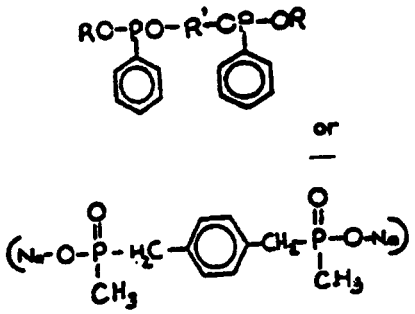
123 Phosphorus bonded directly to three chalcogen atoms and having only one P-C linkage e.g., phosphonate, etc.:
This subclass is indented under subclass 121. Subject matter wherein the phosphorus is directly bonded to three chalcogen atoms (i.e., oxygen, sulfur, selenium, or tellurium), and a single carbon atoms, e.g., 1-hydroxyethane, 1,1-diphosphonic acid, as illustrated below, etc.



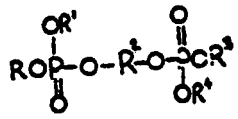
124 Nitrogen:
This subclass is indented under subclass 123. Subject matter wherein the phosphorus compound contains a nitrogen atom.

125 Aryl group:
This subclass is indented under subclass 123. Subject matter wherein the phosphorus compound contains an aryl group.

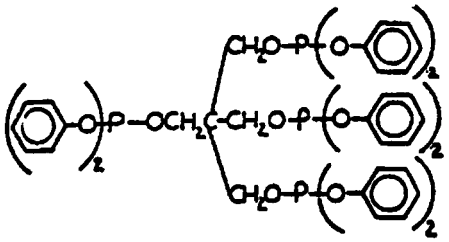
126 Phosphorus bonded directly to only two chalcogen atoms and having at least one P-C linkage, e.g., phosphinate, phosphonite, etc.:
This subclass is indented under subclass 121. Subject matter wherein a phosphorus is directly bonded to only two chalcogen atoms (i.e., oxygen, sulfur, selenium, or tellurium) and at least one carbon atom, e.g., as illustrated below, etc.



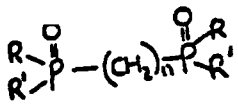
127 Phosphorus bonded directly to four chalcogen atoms, e.g., phosphate, etc.:
This subclass is indented under subclass 121. Subject matter wherein a phosphorus is directly bonded to four chalcogen atoms only (i.e., oxygen, sulfur, selenium or tellurium), e.g., a bisphosphate compound, as illustrated below, etc.



128 Phosphorus bonded directly to three chalcogen atoms only, e.g., phosphite, etc.:
This subclass is indented under subclass 121. Subject matter wherein a phosphorus is directly bonded to three chalcogen atoms only (i.e., oxygen, sulfur, selenium, or tellurium), e.g., as illustrated below, etc.



129 Phosphorus directly bonded to at least one chalcogen and only H or C, e.g., phosphine oxide, etc.:
This subclass is indented under subclass 121. Subject matter wherein a phosphorus is directly bonded to at least one chalcogen atom (i.e., oxygen, sulfur, selenium, or tellurium) and only to hydrogen or carbon atom s, e.g.,



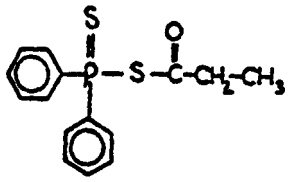
130 Phosphorus bonded to three chalcogen atoms and having only one P-C linkage:
This subclass is indented under subclass 115. Subject matter wherein the phosphorus is directly bonded to three chalcogen atoms (i.e., oxygen, sulfur, selenium, or tellurium) and a single carbon atom.

131 Chalcogen other than directly bonded to P:
This subclass is indented under subclass 130. Subject matter wherein the phosphorus compound contains a chalcogen atom other than the chalcogen directly bonded to phosphorus.

132 Aryl group:
This subclass is indented under subclass 130. Subject matter wherein the phosphorus compound contains an aryl group.

133 Phosphorus bonded to only two chalcogen atoms and having at least one P-C linkage:
This subclass is indented under subclass 115. Subject matter wherein the phosphorus is directly bonded to two chalcogen atoms only (i.e., oxygen, sulfur, selenium, or tellurium) and at least one carbon atom.

134 Sulfur:
This subclass is indented under subclass 133. Subject matter wherein the phosphorus compound contains a sulfur atom, e.g., as illustrated below, etc.

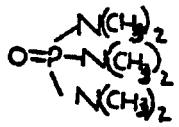


135 Aryl group:
This subclass is indented under subclass 133. Subject matter wherein the phosphorus compound contains an aryl group.

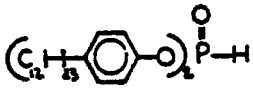
136 Pentavalent phosphorus atom directly bonded to at least one oxygen atom:
This subclass is indented under subclass 115. Subject matter wherein the phosphorus is a pentavalent phosphorus atom directly bonded to at least one oxygen atom.

137 P directly bonded to S:
This subclass is indented under subclass 136. Subject matter wherein the phosphorus is directly bonded to a sulfur atom.

138 P Directly Bonded to Two or More N:
This subclass is indented under subclass 136. Subject matter wherein the phosphorus is directly bonded to two or more nitrogen atoms, e.g., as illustrated below, phosphorus acid-tris-dimethyl amide, etc.



139 Phoshorus directly bonded to at least one O and at least one H or C only:
This subclass is indented under subclass 136. Subject matter wherein the phosphorus is directly bonded to at least one hydrogen or carbon atom and no other atom, e.g., as illustrated below, bis(p-dodecylphenyl) phosphite, etc.



140 P directly bonded to oxygen only:
This subclass is indented under subclass 136. Subject matter wherein the phosphorus is directly bonded to oxygen atoms only.

141 Aryl group:
This subclass is indented under subclass 140. Subject matter wherein the phosphorus compound contains an aryl group.

142 Halogen:
This subclass is indented under subclass 141. Subject matter wherein the phosphorus compound contains a halogen atom.

143 Cresyl phosphate, e.g., di, etc.:
This subclass is indented under subclass 141. Subject matter wherein the phosphorus compound is a cresyl phosphate, e.g., dicresyl phosphate, etc.

144 Halogen:
This subclass is indented under subclass 140. Subject matter wherein the phosphorus compound contains a halogen atom.

145 -C-O-P-O-C or C-O-P-OH group, e.g., phosphate ester, lecithin, etc.:
This subclass is indented under subclass 140. Subject matter wherein the phosphorus compound is a phosphorus ester having at least two ester groups (i.e., C-O-P-O-C), or a phosphorus ester having a single ester group (i.e., C-O-P-OH).

(1) Note. Included herein is lecithin.

146 Phosphorus directly bonded to sulfur:
This subclass is indented under subclass 115. Subject matter wherein the phosphorus atom is directly bonded to a sulfur atom, e.g., tris (octadecyl thioglycolyl) phosphite, etc.

147 Phosphorus directly bonded to oxygen:
This subclass is indented under subclass 115. Subject matter wherein the phosphorus atoms is directly bonded to an oxygen atom.

148 Atom other than C, O, H, P, or Hal:
This subclass is indented under subclass 147. Subject matter wherein the phosphorus compound contains an atom other than C, O, H, P, or halogen.

149 Halogen:
This subclass is indented under subclass 147. Subject matter wherein the phosphorus compound contains a halogen atom.

150 Five or more aryl groups:
This subclass is indented under subclass 147. Subject matter wherein the phosphorus compound contains five or more aryl groups.

(1) Note. The aryl group herein may be part of a fused- or bridged-ring system, e.g., naphthalene contains two aryl groups, etc.

151 Two or more aryl groups:
This subclass is indented under subclass 147. Subject matter wherein the phosphorus compound contains two or more aryl groups.

(1) Note. The aryl group herein may be part of a fused- or bridged-ring system, e.g., naphthalene contains two aryl groups.

152 OH group:
This subclass is indented under subclass 151. Subject matter wherein the phosphorus compound contains a hydroxyl group (i.e., -OH).

153 Triphenyl phosphite per se:
This subclass is indented under subclass 151. Subject matter wherein the phosphorus compound is triphenyl phosphite, per se (i.e., $C_{18}H_{15}O_3P$).

154 Phosphorus directly bonded to carbon atoms only:
This subclass is indented under subclass 115. Subject matter wherein the phosphorus atom is directly bonded to carbon atoms only.

155 Organic compound having a sulfur bonded directly ot oxygen DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing a sulfur atom directly bonded to at least one oxygen atom.

SEE OR SEARCH THIS CLASS, SUBCLASS:
280+, for a thio carbonic acid.
282+, for a thio acid.

156 Sulfur bonded directly to four oxygen atoms:
This subclass is indented under subclass 155. Subject matter wherein a sulfur atom is directly bonded to four oxygen atoms.

157 Sulfur bonded directly to three oxygen atoms:
This subclass is indented under subclass 155. Subject matter wherein a sulfur atom is directly bonded to three oxygen atoms.

158 Aryl group:
This subclass is indented under subclass 157. Subject matter wherein the sulfur compound contains an aryl group.

159 Nitrogen:
This subclass is indented under subclass 158. Subject matter wherein the sulfur compound contains a nitrogen atom.

160 Fused or bridged ring system:
This subclass is indented under subclass 158. Subject matter wherein the sulfur compound contains a fused- or bridged-ring system.

(1) Note. See the Class 520 Glossary for a definition of the term “fused or bridged ring system”.

161 Metal:
This subclass is indented under subclass 158. Subject matter wherein the sulfur compound contains a metal atom.

(1) Note. See the Class 520 Glossary for a definition of the term “metals”.

162 At least two separate aryl groups:
This subclass is indented under subclass 161. Subject matter wherein the metal containing sulfur compound contains at least two aryl groups.

163 Halogen:
This subclass is indented under subclass 162. Subject matter wherein the sulfur compound contains a halogen atom.

164 Halogen:
This subclass is indented under subclass 161. Subject matter wherein the sulfur compound contains a halogen atom.

165 Halogen:
This subclass is indented under subclass 157. Subject matter wherein the sulfur compound contains a halogen atom.

166 Metal:
This subclass is indented under subclass 157. Subject matter wherein the sulfur compound contains a metal atom.

(1) Note. See the Class 520 Glossary for a definition of the term “metals”.

167 Sulfur bonded directly to two oxygen atoms, e.g., sulfones, etc.:
This subclass is indented under subclass 155. Subject matter wherein a sulfur atom is directly bonded to two oxygen atoms, e.g., sulfone, etc.

168 Sulfur bonded directly to nitrogen:
This subclass is indented under subclass 167. Subject matter wherein a sulfur atom is directly bonded to a nitrogen atom.

169 Aryl group which is not fused or bridged:
This subclass is indented under subclass 168. Subject matter wherein the sulfur compound contains at least one aryl group which is not part of a fused or bridged ring system.

(1) Note. See the Class 520 Glossary for the definition of a "fused- or bridged-ring system".

170 Aryl group:
This subclass is indented under subclass 167. Subject matter wherein the sulfur compound contains an aryl group.

171 Oxygen atom other than as part of a sulfur bonded directly to two oxygen atoms:
This subclass is indented under subclass 170. Subject matter wherein the aryl sulfur compound contains an oxygen atom which is other than as part of a SO_2 group.

172 Atom other than C, H, S, O, or metal:
This subclass is indented under subclass 170. Subject matter wherein the aryl containing sulfur compound contains an atom other than carbon, hydrogen, sulfur, oxygen, or a metal.

(1) Note. See the Class 520 Glossary for a definition of the term "metals".

173 Sulfur directly bonded to oxygen and devoid of an aryl group, e.g., dimethyl sulfoxide, etc.:
This subclass is indented under subclass 155. Subject matter wherein the sulfur compound is devoid of an aryl group, e.g., dimethyl sulfoxide, etc.

174 Organic compound having at least one metal atom directly bonded to a carbon or hydrogen atom DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material compound is a compound containing at least one metal to hydrogen bond or at least one metal to carbon bond.

(1) Note. See the Class 520 Glossary for a definiiton of the term "metals".

175 Heavy metal directly bonded to carbon or hydrogen atom:
This subclass is indented under subclass 174. Subject matter wherein the heavy metal compound contains at least one heavy metal to carbon or heavy metal to hydrogen bond.

176 Transition metal (at no. 21-29, 39-47, 57-79):
This subclass is indented under subclass 175. Subject matter wherein the heavy metal compound contains at least one transition metal atom.

(1) Note. Transition metal for purposes of this subclass is limited to those elements of atomic number 21-29, 39-47, 57-79.

(2) Note. The transition metal for purposes of this subclass need not be bonded to the C or H atom. It is sufficient that a transition metal atom be in a compound wherein at least one heavy metal atom is bonded to a carbon or hydrogen atom.

177 Group VA metal (Sb, Bi, As):
This subclass is indented under subclass 175. Subject matter wherein the heavy metal compound contains at least one Group VA metal atom (Sb, Bi, As).

(1) Note. The Group VA metal atom for purposes of this subclass need not be bonded to the C or H atom. It is sufficient that a Group VA metal atom be in a compound wherein at least one heavy metal atom is bonded to a carbon or hydrogen atom.

178 Tin atom:
This subclass is indented under subclass 175. Subject matter wherein the heavy metal compound contains at least one atom of tin.

(1) Note. The tin atom for purposes of this subclass need not be bonded to a carbon or hydrogen atom. It is sufficient for purposes of this subclass that a tin atom be in a compound wherein a heavy metal is bonded to a carbon or hydrogen atom.

179 At least one sulfur atom:
This subclass is indented under subclass 178. Subject matter wherein the tin compound contains at least one sulfur atom.

180 Sulfur directly bonded to tin:
This subclass is indented under subclass 179. Subject matter wherein at least one tin atom is directly bonded to a sulfur atom.

(1) Note. The tin atom bonded to sulfur need not be bonded directly to carbon or hydrogen.

181 With additional tin compound DNRM:
This subclass is indented under subclass 180. Subject matter wherein the sulfur containing tin compound is admixed with a tin compound DNRM.

182 At least two tin atoms:
This subclass is indented under subclass 180. Subject matter wherein the sulfur tin compound contains at least two tin atoms.

183 Boron organic compound DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing at least one boron atom.

184 Atom other than B, O, H, or C:
This subclass is indented under subclass 183. Subject matter wherein the boron compound contains at least one atom which is other than boron, carbon, oxygen, or hydrogen.

185 Atom is N:
This subclass is indented under subclass 184. Subject matter wherein the boron compound contains at least one nitrogen atom.

186 Organo nitrogen compound other than unsubstituted ammonium salt as sole nitrogen atom DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a nitrogen compound containing at least one nitrogen atom other than as an unsubstituted ammonium (NH_4+) salt.

SEE OR SEARCH THIS CLASS, SUBCLASS:
284+, for an unsubstituted ammonium salt of a carboxylic acid as a designated nonreactant material.

187 Contains rosin or derivative DNRM:
This subclass is indented under subclass 186. Subject matter wherein the organic nitrogen DNRM contains an abietyl moiety therein or wherein the nitrogen DNRM is admixed with an abietyl DNRM containing compound.

(1) Note. See subclass 270 for a definition of the term “abietyl moiety”.

188 Silicon atom:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains a silicon atom.

189 Nitrogen to nitrogen bond:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least two nitrogen atoms which are bonded directly to one another.

190 N=N group:
This subclass is indented under subclass 189. Subject matter wherein the nitrogen compound contains a N=N group.

191 X=C-N group wherein X is a chalcogen:
This subclass is indented under subclass 189. Subject matter wherein the nitrogen compound contains a X=C-N group wherein X is a chalcogen atom.

(1) Note. Chalcogen is limited to oxygen, sulphur, selenium, and tellurium.

(2) Note. The C-N group may be a separate group from the N-N group or the C-N

group can be part of the N-N group as in C-N-N-.

192 Two or more N-N bonds:
This subclass is indented under subclass 191. Subject matter wherein the nitrogen compound contains at least two N-N groups.

193 Aryl-OH:
This subclass is indented under subclass 192. Subject matter wherein the nitrogen compound contains at least one aryl ring and wherein at least one nuclear carbon atom of the aryl ring is directly bonded to an oxygen atom of the hydroxyl group.

194 Aryl-OH:
This subclass is indented under subclass 191. Subject matter wherein the nitrogen compound containing a N-N group also contains at least one aryl ring; and wherein at least one nuclear carbon atom of an aryl ring is bonded to an oxygen atom of a hydroxly group.

195 N=C=N or N=C-N group, e.g., carbodiimide, isourea, etc.:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least one N=C=N or N=C-N group, e.g., carbodiimide, isoureas, etc.

196 N=C=X group wherein X is a chalcogen, e.g., isocyanate, etc.:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least one N=C=X group wherein X is a chalcogen atom, e.g., isocyanate, etc.

(1) Note. Chalcogen is limited to oxygen, sulphur, selenium, and tellurium.

197 At least one solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 196. Subject matter wherein the nitrogen compound is mixed with at least one solid polymer derived from ethylenic reactants only.

198 N-(C=O)-O-, e.g., urethane, carbamate, etc.:
This subclass is indented under subclass 186. Subject matter wherien the nitrogen compound contains at least one N--O- group, e.g., urethane, carbamate, etc.

199 Oxygen other than as part of a N(C=O)-O- group:
This subclass is indented under subclass 198. Subject matter wherein the nitrogen compound contains an additional oxygen atom which is not the oxygen of a N--O- group.

(1) Note. Included herein are -N-C(=O)O- compounds containing phenol oxygen groups, ketone oxygen groups, etc.

200 Atom other than N, H, C, or O:
This subclass is indented under subclass 198. Subject matter wherein the nitrogen compound contains an atom which is other than N, C, O, or H.

201 N(C=X)X wherein X is a chalcogen, e.g., thiocarbamate, etc.:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least one N--X- group wherein X is a chalcogen atom, e.g., thiocarbamate, etc.

(1) Note. Chalcogen is limited to oxygen, sulphur, selenium, and tellurium.

SEE OR SEARCH THIS CLASS, SUBCLASS:
198, for a N--X compound as a DNRM wherein both of the X atoms are oxygens.

202 Metal or ammonium group:
This subclass is indented under subclass 201. Subject matter wherein the nitrogen compound contains a metal or ammonium group.

(1) Note. See the Class 520 Glossary for a definition of the term “metals”.

203 With chalcogen nonreactive organic compound:
This subclass is indented under subclass 201. Subject matter wherein the nitrogen compound containing at least one metal or ammonium group is admixed with an additional NRM containing a chalcogen atom.

(1) Note. Included herein are mixtures of two or more -X compounds at least one of which is a metal or ammonium containing, or the use of phenol, or other

chalcogen containing NRM in admixture with a -X metal or ammonium compound.

204 Heavy metal or aluminum:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least one heavy metal or aluminum atom.

205 Nitrile group:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least one C=N group.

206 Nitrogen atom other than as part of a nitrile group:
This subclass is indented under subclass 205. Subject matter wherein the nitrogen compound contains a nitrogen atom which is not part of the C=N group.

207 Atom other than C, H, or N:
This subclass is indented under subclass 206. Subject matter wherein the nitrogen compound contains an atom which is other than C, H, or N.

(1) Note. Included herein are C=N compounds containing oxygen such as in amide or ether form.

208 Atom other than C, H, or N:
This subclass is indented under subclass 205. Subject matter wherein the nitrogen compound contains an atom other than C, H, or N.

(1) Note. Included herein are C=N compounds containing atoms such as oxygen, sulfur, etc.

209 Two or more nitrile groups:
This subclass is indented under subclass 205. Subject matter wherein the nitrogen compound contains two or more C=N groups.

210 N-C=X group wherein X is a chalcogen:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least one N-- group wherein X is a chalcogen atom.

(1) Note. Chalcogen is limited to oxygen, sulphur, selenium, and tellurium.

211 N-(C=X)N, e.g., Urea, etc.:
This subclass is indented under subclass 210. Subject matter wherein the nitrogen compound contains at least one N--N group.

(1) Note. The N--N group may be in X addition to a -N- group or the -N--N group may be part of the N- group.

212 Two or more -N-(C=X)N groups:
This subclass is indented under subclass 211. Subject matter wherein the nitrogen compound contains at least two -N--N- groups.

213 Atom other than C, N, H, or chalcogen; or contains nitrogen or chalcogen atom other than as part of a N(C=X)N group:
This subclass is indented under subclass 211. Subject matter whereinthe N--N compound contains an atom other than H, N, C, or chalcogen; or contains a chalcogen or nitogen atom which is not part of the -N--N group.

214 Carboxyclic group:
This subclass is indented under subclass 211. Subject matter wherein the N--N compound contains a ring composed solely of carbon atoms.

215 With water NRM:
This subclass is indented under subclass 211. Subject matter wherein the N--N compound is in admixture with free water as a nonreactant material.

216 At least one solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 211. Subject matter wherein the N--N compound is mixed with at least one solid polymer derived from ethylenic reactants only.

217 N atom other than as part of a N-C=X group:
This subclass is indented under subclass 210. Subject matter wherein the N- compound contains at least two nitrogen atoms and wherein at least one of the nitrogen atoms is not part of the N- groups.

218 C=X group other than as part of a N-C=X group:
This subclass is indented under subclass 210. Subject matter wherein the N- compound contains a -- group which is not part of the -N- group.

219 (C=X)X group:
This subclass is indented under subclass 218. Subject matter wherein the N- compound contains a --X group.

SEE OR SEARCH THIS CLASS, SUBCLASS:
198, for a N--O NRM.
201, for a N--X NRM.

220 C-O-C group:
This subclass is indented under subclass 210. Subject matter wherein the N- compound contains a -C-O-C- group.

221 C-OH group:
This subclass is indented under subclass 210. Subject matter wherein the N- compound contains a C-OH group.

222 Aryl -OH group:
This subclass is indented under subclass 221. Subject matter wherein the N- compound contains at least one aryl ring and wherein at least one of the nuclear carbons of the aryl ring is directly bonded to the oxygen atom of a hydroxyl group.

223 Two or more N-C=X groups or two or more C-OH groups:
This subclass is indented under subclass 221. Subject matter wherein the -N- compound contains two or more N- groups or two or more C-OH groups.

224 At least one solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 221. Subject matter wherein the N- compound is mixed with at least one solid polymer derived form ethylenic reactants only.

225 Atom other than N, C, H, or oxygen:
This subclass is indented under subclass 210. Subject matter wherein the N- compound contains at least one atom which is other than N, C, H, or oxygen.

226 Carbocyclic group:
This subclass is indented under subclass 210. Subject matter wherein the N-- compound contains at least one ring composed solely of carbon atoms, e.g., aryl, etc.

227 Two or more N-C=O groups:
This subclass is indented under subclass 210. Subject matter wherein the N- compound contains two or more N- groups.

228 At least one solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 227. Subject matter wherein the -N- compound is mixed with at least one solid polymer derived from ethylenic reactants only.

229 At least one solid polymer derived from acyclic monoethylenic hydrocarbon reactant:
This subclass is indented under subclass 228. Subject matter wherein at least one of the reactants used in the preparation of the solid polymer derived from ethylenic reactants only is an acyclic monoethylenic hydrocarbon reactant.

230 N-(C=O)alkyl wherein alkyl group contains eight or more carbon atoms:
This subclass is indented under subclass 210. Subject matter wherein the N-- compound contains an N--R group, wherein the R group is an alkyl radical and wherein the alkyl radical has at least eight carbon atoms.

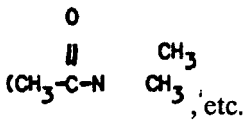
SEE OR SEARCH THIS CLASS, SUBCLASS:
226, wherein the N- compound contains an aryl or cycloaliphatic ring.

231 Two or more organo N-C=O compounds DNRM or with nonreactant organo nitrogen compound DNRM:
This subclass is indented under subclass 230. Subject matter wherein the N--R compound is in admixture with another designated nonreactant material which is organic and contains at least one nitrogen atom.

(1) Note. Included herein are mixtures of two or more N--R compounds or the admixture of one N--R compound and a diverse nonamide organo nitrogen compound.

232 At least one solid polymer derived from ethylenic hydrocarbon reactants only:
This subclass is indented under subclass 230. Subject matter wherein the N--R compound is mixed with at least one solid polymer derived from ethylenic reactants only and at least one of the ethylenic reactants of the solid polymer is an unsaturated hydrocarbon reactant.

233 Dialkyl amides, e.g., dimethyl formamide, dimethyl acetamide, etc.:
This subclass is indented under subclass 210. Subject matter wherein the N-- compound is a dialkyl amide, e.g., dimethyl formamide, dimethyl acetaminde



234 Two or more N-C nitrogen nonreactant materials or with an organo oxygen or nitrogen-containing nonreactant material:
This subclass is indented under subclass 233. Subject matter wherein the amide is admixed with an organo oxygen or nitrogen containing NRM.

(1) Note. Included herein are mixtures of two or more -N--R compounds at least one of which is a dialkyl amide or the admixtrue of a dialkyl amide and a diverse nonamide organo nitrogen or oxygen containing NRM.

235 At least one solid polymer derived from nitrile-containing ethylenic reactant:
This subclass is indented under subclass 233. Subject matter wherein the nitrogen compound is mixed with at least one solid polymer derived from ethylenic reactants only and at least one of the ethylenic reactants contains a nitrile group, i.e., C-C=N.

236 Trivalent or tetravalent nitrogen atom other than unsubstituted ammonium:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least one nitrogen atom having either a valency of three or four and is other than an unsubstituted ammonium (NH_4+) salt, e.g., dimethyl glyoxime, pyridine N-oxide, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
284+, for an unsubstituted ammonium salt of a carboxylic acid as a designated nonreactant material.

237 $C(N)_3$, -C=NH, or C=N-C group:
This subclass is indented under subclass 236. Subject matter wherein the nitrogen compound contains at least one carbon atom bound directly to three nitrogen atoms; or contains at least one NH or NC group wherein the nitrogen atom of said group is bound to a carbon atom through a double bond.

238 (C=X)X group wherein X is chalcogen:
This subclass is indented under subclass 236. Subject matter wherein the nitrogen compound contains at least one-X group wherein X is a chalcogen atom.

(1) Note. Chalcogen is limited to oxygen, sulphur, selenium, and tellurium.

(2) Note. Included herein is $(R_3NH)^+$ (acetate)$^-$.

239 Two or more (C=X)X groups:
This subclass is indented under subclass 238. Subject matter wherein the nitrogen compound contains at least two-X groups.

240 Aryl group:
This subclass is indented under subclass 238. Subject matter wherein the nitrogen compound contains at least one aryl group.

241 C=X group where X is chalcogen:
This subclass is indented under subclass 236. Subject matter wherein the nitrogen compound contains at least one group wherein X is chalcogen.

(1) Note. Chalcogen is limited to oxygen, sulphur, selenium, and tellurium.

242 Two or more C=X groups:
This subclass is indented under subclass 241. Subject matter wherein the nitrogen compound contains at least two groups.

243 C-O-C group:
This subclass is indented under subclass 236. Subject matter wherein the nitrogen compound contains at least oneC-O-C group.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
238, for a N compound containing a -O group.

244 C-OH:
This subclass is indented under subclass 243. Subject matter wherein the nitrogen compound contains both a C-O-C group and a C-OH group.

245 Two or more C-OH groups:
This subclass is indented under subclass 244. Subject matter wherein the nitrogen compound contains at least two-C-OH groups.

246 Aryl group:
This subclass is indented under subclass 243. Subject matter wherien the nitrogen compound contains at least one aryl group.

247 C-OH group:
This subclass is indented under subclass 236. Subject matter wherein the nitrogen compound contains at least oneC-OH group.

SEE OR SEARCH THIS CLASS, SUB-CLASS:
238, for a nitrogen compound containing a-O group.

248 Aryl-OH group:
This subclass is indented under subclass 247. Subject matter wherein the nitrogen compound contains at least one aryl ring and wherein at least one of the nuclear carbons of the aryl ring is directly bonded to the oxygen atom of a hydroxyl group.

249 Two or more nitrogen atoms or two or more C-OH groups:
This subclass is indented under subclass 247. Subject matter the nitrogen compound contains at least two nitrogen atoms or two or more C-OH groups.

250 Four or more C-OH groups:
This subclass is indented under subclass 249. Subject matter wherein the nitrogen compound contains at least fourC-OH groups.

251 N, C, and H atoms only:
This subclass is indented under subclass 236. Subject matter wherein the nitrogen compound contains only atoms of carbon, nitrogen, and hydrogen.

252 Two or more nitrogen atoms:
This subclass is indented under subclass 251. Subject matter wherein the nitrogen compound contains at least two nitrogen atoms.

253 With water NRM:
This subclass is indented under subclass 252. Subject matter wherein the plural nitrogen compound is admixed with free water as a non-reactant material (NRM).

254 Aryl:
This subclass is indented under subclass 252. Subject matter wherein the plural nitrogen compound contains at least one aryl group.

255 Two or more separate aryl ring systems:
This subclass is indented under subclass 254. Subject matter wherein the plural nitrogen compound contains at least two separate aryl ring systems.

(1) Note. To be proper for this subclass, there must be at least two separate ring systems, each of which contains an aryl group. A naphthalene or polyaromatic ring system is not to be considered as having separate aryl ring systems.

256 At least one aryl ring which is part of a fused or bridged ring system:
This subclass is indented under subclass 255. Subject matter wherein the plural nitrogen compound contains an aryl ring as part of a bridged- or fused-carbocyclic ring system.

(1) Note. See the Class 520 Glossary for a definition of the term "ethylenically unsaturated".

257 Aryl:
This subclass is indented under subclass 251. Subject matter wherein the nitrogen compound contains at least one aryl group.

258 Two or more separate aryl ring systems:
This subclass is indented under subclass 257. Subject matter wherein the nitrogen compound contains at least two separate aryl ring systems.

(1) Note. To be proper for this subclass, there must be at least two separate systems, each of which contains an aryl group. A naphthalene or polyaromatic ring system is not to be considered as having separate ring systems.

259 Nitrogen as part of a nitro group:
This subclass is indented under subclass 186. Subject matter wherein the nitrogen compound contains at least one nitrogen atom which has a valence of five and wherein the pentavalent nitrogen is part of a nitro group, i.e., $-C-NO_2$.

260 Nitro compound has an atoms other than C, H, N, or O; or has an oxygen or nitrogen atom other than as part of a nitro group:
This subclass is indented under subclass 259. Subject matter wherein the pentavalent compound contains at least one atom which is other than C, H, N, or oxygen; or contains an atom of oxygen or nitrogen which is not part of the pentavalent $C-NO_2$ group.

261 Organic silicon compound having at least one oxygen atom DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing at least one silicon atom and at least one oxygen atom.

SEE OR SEARCH THIS CLASS, SUBCLASS:
81, for an organic silicon designated nonreactant material containing only silicon, carbon, and hydrogen atoms.

262 Atom other than Si, O, C, of H:
This subclass is indented under subclass 261. Subject matter wherein the silicon compound contains an atom therein which is other than silicon, oxygen, carbon, or hydrogen.

263 Halogen:
This subclass is indented under subclass 262. Subject matter wherein the silicon compound contains at least one halogen atom.

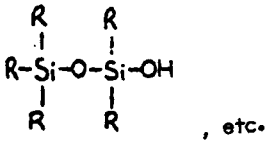
264 Ethylenic group:
This subclass is indented under subclass 261. Subject matter wherein the silicon compound contains at least one ethylenic unsaturated group.

(1) Note. See the Class 520 Glossary for a definition of the term "ethylenic group."

SEE OR SEARCH CLASS:
523, Synthetic Resins or Natural Rubbers, subclass 203 for an ethylenic silicon reactant which is coated onto a nonreactant material and is intended to couple a polymer with the nonreactant material.

265 Oxygen atom other than as Si-O-Si and at least one Si-C or Si-H group:
Subject matter under subclas 261 wherein the silicon compound contains at least one silicon atom bonded to a hydrogen or carbon atom, and contains an oxygen atom other than as directly linking two silicon atoms together.

(1) Note. Included herein are compounds such as:



266 Silicon containing SICP or solid polymer:
This subclass is indented under subclass 265. Subject matter wherein a solid polymer or specified intermediate condensation product (SICP) derived from a silicon containing reactant is mixed with the silicon compound. See

the Class 520 Glossary for a definition of the term "specified intermediate condensation product (SICP)".

267 Two or more si atoms and at least one Si-C or Si-H group:
This subclass is indented under subclass 261. Subject matter wherein the silicon compound contains at least two silicon atoms and has at least one silicon atom bonded to a hydrogen or carbon atom.

268 Silicon containing SICP or solid polymer:
This subclass is indented under subclass 267. Subject matter wherein a solid polymer or specified intermediate condensation product (SICP) derived from a silicon containing reactant is mixed with the silicon compound.

(1) Note. See the Class 520 Glossary for a definiton of the term "specified intermediate condensation product".

269 Solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 267. Subject matter wherein a solid polymer derived from ethylenic reactants only is mixed with the silicon compound.

270 Rosin or tall oil or modified forms thereof as DNRM, e.g., colophony, abietic acid, ester gum, etc.:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing an abietyl or modified abietyl moiety, e.g., rosin ester, metal salt of rosin, colophony, etc.; or is tall oil or a modified form thereof.

(1) Note. Rosin is the distilled or extracted residue from the exudation of certain species of pine, and its principal constituent is abietic acid.

(2) Note. This subclass includes tall oil which contains abietic acid and fatty acids.

(3) Note. All abietyl or substituted abietyl moieties are considered as being modified forms of rosin and as such are properly classified herein.

(4) Note. Abietyl as used herein includes the modified, e.g., hydrogenated, etc., as well as the nonmodified abietyl ring compounds.

271 Two or more solid polymers or at least one solid polymer and at least one specified intermediate condensation product:
This subclass is indented under subclass 270. Subject matter wherein the abietyl containing compound is mixed with two or more solid polymers or specified intermediate condensation products; or with at least one solid polymer and at least one specified intermediate condensation product.

(1) Note. See the Class 520 Glossary for a definition of the term "specified intermediate condensation product (SICP)".

272 Solid polymer derived from at least one ethylenic compound containing a carboxylic acid or derivative:
This subclass is indented under subclass 270. Subject matter wherein the abietyl containing compound is mixed with a solid polymer derived form at least oen ethylenic monomer which is a carboxylic acid or a derivative thereof.

(1) Note. See the Class 520 Glossary for the definition of the term carboxylic acid or derivative".

273 Solid polymer contains halogen:
This subclass is indented under subclass 270. Subject matter wherein the abietyl containing compound or tall oil is mixed with a solid polymer derived from a halogen containing monomer or with a nonhalogen derived polymer which has been modified by a halogen-containing material so as to incorporate halogen atoms therein.

274 Solid polymer derived from ethylenically unsaturated hydrocarbon only:
This subclass is indented under subclass 270. Subject matter wherein the abietyl containing compound or tall oil is mixed with a solid polymer derived from ethylenically unsaturated hydrocarbon monomers.

275 Oxygen wax DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a wax which contains an oxygen atom or an oxygen containing component.

(1) Note. A wax is an ester of a high molecular weight monocarboxylic acid and a monohydric alcohol, or a mixture containing an oxygen compound disclosed as being a wax.

(2) Note. This subclass includes naturally occurring waxes, e.g., beeswax which contains lactones, etc., and carnauba wax and candelilla wax which contains resins.

(3) Note. Oxidized microcrystalline wax is classified herein.

(4) Note. To be classified herein, a material must be disclosed or claimed as being a wax.

SEE OR SEARCH THIS CLASS, SUBCLASS:
84+, for a carboxylic acid ester not disclosed or claimed as being a wax.
487+, for a hydrocarbon containing wax.

276 With water NRM:
This subclass is indented under subclass 275. Subject matter wherein water as a nonreactant material is present in addition to the oxygen containing wax.

277 Carnauba wax, beeswax, montan wax, or oxidized microcrystalline wax or modified forms thereof:
This subclass is indented under subclass 275. Subject matter wherein the oxygen containing wax is carnauba wax, beeswax, montan wax, or oxidized microcrystalline wax or chemically modified forms thereof.

(1) Note. This subclass includes chemically modified carnauba wax, beeswax, montan wax, or oxidized microcrystalline wax which are still disclosed as being waxes.

278 Solid polymer contains halogen:
This subclass is indented under subclass 277. Subject matter wherein the wax is mixed with a solid polymer derived from a halogen containing monomer, or with a nonhalogen derived polymer which has been modified by a halogen containing material so as to incorporate halogen atoms therein.

279 Solid polymer contains nitrogen:
This subclass is indented under subclass 277. Subject matter wherein the wax is mixed with a solid polymer derived from a nitrogen containing monomer, or with a nonnitrogen derived solid polymer which has been modified by a nitrogen containing material so as to incorporate nitrogen atoms therein.

280 X(C=X)X wherein X is chalcogen DNRM, e.g., carbonate, etc.:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactive material is a compound containing at least one X--X group and wherein the x atom may be the same or different chalcogen atom, i.e., oxygen, sulfur, selenium, or tellurium.

(1) Note. Included herein are carbonates.

281 Aryl group:
This subclass is indented under subclass 280. Subject matter wherein the X--X compound contains at least one aryl group.

282 C(C=X)X wherein at least one X is a chalcogen other than oxygen DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material contains at least one C--X group, wherein X is a chalcogen atom (i.e., oxygen, sulfur, selenium, or tellurium), and wherein at least one of the X atoms is other than oxygen, e.g., n-butyl dithlofumarate, etc.

283 Oxygen atom which is not part of the -C(C=X)X group:
This subclass is indented under subclass 282. Subject matter wherein the DNRM having at least one C--X group contains at least one oxygen atom which is not part of the C--X group.

284 Carboxylic acid or derivative and wherein the derivative is other than a metal salt DNRM:

This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a carboxylic acid or its derivative which is other than a metal salt.

(1) Note. See the Class 520 Glossary for the definition of a "carboxylic acid or derivative".

(2) Note. A carboxylic acid derivative for purposes of this subclass is limited to carboxylic acid esters, carboxylic acid linear anhydrides, carboxylic acid halides, and nonmetal salts of a carboxylic acid.

(3) Note. For purposes of this subclass, a metal salt of a carboxylic acid includes a metal salt having an organic substituent directly attached to the metal atom, e.g., R-O-Pb-O--R, and therefore such compound is excluded herefrom, see in particular subclass 330 for such a compound when the R of the RO group is aryl.

SEE OR SEARCH THIS CLASS, SUBCLASS:

381, for the metal salts of hydroxy carboxylic acids, which are excluded from this subclass and its indents.

394, for sodium stearate.

285 Cycloaliphatic group or bridged or fused ring system, e.g., camphoric acid, etc:

This subclass is indented under subclass 284. Subject matter wherein the carboxylic acid or derivative contains a carbocyclic ring other than as aryl; or contains a bridged- or fused-ring system, e.g., camphoric acid, etc.

(1) Note. See the Class 520 Glossary for a definition of the term "fused or bridged ring".

SEE OR SEARCH THIS CLASS, SUBCLASS:

270+, for abietic acid (rosen) or a modified form thereof.

286 Naphthenic acid or derivative:

This subclass is indented under subclass 285. Subject matter wherein the carboxylic acid is a mixture of monocyclic or fused or bridged monocarboxylic hydrocarbon acids described as naphthenic acid or derivatives thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

285, for a purified monocyclic or fused or bridged hydrocarbon carboxylic acid.

287 Aryl group:

This subclass is indented under subclass 284. Subject matter wherein the carboxylic acid or derivative contains an aryl group, e.g., benzolc acid, etc.

(1) Note. The aryl group herein may be in the carboxylic acid or in the derivative moiety or in both the carboxylic and the derivative moiety.

288 Atom other than C, H, or O:

This subclass is indented under subclass 287. Subject matter wherein the carboxylic acid or derivative contains an atom other than carbon, hydrogen, or oxygen, e.g., butyl benzyl tetrachlorophthalate, etc.

289 Sulfur:

This subclass is indented under subclass 288. Subject matter wherein the carboxylic acid or derivative contains a sulfur atom.

290 Oxygen atom other than as part of a carboxylic acid or ester group:

This subclass is indented under subclass 287. Subject matter wherein the carboxylic acid or derivative contains an oxygen atom other than as part of a COOH or COOR group.

(1) Note. This subclass includes a linearacid anhydride group (i.e., - O -).

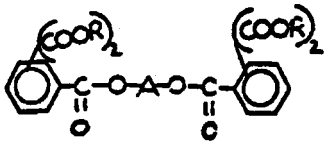
SEE OR SEARCH THIS CLASS, SUBCLASS:

112, for a cyclic anhydride.

291 OH group other than as part of a COOH Group, e.g., salicyclic acid, etc.:
This subclass is indented under subclass 290. Subject matter wherein the oxygen atom is part of a hydroxyl group which is other than the hydroxyl group of a COOH group, e.g., propyl gallate, phenyl salicylate, etc.

292 Carbonyl of a carboxylic acid or ester group directly attached to an aryl group, e.g., dipropylene glycol dibenzoate, etc.:
This subclass is indented under subclass 290. Subject matter wherein a carboxylic acid or ester derivative contains a COOH or COOR group directly attached to the aryl group through the carbonyl of the COOH or COOR group, e.g., dipropylene glycol dibenzoate, etc.

293 Carboxylic acid or ester groups each directly attached to separate aryl groups through the carbonyl of the carboxylic acid or ester group:
This subclass is indented under subclass 287. Subject matter wherein a carboxylic acid or ester derivative contains two or more discrete aryl groups each aryl having one or more COOH or COOR group directly attached thereto through the carbonyl group of the COOH or COOR group, e.g., glycerol tribenzoate.



294 Two or more carboxylic acids or esters groups each directly attached to a nuclear carbon of the same aryl group through the carbonyl of the carboxylic acid or ester group:
This subclass is indented under subclass 287. Subject matter wherein a carboxylic acid or ester derivative contains a single aryl group having two or more COOH or COOR groups each directly attached to the aryl ring through the carbonyl group of the COOH or COOR group.

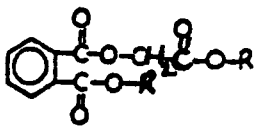
295 A single aryl group:
This subclass is indented under subclass 294. Subject matter wherein the carboxylic acid or ester derivative contains only one aryl group, e.g., trilsodecyl trimellitate, etc.

296 Only two carboxylic acid or ester groups directly attached to an aryl group, e.g., phthalic acid, etc.:
This subclass is indented under subclass 295. Subject matter wherein the single aryl group contains only two COOH or COOR groups each of which are directly attached through the carbon atom of the COOH or COOR group to the aryl ring, e.g., di(2-ethyl hexyl phthalate, etc.).

297 Dioctyl or dibutyl ester, e.g., di(2-ethylhexyl) phthalate, etc:
This subclass is indented under subclass 296. Subject matter wherein the ester derivative is dioctyl or dibutyl phthalate.

(1) Note. The term "octyl" or "butyl" for the purposes of this subclass includes all the branched isomers, e.g., 2-ethylhexyl, etc.

298 Three or more carboxylic acid or ester groups:
This subclass is indented under subclass 296. Subject matter wherein the carboxylic acid or ester derivative contains three or more COOH or COOR groups, only two of which are directly attached through the carbon atom of the COOH or COOR group to the aryl ring, e.g., etc.



299 Two or more aryl groups:
This subclass is indented under subclass 287. Subject matter wherein the carboxylic acid or ester derivative contains two or more aryl groups, e.g., dibenzyl alkenyl succinate, etc.

300 Two or more carbon atoms:
This subclass is indented under subclass 284. Subject matter wherein the carboxylic acid or derivative contains at least two carbon atoms.

SEE OR SEARCH THIS CLASS, SUBCLASS:
284, for formic acid.

301 Metal:
This subclass is indented under subclass 300. Subject matter wherein the carboxylic acid or derivative contains a metal atom.

302 Sulfur, e.g., factice, etc.:
This subclass is indented under subclass 300. Subject matter wherein the carboxylic acid or derivative contains a sulfur atom, e.g., thioglycolic acid, etc.

(1) Note. Included herein is factice which is vulcanized drying oil usually produced by treatment of drying oil with sulfur or $SC1_2$.

SEE OR SEARCH THIS CLASS, SUBCLASS:
155+, for a sulfur containing organic compound having a sulfur atom directly bonded to oxygen.
280, for thio carbonic acids.
282, for thio acids.

303 Only two carboxylic acid or ester groups, e.g., distearyl thiodipropionate, etc.:
This subclass is indented under subclass 302. Subject matter wherein the sulfur-containing carboxylic acid or ester contains only two COOH or COOR groups, e.g., distearyl thiodipropionate, etc.

304 With a nonreactive material:
This subclass is indented under subclass 303. Subject matter wherein a nonreactive material is in addition to the sulfur-containing carboxylic acid or derivative.

305 Nonreactive material contains atom other than C, H, or O:
This subclass is indented under subclass 304. Subject matter wherein the nonreactive material contains an atom other than carbon, hydrogen, or oxygen.

306 Ester having at least two carboxylic acid ester groups:
This subclass is indented under subclass 300. Subject matter wherein the carboxylic acid derivative is a carboxylic acid ester having at least two COOR groups.

(1) Note. See the Class 520 Glossary for the definition of a "carboxylic acid ester".

307 Atom other than C, H, or O:
This subclass is indented under subclass 306. Subject matter wherein the carboxylic acid ester contains an atom other than carbon, hydrogen, or oxygen.

308 Oxygen atom other than as part of a carboxylic acid ester group:
This subclass is indented under subclass 306. Subject matter wherein the carboxylic acid ester contains an oxygen atom other than as part of a carboxylic acid ester group, e.g., diethylene glycol dipropionate, ethoxyethyl maleate, etc.

309 C=O Group other than as part of COO group:
This subclass is indented under subclass 308. Subject matter wherein the carboxylic acid ester contains a carbonyl group other than as part of a COO group, e.g., a diester of levulinic acid, etc.

310 OH group other than as part of a COOH Group, e.g., castor oil, etc.:
This subclass is indented under subclass 308. Subject matter wherein the carboxylic acid ester contains a hydroxyl group which is other than part of a carboxylic acid group, e.g., ricinoleic acid, castor oil, etc.

311 Three or more carboxylic acid ester groups:
This subclass is indented under subclass 306. Subject matter wherein the carboxylic acid ester contains three or more carboxylic acid ester groups.

312 Derived from glycerol:
This subclass is indented under subclass 311. Subject matter wherein the carboxylic acid ester is derived from glycerol.

313 Fatty acid triglyceride, e.g., drying oil, etc.:
This subclass is indented under subclass 312. Subject matter wherein the carboxylic acid ester is a fatty acid triglyceride, e.g., drying oil, linseed oil, tung oil, etc.

314 Ester derived from dicarboxylic acid:
This subclass is indented under subclass 306. Subject matter wherein the carboxylic acid ester is an ester of a dicarboxylic acid, e.g., dialkyl fumarate, di-n-hexyl adipate, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
306, for a compound containing two carboxylic acid ester groups which is the reaction product of a diol and a monocarboxylic acid.

315 Carboxylic acid ester:
This subclass is indented under subclass 300. Subject matter wherein the carboxylic acid derivative is a carboxylic acid ester.

(1) Note. See the Class 520 Glossary for the definition of "carboxylic acid or derivative" which includes a carboxylic acid ester.

316 Atom other than C, H, or O:
This subclass is indented under subclass 315. Subject matter wherein the carboxylic acid ester contains an atom other than carbon, hydrogen, or oxygen.

317 Oxygen atom other than as part of a carboxylic acid group, e.g., glycolic ester, etc.:
This subclass is indented under subclass 315. Subject matter wherein the carboxylic acid ester contains an oxygen atom other than as part of a carboxylic acid ester group.

318 Acyl group of the carboxylic acid has at least fifteen carbon atoms, e.g., butyl stearate, etc.:
This subclass is indented under subclass 315. Subject matter wherein the carboxylic acid ester is derived from a carboxylic acid having at least fifteen carbon atoms, e.g., stearic acid esters, etc.

319 Halogen:
This subclass is indented under subclass 300. Subject matter wherein the carboxylic acid or derivative contains a halogen atom.

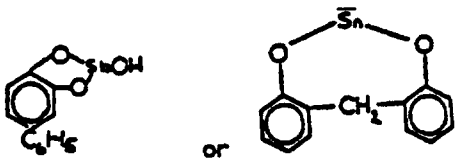
320 Oxygen atom other than as part of a COOH or derivative group:
This subclass is indented under subclass 300. Subject matter wherein the carboxylic acid or derivative contains an oxygen atom other than as part of a COOH or derivative group, e.g., lactic acid, tartaric acid, etc.

321 Two or more carboxylic acid or derivative groups:
This subclass is indented under subclass 300. Subject matter wherein the carboxylic acid or derivative contains two or more -COO- groups, e.g., fumaric acid, maleic acid, etc.

322 Acyl group of the carboxylic acid or derivative has at least fifteen carbon atoms, e.g., stearic acid, etc.:
This subclass is indented under subclass 300. Subject matter wherein the carboxylic acid or derivative is derived from a carboxylic acid having at least fifteen carbon atoms, e.g., stearic acid, etc.

323 Aryl-OH or salt or aryl-o-metal bond DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is (a) a phenolic compound containing a hydroxyl group directly attached to the nuclear carbon of an aryl group or its salt, or (b) a compound containing an aryl-O-M (M-metal) group, e.g., aryl-O-Pb-O-, etc.

(1) Note. A cyclic salt of a phenolic compound, e.g., etc., is not considered a heterocyclic ring system and therefor is properly classified here.



(2) Note. See the Class 520 Glossary for a definition of the term "metals".

324 Fused or bridged ring system:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains a fused- or bridged-ring system, e.g., butyl-4-methyl-6-indanyl phenol, etc.

(1) Note. A fused or bridged ring system for this subclass requires at least two fused or bridged carbocyclic rings. See the Class 520 Glossary.

(2) Note. In the absence of information to the contrary, the reaction product of a phenolic compound and a material containing a fused or bridged ring system is presumed to form a compound containing a fused- or bridged-ring system and is properly classifiable herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:
327+, for a cyclic metal salt of a phenolic compound, e.g., antimonyl p-phenyl catecholate, etc.

325 Fused or bridged ring system having at least three rings:
This subclass is indented under subclass 324. Subject matter wherein a fused- or bridged-ring system contains three or more rings.

326 Cycloaliphatic group:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains a carbocyclic ring other than as aryl.

327 Metal:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains a metal atom, e.g., triphenyl arsenite, etc.

328 Group VIII metal (i.e., Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt):
This subclass is indented under subclass 327. Subject matter wherein the metal is a Group VIII metal atom (i.e., Co, Fe, Ru, Os, Rh, Ir, Ni, Pd, Pt).

329 Group IVA metal (i.e., Ge, Sn, Pb):
This subclass is indented under subclass 327. Subject matter wherein the metal is a Group IVA metal atom (i.e., Ge, Sn, Pb), e.g., Ar-O-Pb-O--R, etc.

330 Atom other than C, H, O, or halogen:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant contains an atom other than carbon, hydrogen, oxygen, or halogen.

331 Two or more sulfur atoms:
This subclass is indented under subclass 330. Subject matter wherein the designated nonreactant contains at least two sulfur atoms.

332 S-S linkage:
This subclass is indented under subclass 331. Subject matter wherein the sulfur compound contains a sulfur-sulfur linkage.

333 Two or more separate aryl-OH groups:
This subclass is indented under subclass 330. Subject matter wherein the designated nonreactant contains two or more separate aryl-OH groups.

334 Oxygen other than as part of an aryl-OH group:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains an oxygen atom which is other than as part of an aryl-OH group.

335 C=O group:
This subclass is indented under subclass 334. Subject matter wherein the designated nonreactant material contains a carbonyl group.

336 A single C=O group:
This subclass is indented under subclass 335. Subject matter wherein the carbonyl compound contains only one carbonyl group, e.g., 2-hydroxy-benzophenone, etc.

337 Aryl group having two or more OH groups directly attached to nuclear carbons thereof:
This subclass is indented under subclass 336. Subject matter wherein the carbonyl compound contains an aryl group having two or more hydroxyl groups directly attached to nuclear

carbons of the aryl group, e.g., 2,4,5-trihydroxy-acetophenone, etc.

338 Two or more aryl-OH groups:
This subclass is indented under subclass 336. Subject matter wherein the carbonyl compound contains two or more aryl-OH groups, e.g., 2,2-dihydroxybenzophenone, etc.

339 C-O-C linkage:
This subclass is indented under subclass 334. Subject matter wherein the designated nonreactant material contains an ether linkage (i.e., C-O-C-).

340 Aryl compound having only one aryl ring and having one or more oh groups directly attached to nuclear carbons of the aryl:
This subclass is indented under subclass 339. Subject matter wherein the ether compound contains only one aryl ring and wherein at least one of the nuclear carbons of the aryl ring is directly attached to the oxygen atom of a hydroxyl group.

341 Halogen:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains a halogen atom.

342 Two or more separate aryl-OH groups:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains two or more separate aryl-OH groups.

343 Only two aryl-OH groups:
This subclass is indented under subclass 342. Subject matter wherein the designated nonreactant material contains only two aryl-OH groups.

344 Aryl group other than as part of an aryl-OH:
This subclass is indented under subclass 343. Subject matter wherein the designated nonreactant material contains in addition to the two aryl-OH groups an aryl group which is other than as part of an aryl-OH group.

345 Polyhydric aryl-OH compound:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains two or more hydroxyl groups directly attached to the nuclear carbon of the same aryl group, e.g., catechol, etc.

346 1,3-dihydroxy, e.g., resorcinol, etc.:
This subclass is indented under subclass 345. Subject matter wherein the designated nonreactant material contains only two hydroxyl groups and where the hydroxyl groups are directly attached to the 1,3 position of the same aryl group.

347 1,4-dihydroxy, e.g., hydroquinone, etc.:
This subclass is indented under subclass 345. Subject matter wherein the designated nonreactant material contains only two hydroxyl and wherein the hydroxyl groups are directly attached to the 1,4 position of the same aryl group, e.g., hydroquinone, etc.

348 Two or more aryl-OH DNRM compounds:
This subclass is indented under subclass 323. Subject matter wherein two or more compounds each containing aryl-OH groups are utilized as designated nonreactant materials, e.g., a mixture of m-cresol and p-cresol, etc.

349 Three or more substituents on the aryl-OH compound:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains a substituted aryl wherein three or more of the hydrogen atoms of the aryl have been substituted by other than a hydroxy group and wherein one of the hydrogen atoms of the aryl has been substituted by a hydroxy group, e.g., 2,6-di-t-p-cresol,etc.

350 With other nonreactive material:
This subclass is indented under subclass 349. Subject matter wherein in addition to the substituted aryl there is also present another nonreactive material.

351 Two substituents on the aryl-OH compound:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains a substituted aryl wherein two of the hydrogen atoms of the aryl have been substituted by other than a hydroxy group and wherein one of the hydrogen atoms of the aryl has been substituted by a hydroxy group.

352 A single substituent on the aryl-OH compound:
This subclass is indented under subclass 323. Subject matter wherein the designated nonreactant material contains a substituted aryl wherein one of the hydrogen atoms of the aryl has been substituted by other than a hydroxy group and wherein one of the hydrogen atoms of the aryl has been substituted by a hydroxy group.

353 With nonreactive organic material:
This subclass is indented under subclass 352. Subject matter wherein in addition to the substituted aryl compound there is also present a nonreactive organic material.

354 Aldehyde DNRM, i.e., C-(C=O) H:
This subclass is indented under subclass 81. Subject matter wherein the designated nonreactive material is a compound containing at least one aldehyde group.

(1) Note. See the Class 520 Glossary for a definition of the term "aldehyde".

355 Aryl:
This subclass is indented under subclass 354. Subject matter wherein the aldehyde compound contains at least one aryl group herein.

356 Ketone or ketene DNRM, i.e., C(C=O) or C=C=O:
This subclass is indented under subclass 81. Subject matter wherein the designated nonreactive material contains at least one ketone or ketene group.

(1) Note. See the Class 520 Glossary for a definition of the term "ketone". Ketone is CH_2=C=O.

357 Two or more C(C=O)C groups:
This subclass is indented under subclass 356. Subject matter wherein the designated nonreactant compound contains at least two ketone groups.

(1) Note. For purposes of this class, a compound containing a -C-$_n$-C- group, wherein n is two or more, is considered as being a plural ketone containing compound. Additionally, a compound containing a -C--C-C- group is considered as having two ketone groups.

358 Carbocyclic ring wherein at least two of the nuclear carbons thereof are double bonded directly to oxygen atoms so as to form two or C=O groups therewith, e.g., quinone, etc.:
This subclass is indented under subclass 357. Subject matter wherein the plural ketone compound contains at least one carbocyclic ring wherein at least two of the nuclear carbon atoms of the ring are double bonded directly to oxygen so as to form ketone groups therewith, e.g., quinone, benzoquinone, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
357, for a plural ketone containing compound having a fused- or bridged-ring system wherein plural oxygen atoms are double bonded to the individual rings of the ring system that comprises the overall fused- or bridged-ring system and wherein no single individual ring is double bonded to two or more oxygen atoms.

359 Carbocyclic ring, e.g., benzophenone, etc.:
This subclass is indented under subclass 356. Subject matter wherein the designated nonreactant material contains at least one ring system composed solely of carbon atoms.

(1) Note. Included herein are aryl or cycloaliphatic ring systems wherein a ketone or ketene group is bonded directly or indirectly thereto.

SEE OR SEARCH THIS CLASS, SUBCLASS:
360, for a ring system wherein one of the nuclear carbon atoms of the carbocyclic ring is double bonded directly to an oxygen atom so as to form a C=O group therewith.

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.:
This subclass is indented under subclass 359. Subject matter wherein the designated nonreactant material contains a carbocyclic ring

wherein a single nuclear carbon atom of the carbocyclic ring is bonded directly to an oxygen atom by a double bond so as to form a C=O group therewith.

361 Only C, H, and oxygen atoms:
This subclass is indented under subclass 356. Subject matter wherein the ketone or ketene is composed solely of carbon, hydrogen, and oxygen atoms.

362 Ten or more carbon atoms:
This subclass is indented under subclass 361. Subject matter wherein the ketone or ketene contains at least ten carbon atoms.

363 Two or more C=O DNRM containing compounds:
This subclass is indented under subclass 361. Subject matter wherein the ketone or ketene is admixed with an additional ketone or ketene nonereactive material.

364 With water, hydrocarbon, halohydrocarbon, or organic oxygen containing nonreactive material:
This subclass is indented under subclass 361. Subject matter wherein the ketone or ketene is admixed with an additional nonreactant material which is water, hydrocarbon, halohydrocarbon, or an organic oxygen containing material.

365 Solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 361. Subject matter wherein a solid polymer derived from ethylenic reactants only is mixed with the ketone or ketene compound.

366 C-O-C compound DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing a C-O-C group, e.g., ether, etc.

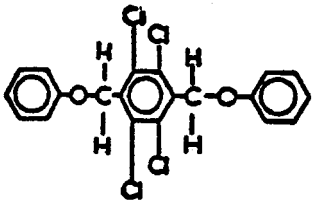
SEE OR SEARCH THIS CLASS, SUBCLASS:
107+, for a cyclic ether or an epoxide.
284+, for a carboxylic acid or ester or noncyclic anhydride.

367 Fused or bridged ring system or a cycloaliphatic group:
This subclass is indented under subclass 366. Subject matter wherein the C-O-C compound contains a fused or bridged ring system or a cycloaliphatic ring.

(1) Note. See the Class 520 Glossary for a definition of a "fused or bridged ring system".

368 Atom other than C, H, O, or halogen:
This subclass is indented under subclass 366. Subject matter wherein the C-O-C compound contains an atom other than carbon, hydrogen, oxygen, or halogen.

369 Aryl group other than as part of a phenoxy group:
This subclass is indented under subclass 366. Subject matter wherein the C-O-C compound contains an aryl group other than the nuclear carbon of an aryl directly attached to an oxygen atom, e.g., as illustrated below, etc.



370 Aryl-o-aryl:
This subclass is indented under subclass 366. Subject matter wherein the C-O-C compound contains an aryl-O-aryl group, e.g., diphenyl oxide, etc.

371 Halogen:
This subclass is indented under subclass 370. Subject matter wherein the aryl-O-aryl compound contains a halogen atom.

372 Two or more phenoxy groups:
This subclass is indented under subclass 366. Subject matter wherein the C-O-C compound contains two or more discrete aryl-O- groups.

373 Halogen:
This subclass is indented under subclass 372. Subject matter wherein the C-O-C compound contains a halogen atom.

374 At least two diverse halogen atoms:
This subclass is indented under subclass 373. Subject matter wherein the halogen compound contains at least two diverse halogen atoms.

375 Phenoxy group:
This subclass is indented under subclass 366. Subject matter wherein the C-O-C compound contains an aryl-O group.

SEE OR SEARCH THIS CLASS, SUBCLASS:

327, for a metal salt of a phenolic compound wherein the oxygen atom of the aryl-O- group is directly attached to a metal atom, e.g., C_6H_5ONa, etc.

376 OH group, e.g., ether-alcohol solvent, etc.:
This subclass is indented under subclass 366. Subject matter wherein the C-O-C compound contains a hydroxyl group.

377 Two or more OH groups:
This subclass is indented under subclass 376. Subject matter wherein the hydroxyl containing compound contains two or more hydroxyl groups.

378 Only C, H, and O atoms:
This subclass is indented under subclass 366. Subject matter wherein the C-O-C compound contains only carbon, hydrogen, and oxygen atoms.

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.:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant is a compound containing at least one carbon atom which is bonded directly an oxygen atom by a single bond and wherein the carbon atom is not double bonded to a chalcogen atom.

(1) Note. Included herein are alcohols, alcoholates, etc.

380 Halogen or ethylenic unsaturation:
This subclass is indented under subclass 379. Subject matter wherein the C-O compound contains at least one halogen atom or at least one ethylenic group.

381 Non C-OH oxygen atom, or element other than, c, o, or h, e.g., tartaric acid metal salt, etc.:
This subclass is indented under subclass 379. Subject matter wherein the C-O compound contains at least one oxygen atom which exist other than as part at a C-OH group, or wherein the C-O compound contains at least one element which is other than carbon, oxygen, or hydrogen.

382 Heavy metal:
This subclass is indented under subclass 381. Subject matter wherein the C-O compound contains a heavy metal atom.

383 Carbocyclic ring:
This subclass is indented under subclass 379. Subject matter wherein the C-O compound contains at least one ring system composed solely of carbon atoms.

384 Aryl group:
This subclass is indented under subclass 383. Subject matter wherein the C-O compound contains an aryl ring system.

385 Only a single -C-OH group and at least six carbon atoms:
This subclass is indented under subclass 379. Subject matter wherein the C-O compound contains only one -C-OH group and at least six carbon atoms.

386 At least two -OH groups:
This subclass is indented under subclass 379. Subject matter wherein the C-O compound contains at least two -OH groups.

387 At least four -OH groups, e.g., pentaerythritol, etc.:
This subclass is indented under subclass 386. Subject matter wherein the C-O compound contains at least four -OH groups, e.g., pentaerythritol, sorbitol, etc.

388 At least one solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 386. Subject matter wherein a solid polymer derived from ethylenic reactants only is mixed with the -OH compound.

389 Two or more compounds containing -OH groups or with water NRM:
This subclass is indented under subclass 379. Subject matter wherein there are present two or more C-O compounds or wherein the C-O compound is admixed with water as a nonreactant material.

390 With hydrocarbon or halogenated hydrocarbon NRM:
This subclass is indented under subclass 379. Subject matter wherein the C-O compound is in admixture with a nonreactant hydrocarbon or halogenated hydrocarbon material.

391 Solid polymer or SICP derived from at least one nonethylenic reactant:
This subclass is indented under subclass 379. Subject matter wherein a solid polymer derived from at least one nonethylenic reactant or a specified intermediate condensation product is admixed with the C-O compound.

392 Organic chalcogen other than oxygen as DNRM:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing at least one chalcogen atom which is other than oxygen.

393 Atom other than S, C, H, or a metal:
This subclass is indented under subclass 392. Subject matter wherein the designated nonreactant material contains at least one atom which is other than sulfur, carbon, hydrogen, or a metal.

(1) Note. See the Class 520 Glossary for a definition of the term "metals".

394 Oxygen atom or metal atom DNRM, e.g., metal stearate, etc.:
This subclass is indented under subclass 81. Subject matter wherein the organic designated nonreactant material is a compound containing at least one oxygen or metal atom.

(1) Note. See the Class 520 Glossary for a definition of the term "metals".

395 Atom other than C, O, H, or a metal:
This subclass is indented under subclass 394. Subject matter wherein the oxygen or metal compound contains at least one atom which is other than carbon, oxygen, hydrogen, or a metal.

(1) Note. Included herein are halogen containing salts, etc.

396 Carbocyclic group, e.g., aryl, etc.:
This subclass is indented under subclass 394. Subject matter wherein the oxygen or metal compound contains at least one ring system composed solely of carbon atoms.

397 Ethylenic group, or at least two (C=O)O groups bonded to each other directly or only by carbon atoms:
This subclass is indented under subclass 394. Subject matter wherein the oxygen or metal compound contains at least one ethylenic group, or at least two O-O groups bonded to each other directly or bonded solely by carbon atoms.

(1) Note. Included herein are oxalic acid salts or salts of polycarboxylic acids.

398 Transition metal atom (atomic no. 21-29, 39-47, 57-79):
This subclass is indented under subclass 394. Subject matter wherein the metal compound contains at least one transition metal atom.

(1) Note. The transistion metals for this subclass are limited to atomic numbers 21-29, 39-47, and 57-79.

399 Heavy metal or aluminum (atomic no. 13, 30-33, 48-51, 80-83):
This subclass is indented under subclass 394. Subject matter wherein the metal compound contains at least one heavy metal or aluminum atom.

(1) Note. The metal atoms limited to this subclass have atomic numbers 13, 30-33, 48-51, and 80-83.

400 Group IIA metal atom (Be, Mg, Ca, Sr, Ba):
This subclass is indented under subclass 394. Subject matter wherein the metal compound is a Group IIA metal atom (Be, Mg, Ca, Sr, Ba).

401 Inorganic compound devoid of a silicon atom DNRM:
This subclass is indented under subclass 80. Subject matter wherein the designated nonreactant material is an inorganic compound which is devoid of any silicon atoms.

SEE OR SEARCH THIS CLASS, SUBCLASS:
80, for an elemental nonmetal designated nonreactant material.
439+, for an elemental metal or metal alloy designated nonreactant material.
442+, for a silicon containing designated nonreactant material, e.g., clay, etc.
492+, for glass or silicon dioxide designated nonreactant material having numeric limitations.

402 Chalcogen atom other than sulfur or oxygen DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorganic nonreactant material is a compound containing at least one chalcogen atom which is other than sulfur or oxygen.

(1) Note. Included herein is subject matter relating to selenium or tellurium inorganic compounds.

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:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material contains at least one lanthanide atom (at, no. 57-71) or at least noble metal atom (Au, Ag, Hg, Pt, Pd, Ir, Rh, Ru, Os).

404 Boron atom DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing at least one boron atom.

405 Boron directly bonded to oxygen:
This subclass is indented under subclass 404. Subject matter wherein the inorganic designated nonreactant material contains at least one boron atom directly bonded to an oxygen atom.

406 Group VIB metal atom DNRM (i.e., Cr, Mo, W):
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing at least one Group VIB metal (Cr, Mo, W).

407 Chromium:
This subclass is indented under subclass 406. Subject matter wherein the Group VIB metal atom is chromium in a chromium compound.

408 Group V metal atom DNRM (i.e., V, Nb, Ta, As, Bi, Sb):
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing at least one Group V metal atom (V, Nb, Ta, As, Bi, Sb).

409 Antimony:
This subclass is indented under subclass 408. Subject matter wherein the Group V metal atom is antimony in an antimony compound.

410 Atom other than Sb and oxygen:
This subclass is indented under subclass 409. Subject matter wherein the antimony compound contains at least one atom which is other than oxygen and antimony.

411 With halogenated nonreactant material:
This subclass is indented under subclass 409. Subject matter wherein the antimony compound is admixed with an additional halogenated nonreactant material.

412 Halogen atom other than Cl:
This subclass is indented under subclass 411. Subject matter wherein the halogenated nonreactant material contains a halogen atom other than chlorine.

413 Transition metal other than Group VIII DNRM, i.e., Sc, Ti, Mn, Cu, Y, Zr, Tc, Hf, Re):
This subclass is indented under subclass 401. Subject matter wherein the inorgnic designated nonreactant material is a compound containing a transition metal other than a Group VIII transition metal atom.

(1) Note. By schedule exclusion, the transition metal atoms proper for this subclass are limited to atomic numbers 21, 22, 25, 29, 39, 40, 43, 72, and 75 and reflect as such; Sc, Ti, Mn, Cu, Y, Zr, Tc, Hf, and Re.

(2) Note. The Group VIII transition metal atom excluded herein are Fe, Co, and Ni.

SEE OR SEARCH THIS CLASS, SUBCLASS:
431, for a Group VIII transition metal oxide.
435, for other Group VIII transition metal compounds as designated nonreactant materials.

414 Phosphorus atom DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing a phosphorus atom.

415 Atom other than P, O, H, or a metal:
This subclass is indented under subclass 414. Subject matter wherein the inorganic nonreactant material contains at least one atom which is other than phosphorus, oxygen, hydrogen, or a metal atom.

(1) Note. See the Class 520 Glossary for a definition of the term “metals”.

416 Ammonium phosphate:
This subclass is indented under subclass 415. Subject matter wherein the phosphorus compound is ammonium phosphate, i.e., $(NH_4)_2HPO_4$.

SEE OR SEARCH THIS CLASS, SUBCLASS:
415, for phosphate monobasic, i.e., $NH_4H_2PO_4$ and phosphate tribasic, i.e., $(NH_4)_3PO_4$.

417 Phosphorus atom directly bonded to four oxygen atoms, e.g., phosphoric acid, etc.:
This subclass is indented under subclass 414. Subject matter wherein the phosphorus compound contains at least four oxygen atoms directly bonded to a single phosphorus atom.

(1) Note. Included herein are phosphoric acid and phosphate salts thereof.

418 Sulfur atom DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing at least one sulfur atom.

419 Two or more sulfur atoms, or at least one atom other than S, O, H, or a metal:
This subclass is indented under subclass 418. Subject matter wherein the sulfur compound contains at least two sulfur atoms or at least one atom which is other than sulfur, oxygen, hydrogen, or a metal atom.

(1) Note. See the Class 520 Glossary for a definition of the term “metals”.

420 Devoid of an oxygen atom, e.g., sulfide, etc.:
This subclass is indented under subclass 418. Subject matter wherein the sulfur compound is devoid of an oxygen atom.

421 At least one hydrogen atom:
This subclass is indented under subclass 418. Subject matter wherein the sulfur compound contains at least one hydrogen atom.

422 Sulfuric acid:
This subclass is indented under subclass 421. Subject matter wherein the sulfur compound is sulfuric acid.

423 Sulfate group, e.g., calcium sulfate, etc.:
This subclass is indented under subclass 418. Subject matter wherein the sulfur compound contains at least one sulfate group, i.e., (SO_4).

424 Carbon atom DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated material is a compound containing at least one carbon atom.

425 Calcium carbonate, e.g., limestone, marble, etc.:
This subclass is indented under subclass 424. Subject matter wherein the carbon compound is calcium carbonate.

(1) Note. Limestone is proper herein in that it consists mainly of calcium carbonate.

426 Solid polymer derived from at least one diene monomer:
This subclass is indented under subclass 425. Subject matter wherein a solid polymer derived from at least one monomer containing at least two ethylenic groups is admixed with the calcium carbonate.

427 Solid polymer derived from unsaturated hydrocarbon monomer:
This subclass is indented under subclass 425. Subject matter wherein a solid polymer derived form at least one unsaturated hydrocarbon monomer is admixed with the calcium carbonate.

428 Nitrogen aton DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing at least one nitrogen atom.

429 Nitrogen directly bonded to an oxygen atom, e.g., nitric acid, etc.:
This subclass is indented under subclass 428. Subject matter wherein the nitrogen atom is directly bonded to at least one oxygen atom, e.g., nitric acid, etc.

430 A single type of metal atom and only oxygen atoms DNRM, e.g., metal oxide, etc.:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound solely of oxygen and a single type of metal atom.

(1) Note. Included herein are metal oxides, peroxides, etc.

431 Transition metal atom (i.e., Fe, Co, Ni):
This subclass is indented under subclass 430. Subject matter wherein the single type of metal atom is a Group VIII transition metal atom.

(1) Note. By schedule exclusion the only type of transition metals proper for this subclass are Fe, Co, and Ni.

432 Group IIB metal atom (i.e., Zn or Cd):
This subclass is indented under subclass 430. Subject matter wherein the single type of metal atom is a Group IIB metal atom.

(1) Note. By schedule exclusion only Zn and Cd can be found in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
403, for Hg compounds.

433 Group IIA metal atom (i.e., Be, Mg, Ca, Sr, Ba):
This subclass is indented under subclass 430. Subject matter wherein the single type of metal atom is a Group IIA metal atom (Be, Mg, Ca, Sr, Ba).

434 Heavy metal atom DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing a heavy metal atom.

(1) Note. By schedule exclusion the only type of heavy metals proper for this subclass are Fe, Co, Ni, Zr, Cd, Ge, Sn, Pb, Po.

435 Transition metal atom (i.e., Fe, Co, Ni):
This subclass is indented under subclass 434. Subject matter wherein the heavy metal atom is a transition metal atom (Fe, Co, Ni) containing compound.

436 Group IIA metal DNRM (i.e., Be, Mg, Ca, Sr, Ba):
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing a Group IIA metal atom (Be, Mg, Ca, Sr, Ba).

437 Aluminum DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorganic designated nonreactant material is a compound containing an aluminum atom.

438 Nonmetal compound DNRM:
This subclass is indented under subclass 401. Subject matter wherein the inorgnaic designated nonreactant material is a compound which is devoid of any metal atoms.

(1) Note. See the Class 520 Glossary for the definiiton of the term "metal".

439 Elemental metal DNRM:
This subclass is indented under subclass 80. Subject matter wherein the designated nonreactant material is an elemental metal atom.

(1) Note. See the Class 520 Glossary for a definition of the term "metals".

(2) Note. Alloys are considered to be mere mixtures of elemental metals for instance brass (Cu and Zn) or bronze (Cu and Sn).

SEE OR SEARCH THIS CLASS, SUBCLASS:
80, wherein the designated nonreactant is an elemental nonmetal.

440 Transition metal atom DNRM:
This subclass is indented under subclass 439. Subject matter wherein the designated nonreactant material is an elemental transition metal atom, e.g., brass, bronze, etc.

(1) Note. See the Class 520 Glossary for a definition of the term "transition metal".

441 Aluminum DNRM:
This subclass is indented under subclass 439. Subject matter wherein the designated nonreactant material is elemental aluminum.

442 Soil or inorganic silicon DNRM (other than silicon dioxide, glass, quartz, novaculite or silicon dioxide type):
This subclass is indented under subclass 80. Subject matter wherein a solid polymer or specified intermediate condensation product is admixed with a designated nonreactant material which is an inorganic compound containing silicon.

(1) Note. Soil is by definition an inorganic silicon containing material although it may contain certain organic values.

(2) Note. SiO_2 (quartz, novaculite and other silica type material) and glass have been excluded from this subclass and have been classified below on some other basis.

SEE OR SEARCH THIS CLASS, SUBCLASS:
492, for glass or silica having numeric limitations, and appropriate subclasses for the admixture of a nonnumerically defined glass or SiO_2, and a solid polymer or SICP.

443 Atom other than Si, O, H, Al, Fe, or a Group IA or IIA metal atom DNRM, e.g., slag, mineral wool, etc.:
This subclass is indented under subclass 442. Subject matter wherein the inorganic silicon material is a compound containing at least one atom which is other than silicon, oxygen, hydrogen, aluminum, iron, or a Group IA (Li, Na, K, Rb, Ca) or Group IIA (Be, Mg, Ca, Sr, Ba) metal atom.

444 Aluminum atom DNRM:
This subclass is indented under subclass 442. Subject matter wherein the inorganic silicon compound contains at least one aluminum atom.

445 Clay, e.g., fullers earth, fire clay, etc.:
This subclass is indented under subclass 444. Subject matter wherein the inorganic silicon-aluminum nonreactant material is a clay.

(1) Note. Clays are aluminum silicate-bearing rocks which harden when fired and are plastic when wet. Included within the term clay are kaolin or china clay, ball clay, bentonite, fullers earth, dusting clay, calcined clays, fire clay, etc. For purposes of this subclass, a material will be considered a clay when it is named as such or is accepted in the art as a clay material.

446 With water NRM:
This subclass is indented under subclass 445. Subject matter wherein the clay is admixed with free water as a nonreactant material (NRM).

447 Kaolin or bentonite:
Subject matter under sublcass 445 wherein the clay DNRM is kaolin or bentonite.

(1) Note. Kaolin clay is primarily composed of kaolinite. Kaolin has a wide variety of names which include china clay, white bole, bolus alba, argilla, porcelain clay, white clay, and terra alba.

(2) Note. Bentonite contains a substantial amount of the clay mineral montmorillonite and has the ability to swell gently by absorption of water. Other names for bentonite are wilkenite and colloidal clay.

448 Diatomite or diatomaceous earth, e.g., kieselguhr, infusorial earth, etc.:
This subclass is indented under subclass 444. Subject matter wherein the silicon-aluminum nonreactant material is diatomite or diatomaceous earth.

(1) Note. Diatomite or diatomaceous earth is a soft earthy rock composed of the siliceous skeletons of small aquatic plants called diatoms. Included within the term are kieselguhr, siliceous earth, tripolite, and infusorial earth.

449 Mica:
This subclass is indented under subclass 444. Subject matter wherein the silicon-aluminum DNRM is mica.

(1) Note. Mica is a group of silicates characterized physically as flat, six-sided monoclinic crystals, all of which contain hydroxy, an aluminum silicate, and an alkali. Included within the term mica are biotite, muscovite, phlogopite, zinnwaldite, isinglass, and muscovy glass.

450 Metal atom other than aluminum, e.g., zeolites, etc.:
This subclass is indented under subclass 444. Subject matter wherein the silicon-aluminum nonreactant material contains a nonaluminum metal atom, e.g., zeolites, etc.

451 Talc (soapstone) DNRM:
This subclass is indented under subclass 442. Subject matter wherein the inorganic silicon material is talc.

(1) Note. Talc is a magnesium silicate ($3MgO.4SiO_2.H_2O$). Included within the term talc are talcum, steatite, mineral graphite, soapstone, rensselaerite, potstone, and French chalk.

452 Asbestos DNRM:
This subclass is indented under subclass 442. Subject matter wherein the inorganic silicon material is asbestos.

(1) Note. Asbestos is a group of impure magnesium silicate minerals which occur in fibrous form. Included within the term asbestos are amianthus, earth flax, mountain cork, stone flax, fibrous actinolite, amphibole, and chrysolite.

(2) Note. Serpentine asbestos is the mineral chrysotile.

(3) Note. Amphibole asbestos includes the minerals: tremolite, actinolite, amosite, crocidolite, and anthophyllite.

453 Aldehyde-nitrogen SICP or solid polymer thereof:
This subclass is indented under subclass 452. Subject matter wherein an asbestos DNRM is admixed with aldehyde-nitrogen SICP or solid polymer thereof.

(1) Note. See the Class 520 Glossary for a further elaboration of the term "SICP" (specified intermediate condensation product).

454 SICP or solid polymer thereof:
This subclass is indented under subclass 452. Subject matter wherein an asbestos DNRM is admixed with a SICP or solid polymer thereof.

(1) Note. See the Class 520 Glossary for an elaboration of the term "SICP" (specified intermediate condensation product).

455 Halogen containing polymer:
This subclass is indented under subclass 452. Subject matter wherein an asbestos DNRM is admixed with a halogen containing solid polymer.

(1) Note. The halogen herein may be introduced into the polymer subsequent to its formation as by halogenation or the halogen atom may be part of the original reactant or monomers, e.g., vinyl chloride, etc.

456 Group IIA metal atom DNRM:
This subclass is indented under subclass 442. Subject matter wherein the inorganic silicon containing material additionally contains a Group IIA metal atom (Be, Mg, Ca, Sr, Ba).

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:
This subclass is indented under subclass 1. Subject matter wherein a desired aqueous dispersion, latex, suspension, or emulsion is formed by polymerization of ethylenically unsaturated monomer only in the presence of a preformed solid polymer or SICP and at least one nonreactive material.

(1) Note. The nonreactive material can be water or any other NRM.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 9+ for continuous liquid phase colloid systems (e.g., foams, emulsions, suspensions, dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.
525, Synthetic Resins or Natural Rubbers, appropriate subclasses for treatment of a preformed solid polymer or SICP with an ethylenically unsaturated reactant.
526, Synthetic Resins or Natural Rubbers, subclasses 201+ for preparation of solid polymer from ethylenic reactants only by polymerization in the presence of a previously formed solid polymer as a specified material.

458 Polymerizing in the presence of water and in the presence of a solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 457. Subject matter wherein water is a nonreactive material present during said polymerization and the said preformed solid polymer is from ethylenically unsaturated monomers only.

459 Solid polymer utilized contains vinyl alcohol units:
This subclass is indented under subclass 458. Subject matter wherein a preformed solid polymer contains vinyl alcohol units.

(1) Note. A vinyl alcohol unit is $-CH_2-CH(OH)-$.

460 Solid polymer utilized is derived from an unsaturated carboxylic acid or salt:
This subclass is indented under subclass 458. Subject matter wherein said preformed solid polymer is derived from an ethylenically unsaturated carboxylic acid or salt.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or or derivative" which includes salt.

461 Polymerizing in the presence of a solid polymer derived from ethylenic reactants only:
This subclass is indented under subclass 457. Subject matter wherein said preformed solid polymer is from ethylenically unsaturated reactants only.

462 Mixing with fluorine- or iodine-containing organic compound or composition; or product thereof DNRM:
This subclass is indented under subclass 1. Subject matter wherein the designated nonreactant material is an organic compound containing at least one fluorine or iodine atom.

463 Contains two or more fluorine or iodine DNRM organic compounds:
This subclass is indented under subclass 462. Subject matter wherein the composition contains two or more DNRM organic compounds containing fluorine or iodine atoms.

464 Mixing with chlorine- or bromine-containing organic compound-hydrocarbon mixture or composition or product thereof DNRM:
This subclass is indented under subclass 1. Subject matter wherein the designated nonreactant material is a composition containing nonreactive chlorine or bromine organic material admixed with at least one hydrocarbon nonreactant material.

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:
This subclass is indented under subclass 1. Subject matter wherein the designated nonreactive material is either a combination of two or more chlorine- or bromine-substituted organic compounds; or is a single chlorine- or bromine-substituted organic compound with numerical limitations other than amount.

(1) Note. A numerical limitation is one which limits the compound in some way, e.g., density, optical rotation, m.p. b.p., etc. If the name or structure only are given then the numerical limitation is inherent, e.g., 1,2-dichloroethane possesses 70% chlorine. Also, "an organic compound containing 70% chlorine" is sufficient to classify here.

(2) Note. The use of carbon tetrachloride, chloroform, or methylene chloride alone is not classified herein although they have inherent numerical limitations (see (1) Note above), but any combination of them are.

(3) Note. A combination of two or more chlorine- or bromine-containing organic compounds does not require, per se, any numerical limitation.

(4) Note. An amount of materials, e.g., 2 per cent of a halogenated hydrocarbon, is not sufficient for this subclass, and see subclasses 498-612 below for such subject matter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

498, through 612, for the admixture of a solid polymer or specified intermediate condensation and carbon tetrachloride, chloroform, or methylene chloride, or for the combination of a solid polymer or specified intermediate condensation product and a chlorinated or brominated organic compound not described by numerical limitations which identify the halogen-containing compound.

466 Two or more chloring- or bromine-containing organic compounds:
This subclass is indented under subclass 465. Subject matter wherein the designated nonreactant material is a composition containing at least two chlorine- or bromine-substituted hydrocarbons or mixtures thereof, e.g., chlorinated paraffin wax mixed with chloroform, etc.

467 Chlorine or bromine organic compound containing a bridged, fused, or cycloalphatic ring:
This subclass is indented under subclass 465. Subject matter wherein the chlorine or bromine organic compound contains a bridged or fused or cycloaliphatic ring, e.g., chlorinated naphthalene, etc.

(1) Note. See the Class 520 Glossary for a definition of the term "bridged or fused ring system".

SEE OR SEARCH THIS CLASS, SUBCLASS:
470, for an aromatic chlorine or bromine compound.

468 Chlorine or bromine organic compound containing ethylenic unsaturation:
This subclass is indented under subclass 465. Subject matter wherein the chlorine or bromine organic compound contains ethylenic unsaturation.

(1) Note. See the Class 520 Glossary for a definition of the term "ethylenically unsaturated".

469 Bromine-containing organic compound:
This subclass is indented under subclass 465. Subject matter wherein the organic compound contains at least one bromine atom.

470 Chlorine-containing aromatic compound:
This subclass is indented under subclass 465. Subject matter wherein the organic compound contains at least one chlorine atom and at least one aryl ring, e.g., chlorobenzene, etc.

471 Aromatic compound containing two or more aromatic rings:
This subclass is indented under subclass 470. Subject matter wherein the organic compound is a chlorine compound containing at least two aromatic rings.

472 Chlorine-containing wax:
This subclass is indented under subclass 465. Subject matter wherein the composition contains a chlorinated wax.

(1) Note. To be classified herein, a material must be disclosed or claimed as being a wax.

473 Organic compound containing two or more chlorine atoms:
This subclass is indented under subclass 465. Subject matter wherein the designated nonreactant material is a composition wherein two or more chlorine atoms are present in an organic compound, e.g., o-dichlorobenzene, etc.

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:
This subclass is indented under subclass 1. Subject matter wherein the composition contains two or more designated nonreactive hydrocarbons or wherein the composition contains a single hydrocarbon excluding benzene, toluene, or xylene with numerical limitations other than merely an amount, etc.

(1) Note. Benzene, toluene, or xylene alone are not classified here despite their inherent numerical limitations, i.e., percentage composition. Mixtures, however, of the above ingredients would be proper in subclass 476.

(2) Note. A numerical limitation is one which limits the compound in some way, e.g., refractive index, b.p., m.p., viscosity, molecular weight, aniline number, etc. If the name or structure only are given then the numerical limitation is inherent, e.g., naphthalene possesses 94% carbon or 6% hydrogen, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
476, for mixtures of two or more of benzene, toluene, or xylene.
485, for a DNRM which is turpentine, turpentine oil, oil of turpentine, or spirits of turpentine.
498, through 612, for compositions which contain an inert hydrocarbon described only by amount or nominal

terms, e.g., naphtha, paraffin, kerosene, etc.

475 With water NRM:
This subclass is indented under subclass 474. Subject matter wherein the composition contains water as a nonreactant material.

(1) Note. The water may be introduced in any manner, e.g., solution, dispersion, emulsion, steaming, humidifying, hydration of a chemical compound, etc.

476 Two or more hydrocarbons:
This subclass is indented under subclass 474. Subject matter wherein the composition contains at least two designated nonreactive hydrocarbons, e.g., naphthalene and toluene, etc.

(1) Note. Naturally occurring mixtures per se, e.g., naphthenics, raffinates, aromatics, white spirit, naphthas, paraffins, xylenes, kerosenes, paraffin wax, high and low melting waxes, turpentine, etc., are classified only when there is some limitation, e.g., 75% ortho and 25% para xylene mixture, a paraffin oil containing 20% aromatic hydrocarbon, etc.

SEE OR SEARCH CLASS:
525, Synthetic Resins or Natural Rubbers, appropriate subclasses for mixtures containing solid polymeric hydrocarbons and a solid polymer, specified intermediate condensation product, specified polymer-forming ingredients or process of preparing or treating said composition.

477 At least two solid hydrocarbons:
This subclass is indented under subclass 476. Subject matter wherein at least two of the designated nonreactant hydrocarbons are solids at ambient temperature.

478 At least one microcrystalline wax:
This subclass is indented under subclass 477. Subject matter wherein one of the solid hydrocarbons is a microcrystalline wax.

(1) Note. The term "microcrystalline wax" refers to a wax material which is obtained usually from the residual product of the vacuum distillation of lubricating oils. In general, microcrystalline waxes contain very minor quantities of straight chain paraffinic hydrocarbons.

(2) Note. To be place herein, the disclosure or claim must recite a "microcrystalline wax".

479 Mixture contains three or more waxes:
This subclass is indented under subclass 478. Subject matter wherein the composition contains three or more hydrocarbon waxes.

480 Mixture contains microcrystalline wax having specified melting point:
This subclass is indented under subclass 478. Subject matter wherein the composition contains a microcrystalline wax having a specified melting point.

(1) Note. A range of melting points is included within the term specified melting point.

481 Unsaturated hydrocarbon:
This subclass is indented under subclass 474. Subject matter wherein the composition contains an ethylenically unsaturated hydrocarbon as a designated nonreactant material.

(1) Note. See the Class 520 Glossary for a definition of the term "ethylenically unsaturated".

482 Unsaturated hydrocarbon contains a bridged or fused ring:
This subclass is indented under subclass 481. Subject matter wherein the designated nonreactant material is an unsaturated hydrocarbon which contains a bridged or fused ring, e.g., indene, etc.

(1) Note. Included herein is to be found the various types of turpentines, usualy a mixture of aplha and beta pinenes, diterpene, etc.

(2) Note. See the Class 520 Glossary for or a definition of the term "bridged and fused ring system".

483 Unsaturated hydrocarbon contains plural unsaturation:
This subclass is indented under subclass 481. Subject matter wherein the designated nonreactant is an unsaturated hydrocarbon which contains plural unsaturation, e.g., liquid polybutadiene, etc.

484 Aromatic hydrocarbon:
This subclass is indented under subclass 474. Subject matter wherein the designated nonreactant is an aromatic hydrocarbon other than benzene, toluene, or xylene per se.

SEE OR SEARCH THIS CLASS, SUBCLASS:
476, for a mixture of benzene and toluene as designated nonreactants.

485 Aromatic hydrocarbon contains a bridged or fused ring:
This subclass is indented under subclass 484. Subject matter wherein the designated nonreactant contains a bridged or fused ring, e.g., naphthalene, etc.

486 Aromatic hydrocarbon contains two or more aromatic rings:
This subclass is indented under subclass 484. Subject matter wherein the designated nonreactant is a hydrocarbon containing two or more aromatic rings. e.g., biphenyl, terphenyl, etc.

487 Hydrocarbon wax:
This subclass is indented under subclass 474. Subject matter wherein the designated nonreactant is a hydrocarbon wax.

(1) Note. To be classified herein, a material must be disclosed or claimed as being a wax.

(2) Note. The term "microcrystalline wax" refers to a wax material which is obtained usually from the residual product of the vacuum distillation of lubricating oils. In general, microcrystalline waxes contain very minor quantities of straight chain paraffinic hydrocarbons.

488 Microcrystalline wax:
This subclass is indented under subclass 487. Subject matter wherein the composition contains a microcrystalline wax.

(1) Note. The term "microcrystalline wax" refers to a wax material which is obtained usually from the residual product of the vacuum distillation of lubricating oils. In general, microcrystalline waxes contain very minor quantities of straight chain paraffinic hydrocarbons.

489 Wax having melting point about 120°F (40°C):
This subclass is indented under subclass 487. Subject matter wherein the composition contains a hydrocarbon wax with a claimed melting point above 120°F or 49°C.

490 Hydrocarbon having a specified name molecular weight or chain length:
This subclass is indented under subclass 474. Subject matter wherein the designated nonreactant material is named a hydrocarbon, or one having either a claimed numerical weight or a claimed specified chain length (the number may also reflect a range or average).

(1) Note. The molecular weight may be expressed in any of the art-recognized terms or units, e.g., viscosity-average vapor pressure osmometry, weight average, etc., and the chain length may be linear, cyclic, or branched.

491 Hydrocarbon having a specified viscosity:
This subclass is indented under subclass 474. Subject matter wherein the designated nonreactant material is a liquid hydrocarbon having a claimed specific viscosity expressed in any of the units generally recognized in the art, e.g., centistokes, Saybolt universal seconds, etc.

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:
This subclass is indented under subclass 1. Subject matter wherein the designated nonreactant material is an inorganic silicon-containing

material having claimed numerical limitations other than amount, e.g., m.p., particle size, etc., or wherein the claim recite a special color or composition or product thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

498, through 612, for a particular crystalline structure of a silicon inorganic compound, e.g., novaculite, quartz, etc., wherein the claims fail to recite a numerical limitation.

847, for a process of polymerizing in the presence of a silicon inorganic DNRM which may be novaculite, quartz, etc.

SEE OR SEARCH CLASS:

523, Synthetic Resins or Natural Rubbers, subclasses 200+ for inert inorganic silicon-containing materials that have been surface coated, impregnated, or encapsulated.

493 Inorganic silicon-containing material having specified dimension:

This subclass is indented under subclass 492. Subject matter wherein the designated nonreactant material is a silicon compound having specified dimension, e.g., silicon monoxide having a particle size of from 10-100 millimicrons, etc.

494 Material contains glass:

This subclass is indented under subclass 493. Subject matter wherein the designated nonreactant inorganic silicon-containing material having specified dimensions is glass, e.g., fiber glass 2cm in length, etc., or it may be a glass per se without any special limitations but admixed with at least one inorganic silicon-containing compound which does recite a numerical limitation proper for this subclass.

(1) Note. See the Class 520 Glossary for a definition of the term “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:

This subclass is indented under subclass 1. Subject matter wherein the designated nonreactant material is carbon in any of its allotropic forms, having claimed numerical limitations other than amount, e.g., carbon particles with surface area of about 200 square millimicrons, or a tensile stength of 100,000 psi at 25°C, etc.

(1) Note. Included within the term “claimed numerical limitations” are, e.g., size, cross-sectional area, etc. However, since carbon is an element, terms such as density, atomic number, and other terms which are inherent, are excluded from this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

498, through 612, for the admixture of a preformed solid polymer or SICP with carbon having no claimed numerical limitations.

SEE OR SEARCH CLASS:

523, Synthetic Resins or Natural Rubbers, subclasses 200+ for a carbon particle that has been surface coated, impregnated, or encapsulated.

496 Carbon particle having specified dimension:

This subclass is indented under subclass 495. Subject matter wherein teh designated nonreactant material is a carbon particle having specified dimensions, e.g., carbon particles of about 1,000 millimicron is size, etc.

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:

This subclass is indented under subclass 1. Subject matter wherein the designated nonreactant is TiO_2 having claimed numerical limitations other than amount.

(1) Note. Included within the term numerical limitations are, e.g., size, dimension, cross-sectional area, etc., but not m.p., or density.

SEE OR SEARCH THIS CLASS, SUBCLASS:

200+, for TiO_2 that has been surface coated, impregnated, or encapsulated.

498, through 612, for the admixture of a preformed solid polymer or SICP with TiO_2 having no claimed numerical limitation.

847, for a process of polymerizing in the presence of anatase as a DNRM.

498 Solid polymer or solid SICP derived from or reacted with protein or biologically active polypeptide or product thereof:

This subclass is indented under subclass 1. Subject matter which involves the addition of a nonreactant material to a solid polymer or SICP derived from a protein or polypeptide or wherein a nonreactant material is added to a polymer which has been modified by chemical interaction with a protein or biologically active polypeptide.

(1) Note. See the Class 520 Glossary for a further elaboration of the terms "protein" and "biologically active polypeptide".

499 Solid polymer derived from monomer from unsaturated petroleum hydrocarbon fraction or product thereof:

This subclass is indented under subclass 1. Subject matter which involves the addition of a nonreactant material to a solid polymer derived from a mixture of hydrocarbons which have been obtained from a petroleum hydrocarbon fraction.

500 Containing two or more solid polymers; solid polymer or SICP and a SICP, SPFI, or an ethylenic reactant or product thereof:

This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with two or more solid polymers; or with a solid polymer and an ethylenic reactant, specified intermediate condensation product (SICP), or specified polymer-forming ingredients (SPFI); or with two specified intermediate condensation products (CISP); or with a specified intermediate condensation product and specified polymer-forming ingredients or ethylenic reactant.

SEE OR SEARCH THIS CLASS, SUBCLASS:

543, through 612, for an admixture of a NRM and a solid polymer or SICP modified by a chemical reactant which chemical reactant is other than a solid polymer, SICP, SPFI, or ethylenic reactant.

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:

This subclass is indented under subclass 500. Process of producing an aqueous composition by admixing at least two aqueous systems each containing a solid polymer or SICP, said aqueous systems being in the form of an emulsion, suspension, dispersion, or solution.

(1) Note. A rubber latex is deemed to be an aqueous system for purposes of this subclass.

(2) Note. This subclass includes, e.g., blends of natural rubber latex with synthetic rubber latex, etc.

502 At least one solid polymer derived from ethylenic reactants only:

This subclass is indented under subclass 500. Subject matter which involves the mixing of a nonreactant material with a solid polymer derived from ethylenic reactants only.

(1) Note. A chemically modified ethylenic polymer, e.g., halogenated butadiene, etc., is considered as being proper herein in that initially a solid polymer from only ethylenic reactants is present. No weight for purposes of classification herein has been given to polymers which have been treated chemically to introduce atoms or to remove atoms which were part of the original polymer derived from ethylenic monomers.

503 Polyvinyl alcohol:

This subclass is indented under subclass 502. Subject matter wherein a solid polymer containing vinyl alcohol units and an additional

solid polymer, SICP, SPFI, or ethylenic reactant is admixed with a NRM.

(1) Note. A vinyl alcohol-containing polymer requires at least three CH_2-CH-OH groups in the polymer chain.

(2) Note. Vinyl alcohol polymers for the most part herein are prepared by the partial hydrolysis or saponification of polymers of vinyl esters, particularly homo- or interpolymeric-vinyl acetate.

SEE OR SEARCH THIS CLASS, SUBCLASS:

557, for a NRM in admixture with polyvinyl alcohol when there is no additional solid polymer, SICP, SPFI, or ethylenic reactant.

504 Solid graft or solid graft-type copolymer with other solid polymer, SICP, or SPFI:
This subclass is indented under subclass 502. Subject matter wherein a NRM together with a solid graft or solid graft-type copolymer and an additional solid polymer, SICP, or SPFI is present.

(1) Note. See the Class 520 Glossary for a definition of the term "graft or graft type copolymer".

(2) Note. For purposes of this subclass, the graft or graft-type copolymer need not be derived from ethylenic reactants only. It is sufficient for purposes of this subclass that a solid polymer derived from ethylenic reactants only be present.

505 Solid block or solid block-type copolymer with other solid polymer, SICP or SPFI:
This subclass is indented under subclass 502. Subject matter wherein the NRM together with a solid block or block-type copolymer and an additional solid polymer, SICP, or SPFI is present.

(1) Note. See the Class 520 Glossary for a definition of the term "block or block type copolymer".

(2) Note. For purposes of this subclass, the block or block-type copolymer need not be derived from ethylenic reactants only. It is sufficient for purposes of this subclass that a solid polymer derived from ethylenic reactants only be present.

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:
This subclass is indented under subclass 502. Subject matter wherein in addition to the NRM and solid polymer derived form ethylenic reactants only there is additionally present (a) a solid polymer derived from a saturated Si-H or Si-C reactant, or (b) a solid copolymer derived from a Si-C or Si-H reactant wherein at least one of the reactants forming the solid copolymer is saturated, or (c) specified polymer-forming ingredients wherein at least one of the necessary polymer-forming ingredients contains a Si-C or Si-H bond and at least one of the necessary polymer-forming ingredients is saturated or a reaction product thereof, or (d) a specified intermediate condensation product containing a Si-C or Si-H bond.

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:
This subclass is indented under subclass 502. Subject matter wherein in addition to the NRM and solid polymer derived from ethylenic reactants only there is additionally present (a) a solid polymer derived from a saturated -N=C=X (X is chalcogen) reactant, or (b) a solid copolymer derived from a -N=C=X containing reactant wherein at least one of the reactants forming the solid copolymer is saturated, or (c) specified polymer-forming ingredients wherein at least one of the necessary ingredients contains a -N=C=X group and at least one of the necessary polymer-forming ingredients is saturated or a reaction product or condensate thereof, or (d) a specified intermediate condensation product which contains a -N=C=X group.

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:
This subclass is indented under subclass 502. Subject matter wherein in addition to the NRM and solid polymer derived from ethylenic reactants only there is additionally present (a) a solid polymer derived form a saturated phenol or inorganic phenolate, or (b) a solid copolymer derived from a phenolic-containing reactant wherein at least one of the reactants forming the solid copolymer is saturated, or (c) specified polymer-forming ingredients wherein at least one of the necessary ingredients is a phenol or inorganic phenolate, and at least one of the necessary polymer-forming ingredients is saturated, or a reaction product or condensate thereof, or (d) a specified intermediate condensation product containing a phenolic group.

(1) Note. See Class 528, subclass 86 (Note 1A and 1C) for a definition of the terms "phenol" and "inorganic phenolate".

509 With aldehyde or aldehyde-type reactant:
This subclass is indented under subclass 508. Subject matter wherein the solid polymer or SICP derived from a phenol or inorganic phenolate is also derived from an aldehyde or derivative, or wherein one of the solid polymer-forming ingredients is a phenol or inorganic phenolate and at least one of the other necessary ingredients is an aldehyde or derivative.

(1) Note. See the Class 520 Glossary for a definition of the terms "aldehyde" and aldehyde derivative".

510 Water DNRM containing:
This subclass is indented under subclass 509. Subject matter wherein water is utilized as a designated nonreactant material.

511 Ethylenic polymer derived from at least one reactant containing two or more ethylenic groups:
This subclass is indented under subclass 509. Subject matter wherein the solid polymer from ethylenic reactants only is derived from at least one reactant containing two or more ethylenic groups.

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:
This subclass is indented under subclass 502. Subject matter wherein in addition to the NRM and solid polymer derived from ethylenic reactants only there is additionally present (a) a solid polymer derived from a saturated aldehyde or derivative (including methylol ethers or condensate thereof), or (b) a solid copolymer derived from an aldehyde or aldehyde derivative reactant wherein at least one of the reactants forming the solid copolymer is saturated, or (c) specified polymer-forming ingredients wherein at least one of the necessary polymer-forming ingredients contains an aldehyde or derivative group and at least one of the necessary polymer-forming ingredients is saturated or a reaction product or condensate thereof, or (d) a specified intermediate condensation product which contains an aldehyde or aldehyde derivative group.

(1) Note. See the Class 520 Glossary for the definition of the terms "aldehyde" and "aldehyde derivative".

513 With polycarboxylic acid or derivative and a polyol at least one of which is saturated or with solid polymer thereof:
This subclass is indented under subclass 502. Subject matter wherein in addition to the NRM and solid polymer derived from ethylenic reactants only there is additionally present (a) a solid polymer derived from at least one polycarboxylic acid or derivative and at least one polyol and wherein at least one of the reactants forming the solid polymer is saturated, or (b) polymer-forming ingredients wherein at least one of the necessary reactants is a polycarboxylic acid or derivative and at least one of the necessary reactants is a polyol and at least one of the necessary polymer-forming ingredients is saturated, or a reaction product thereof.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or

derivative" which includes a discussion of polycarboxylic acids.

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:

This subclass is indented under subclass 502. Subject matter wherein in addition to the NRM and solid polymer derived from ethylenic reactants only there is additionally present (a) a solid polymer derived from a saturated imide, lactam, aminocarboxylic acid, or amine salt of a saturated carboxylic acid, or (b) a solid polymer derived from at least one imide, lactam, aminocarboxylic acid, or amine salt of a polycarboxylic acid, or polycarboxylic acid and a polyamine and wherein at least one of the reactants forming the solid polymer is saturated, or (c) polymer-forming ingredients wherein at least one of the necessary reactants is a polyamine and at least one of the necessary reactants is a polycarboxylic acid or derivative and at least one of the necessary polymer-forming ingredients is saturated.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative" which includes a discussion of polycarboxylic acids.

515 Two or more solid polymers derived from ethylenic reactants only:

This subclass is indented under subclass 502. Subject matter wherein in addition to the NRM there is additionally present two or more solid polymers derived from ethylenic reactants only.

(1) Note. A reaction product of two or more solid polymers derived from ethylenic reactants admixed with a NRM is considered as being equivalent to a blend of two or more solid ethylenic polymers and as such is properly classifiable herein.

(2) Note. A blend of three or more solid polymers at least two of which are derived from ethylenic reactants only is properly classifiable herein on the basis of the two ethylenic polymers. Classification in this area is solely on the basis of reactants utilized in preparing the ethylenic polymers.

(3) Note. This area provides for blends or reaction products of two or more ethylenic polymers which have been chemically modified. Classification in this area, however, is solely on the basis of the ethylenic monomers utilized in preparing the ethylenic polymers.

(4) Note. Placement in this subclass is on the basis of the ethylenic reactants used in the preparation and not on the basis of ethylenic reactants which may be reacted with a mixture of solid polymers from ethylenic reactants only.

(5) Note. Excluded from this subclass are multistep polymerization-postpolymerization processes which occur in the presence of a single preformed solid polymer from ethylenic reactants only and an ethylenic reactant which affords a polymeric mixture. This subclass, however, does include in subclass 525 metalation of polystyrene blended with polybutadiene which is subsequently contacted with butadiene.

SEE OR SEARCH THIS CLASS, SUBCLASS:

519+, for the lithiation of styrene in the presence of polyethylene to yield solid lithium-terminated polystyrene followed by its reaction with butadiene to produce block (polybutadiene-polystyrene) in admixture with polyethylene.

525, for metalation of polyethlene blended with polybutadiene which is subsequently contacted with butadiene.

516 Solid polymer derived from nitrogen heterocycle monomer:

This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic compound containing a nitrogen heterocycle.

(1) Note. See the Class 520 Glossary for a definition of the term "heterocycle".

517 Solid polymer from oxygen heterocycle monomer:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic compound containing an oxygen heterocycle.

(1) Note. See the Class 520 Glossary for a definition of the term "heterocycle".

518 Solid polymer derived from fused or bridged ring monomer:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic reactant containing a fused- or bridge-ring system.

(1) Note. See the Class 520 Glossary for a definition of the term "fused- or bridged-ring system".

519 Solid polymer derived from halogen-containing monomer other than vinyl or vinylidene chloride:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic reactant containing at least one halogen atom other than as vinyl chloride or vinylidene chloride.

SEE OR SEARCH THIS CLASS, SUBCLASS:
527, for a solid polymer derived from vinyl or vinylidene chloride.

520 Fluorine containing monomer:
This subclass is indented under subclass 519. Subject matter wherein at least one of the ethylenic reactants contains a fluorine atom.

521 Solid polymer derived from a monomer containing an atom other than C, O, H, or chlorine:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic reactant containing at least one atom other than carbon, oxygen, hydrogen, or chlorine.

522 Solid polymer derived from carboxylic acid-containing monomer:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic reactant containing at least one carboxylic acid group.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative.

523 Solid polymer derived from carboxylic acid ester monomer:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic reactant which contains a carboxylic acid ester group.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative" which includes a discussion of carboxylic acid ester.

524 Ester derived from an unsaturated alcohol and a saturated acid, e.g., vinyl acetate, etc.:
This subclass is indented under subclass 523. Subject matter wherein the ester reactant is derived from an unsaturated alcohol and a saturated carboxylic acid, e.g., vinyl acetate, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
523, for an acrylic ester as a reactant.

525 Solid polymer derived from monomer containing two or more ethylenic groups:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic reactant containing two or more ethylenic groups.

526 Two or more polymers derived from reactant containing two or more ethylenic groups:
This subclass is indented under subclass 525. Subject matter wherein at least two polymers are derived from reactants containing two or more ethylenic groups.

(1) Note. The reactant containing two or more ethylenic groups may be the same or different. For instance, a blend of two different polybutadiene polymers would be proper herein.

527 Solid polymer derived from chlorine-containing reactant:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from vinyl chloride or vinylidene chloride.

528 Solid polymer derived from acyclic hydrocarbon:
This subclass is indented under subclass 515. Subject matter wherein at least one of the ethylenic polymers is derived from an ethylenic reactant containing only carbon and hydrogen atoms and which reactant is devoid of a carbocyclic ring.

529 Solid polymer drived from ethylenic monomers only admixed with ethylenic monomer:
This subclass is indented under subclass 502. Subject matter which involves the mixing of an NRM and a solid polymer, which polymer has been derived from ethylenic monomers only and has been further reacted with an ethylenic monomer; or wherein a NRM is admixed with a solid polymer derived from ethylenic monomers only and a separate ethylenic monomer.

(1) Note. This and indented subclasses generally contain subject matter relating to graft and block copolymers.

(2) Note. Patents in this area are placed in the first subclass that provides for the solid polymer or ethylenic monomer. No distinction has been made as to whether the monomer is part of the substrate polymer or the superstrate monomer. No distinction has been made as to amounts of materials.

(3) Note. This and indented subclasses also contain those products and compositions derived from contacting of solid polymers from ethylenic reactants only with ethylenic materials wherein the ethylenic reactant interacts with the polymer without undergoing simultaneous or subsequent polymerization.

530 Ethylenic monomer contains a nitrogen heterocycle:
This subclass is indented under subclass 529. Subject matter wherein the ethylenic reactant is a nitrogen heterocycle.

(1) Note. See the Class 520 Glossary for a definition of the term “heterocyclic”.

531 Ethylenic monomer contains a chalcogen heterocycle:
This subclass is indented under subclass 529. Subject matter wherein the ethylenic reactant is a chalcogen (S, O, Se, Te) containing heterocycle.

(1) Note. See the Class 520 Glossary for a definition of the term “heterocyclic”.

532 Ethylenic monomer contains a fused or bridged ring system:
This subclass is indented under subclass 529. Subject matter wherein the ethylenic reactant contains a fused or bridged ring system.

(1) Note. See the Class 520 Glossary for a definition of the term “fused or bridged ring system”.

533 Ethylenic monomer contains at least one carboxylic acid ester group:
This subclass is indented under subclass 529. Subject matter wherein the ethylenic reactant contains a carboxylic acid ester group.

(1) Note. See the Class 520 Glossary for a definition of the term “carboxylic acid or derivative” which includes a discussion of carboxylic acid ester.

534 Ethylenic monomer contains at least two ethylenic groups:
This subclass is indented under subclass 529. Subject matter wherein the ethylenic reactant contains at least two ethylenic groups.

535 Ethylenic monomer contains at least one atom which is other than C, H, or O:
This subclass is indented under subclass 529. Subject matter wherein the ethylenic reactant contains at least one chemical atom which is other than carbon, hydrogen, or oxygen.

536 Ethylenic monomer is an acyclic hydrocarbon:
This subclass is indented under subclass 529. Subject matter wherein the ethylenic reactant is a hydrocarbon which is devoid of a ring system.

537 Solid polymer or SICP derived from an-O-(C=O)O- or hal-(C=O)-O-containing reactant:
This subclass is indented under subclass 500. Subject matter which involves the mixing of a NRM together with a solid polymer or SICP derived from a -O-(C=O)O- or hal-(C=O)-O containing reactant and an additional solid polymer, SICP, SPFI, or an ethylenic reactant is present.

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:
This subclass is indented under subclass 500. Subject matter which involves the mixing of a NRM together with a solid polymer or SICP derived from a nitrogen-containing carboxylic acid or derivative or from a carboxylic acid or derivative and a polyamine containing reactant and an additional solid polymer SICP, SPFI, or an ethylenic reactant is present.

(1) See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative".

539 Solid polymer or SICP derived from at least one carboxylic acid or derivative reactant:
This subclass is indented under subclass 500. Subject matter which involves the mixing of a NRM together with a solid polymer or SICP derived from a carboxylic or derivative reactant and an additional solid polymer SICP, SPFI, or an ethylenic reactant is present.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative".

540 Solid polymer or SICP derived from at least one phenol or inorganic phenolate reactant:
This subclass is indented under subclass 500. Subject matter which involves the mixing of a NRM together with a solid polymer or SICP derived from a phenol or inorganic phenolate containing reactant and an additional solid polymer, SICP, SPFI, or an ethylenic reactant is present.

SEE OR SEARCH CLASS:
528, Synthetic Resins or Rubbers, subclass 86, (1) Note, A and C for a definition of the term "phenol or inorganic phenolate".

541 Aldehyde or derivative reactant:
This subclass is indented under subclass 540. Subject matter wherein the solid polymer or SICP is derived from a phenol or inorganic phenolate and an aldehyde or aldehyde derivative.

(1) Note. See the Class 520 Glossary for a definition of the term "aldehyde or aldehyde derivative".

542 Solid polymer or SICP derived from at least one aldehyde or derivative or ketone reactant:
This subclass is indented under subclass 500. Subject matter which involves the mixing of a NRM with a solid polymer or SICP derived from an aldehyde or derivative or ketone containing reactant, and an additional solid polymer SICP, SPFI, or an ethylenic reactant is present.

(1) Note. See the Class 520 Glossary for a definition of the term "aldehyde or derivative".

543 Polymer derived from ethylenic reactants only:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a NRM with a solid polymer derived from ethylenic reactants only.

(1) Note. In the absence of a subclass specifically reciting chemical modified polymer derived from ethylenic reactants only, a modified polymer is classified as if it were untreated.

SEE OR SEARCH THIS CLASS, SUBCLASS:

572, for admixing a chlorinated polybutadiene with a NRM.

544 From fluorine-containing monomer:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from at least one fluorine-containing ethylenic monomer.

545 Fluorine-containing monomer contains F and C only or only F, C, and H:
This subclass is indented under subclass 544. Subject matter wherein the fluorine monomer contains only fluorine and carbon atoms; or only fluorine, carbon, and hydrogen atoms.

546 Four or more fluorine atoms:
This subclass is indented under subclass 545. Subject matter wherein the fluorine monomer containing only carbon and fluorine atoms, or only carbon, fluorine, and hydrogen only, contains at least four fluorine atoms.

547 From reactant-containing atom other than O, N, C, halogen, or hydrogen:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from an ethylenic monomer containing an atom other than carbon, hydrogen, halogen, nitrogen, or oxygen.

548 From heterocyclic monomer:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from an ethylenic monomer containing at least one heterocyclic ring.

(1) Note. See the Class 520 Glossary for the definition of the term “heterocyclic”.

549 Five-membered oxygen ring, e.g., coumarone-indene, etc.:
This subclass is indented under subclass 548. Subject matter wherein the heterocyclic monomer contains at least one five-membered heterocyclic ring having at least one oxygen atom in the ring.

550 From acetylenic monomer:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from a monomer containing a C=C moiety.

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:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from an ethylenic monomer containing at least three carbon atoms and at least one halogen atom with the proviso that at least one of the halogen atoms present is not part of a salt.

SEE OR SEARCH THIS CLASS, SUBCLASS:

567+, for a solid polymer derived from vinyl or vinylidene halide.

552 Diene:
This subclass is indented under subclass 551. Subject matter wherein the halogen monomer contains at least two ethylenic groups.

553 From cycloaliphatic or fused or bridged ring monomer:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from an ethylenic monomer which contains a carbocyclic ring which is other than as an aryl ring, or is derived from a fused- or bridged-ring containing monomer.

(1) Note. See the Class 520 Glossary for a definition of the term “fused or bridged ring system”.

554 Cycloaliphatic, fused, or bridged monomer contains at least two unsaturated groups:
This subclass is indented under subclass 553. Subject matter wherein the cycloaliphatic, fused, or bridged monomer contains at least two ethylenic groups.

555 From nitrogen-containing monomer other than acrylonitrile or methacrylonitrile:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from an ethylenic monomer containing at least one nitrogen atom and which is other than acrylonitrile or methacrylonitrile.

SEE OR SEARCH THIS CLASS, SUBCLASS:
565+, for a solid polymer derived from acrylonitrile or methacrylonitrile monomer.

556 From carboxylic acid or ester thereof monomer:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from an ethylenic monomer which is a carboxylic acid or carboxylic acid ester.

(1) Note. See the Class 520 Glossary for a definition of the terms "carboxylic acid or derivative" which includes a discussion of carboxylic acid ester.

557 Polyvinyl alcohol or modified forms thereof:
This subclass is indented under subclass 556. Subject matter wherein the solid polymer derived from a carboxylic or derivative is modified so as to produce polyvinyl alcohol.

(1) Note. See Class 525, subclass 56 for a definition of the term "polyvinyl alcohol".

(2) Note. The polyvinyl alcohol may be added to the NRM or may be produced subsequently to the addition of the NRM to the 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:
This subclass is indented under subclass 556. Subject matter wherein the carboxylic acid or ester monomer contains at least one oxygen atom which is not part of a --OH or -O-R group.

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:
This subclass is indented under subclass 556. Subject matter wherein the monomer contains at least two carboxylic acid ester groups, two or more carboxylic acid groups, or at least one carboxylic acid group and at least one carboxylic acid ester group.

560 From ester derived from at least one unsaturated carboxylic acid and a saturated alcohol, e.g., methyl methacrylate, etc.:
This subclass is indented under subclass 556. Subject matter wherein the monomer is a carboxylic acid ester derived from an unsaturated monocarboxylic acid and a saturated alcohol.

561 Interpolymerized with diverse carboxylic acid ester:
This subclass is indented under subclass 560. Subject matter wherein an ester derived from an unsaturated monocarboxylic acid and a saturated alcohol is interpolymerized with a diverse carboxylic acid ester.

(1) Note. The diverse ester may be derived from an unsaturated acid and a saturated alcohol, or may be derived form a saturated carboxylic acid and an unsaturated alcohol, or the acid and alcohol may both be unsaturated.

562 Interpolymerized with hydrocarbon containing a single ethylenic group:
This subclass is indented under subclass 560. Subject matter wherein an ester derived from an unsaturated monocarboxylic acid and a saturated alcohol is interpolymerized with a hydrocarbon monomer containing only one ethylenic group.

563 From ester derived from ethylenically unsaturated alcohol and saturated carboxylic acid, e.g., vinyl acetate, etc.:
This subclass is indented under subclass 556. Subject matter wherein the monomer is a carboxylic acid ester derived from a saturated monocarboxylic acid and an unsaturated alcohol.

564 Interpolymerized with diverse carboxylic acid ester or with carboxylic acid reactant:
This subclass is indented under subclass 563. Subject matter wherein an ester derived form a saturated carboxylic acid and an unsaturated alcohol is interpolymerized with a monocarboxylic acid ester or with a carboxylic acid containing monomer.

(1) Note. The diverse ester may be derived from a saturated monocarboxylic acid and an unsaturated alcohol, or may be derived from an unsaturated acid and an unsaturated alcohol.

565 From acrylonitrile or methacrylonitrile monomer:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from acrylonitrile or methacrylonitrile monomer.

566 Inorganic nonreactive material:
This subclass is indented under subclass 565. Subject matter wherein an inorganic NRM is admixed with the solid polymer.

567 From halogen-containing monomer:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from a halogen monomer containing two carbon atoms.

568 Vinylidene chloride:
This subclass is indented under subclass 567. Subject matter wherein the halogen monomer is vinylidene chloride.

569 Plasticizer additive:
This subclass is indented under subclass 567. Subject matter wherein the composition contains a plasticizer.

(1) Note. A plasticizer is any chemical agent which is added to a synthetic resin in order to impart flexibility, workability, stretchability or a related property to the synthetic resin.

(2) Note. The mere use the term "plasticizer" in the absence of information to the contrary is presumed to lie within the definition of this subclass.

570 From hydrocarbon monomer:
This subclass is indented under subclass 543. Subject matter wherein the solid polymer is derived from at least one hydrocarbon monomer.

571 Conjugated diene hydrocarbon monomer:
This subclass is indented under subclass 570. Subject matter wherein the hydrocarbon monomer contains at least two ethylenic groups and at least two of the ethylenic groups exist as -C=C-C=C- in the compound.

572 Adding nonreactive material to chemically modified solid polymer:
This subclass is indented under subclass 571. Subject matter wherein a solid polymer derived from a -C=C-C=C- hydrocarbon containing monomer is chemically modified prior to admixing with the NRM.

573 Interpolymer of two or more diene monomers:
This subclass is indented under subclass 571. Subject matter wherein a -C=C-C=C-hydrocarbon monomer has been interpolymerized with at least one hydrocarbon containing at least two ethylenic groups.

(1) Note. The hydrocarbon containing at least two ethylenic groups may be a conjugated or nonconjugated diene.

574 Interpolymer with at least one aliphatic hydrocarbon monomer, e.g., butyl rubber, etc.:
This subclass is indented under subclass 571. Subject matter wherein a -C=C-C=C- hydrocarbon monomer has been interpolymerized with at least a hydrocarbon monomer which is devoid of a carbocyclic ring, e.g., butyl rubber, etc.

575 Interpolymer with at least one aromatic hydrocarbon monomer:
This subclass is indented under subclass 571. Subject matter wherein a -C=C-C=C- hydrocarbon monomer has been interpolymerized with at least one hydrocarbon monomer which contains an aryl ring.

575.5 Natural rubber:
This subclass is indented under subclass 571. Subject matter wherein the polymer derived from a conjugated diene hydrocarbon monomer is natural rubber.

576 Adding nonreactive material to chemically modified solid polymer:
This subclass is indented under subclass 570. Subject matter wherein the solid polymer derived from at least one hydrocarbon monomer is chemically modified prior to admixing of the nonreactant material therewith.

(1) Note. It is not necessary for this subclass that a positive process step of chemically modifying the polymer be claimed. It is sufficient if the polymer has been chemically reacted (e.g., halogenated polymer, sulfonated polymer, etc.) prior to the admixing step.

577 From aromatic hydrocarbon monomer:
This subclass is indented under subclass 570. Subject matter wherein the solid polymer is derived from an aryl containing hydrocarbon monomer.

578 Interpolymer with at least one aliphatic hydrocarbon monomer:
This subclass is indented under subclass 577. Subject matter wherein an aryl containing hydrocarbon monomer has been interpolymerized with a hydrocarbon monomer which is devoid of a carbocyclic ring.

579 From hydrocarbon containing four or more carbon atoms:
This subclass is indented under subclass 570. Subject matter wherein the solid polymer is derived from a hydrocarbon monomer containing at least four carbon atoms.

580 Adding nonreactive material to solid polymer and subsequently chemically modifying the polymer or product:
This subclass is indented under subclass 570. Subject matter wherein the solid polymer derived from at least one hydrocarbon monomer is admixed with a nonreactant material prior to a chemical modification of the solid polymer, e.g., curing, vulcanizing, etc.

581 Solid polymer derived from ethylene:
This subclass is indented under subclass 580. Subject matter wherein the solid polymer is derived from ethylene.

582 From propylene as sole reactant monomer:
This subclass is indented under subclass 570. Subject matter wherein the solid polymer is solely derived from propylene.

583 Organic NRM additive:
This subclass is indented under subclass 582. Subject matter wherein an organic nonreactant material is admixed with the solid polypropylene.

584 Inorganic additive other than water or NRM:
This subclass is indented under subclass 582. Subject matter wherein an inorganic nonreactant material which is other than water is admixed with the solid polypropylene.

585 From ethylene as sole reactant monomer:
This subclass is indented under subclass 570. Subject matter wherein the solid polymer is solely derived from ethylene.

586 Inorganic NRM additive:
This subclass is indented under subclass 585. Subject matter wherein an inorganic nonreactant material is admixed with the solid polyethylene.

587 High density polymer:
Subject matter under sublcass 585 wherein the density of the formed polyethylene polymer is more than 0.935.

(1) Note. The term density refers to density as measured by ASTMD 1505 or specific gravity and is not to be confused with terms such as “apparent density” or “bulk density”.

(2) Note. In the absence of a specific disclosure of density, all polymers produced by a free radical-yielding catalyst, e.g., peroxy, azo, or redox, etc., are presumed to be low density and are excluded herefrom.

588 From silicon-containing reactant:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer or SICP derived from at least one silicon containing reactant.

589 From -N=C=X reactant or blocked N=C=X reactant (X is chalcogen):
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer or SICP derived from at least one reactant containing a -N=C=X group wherein X is a chalcogen atom.

(1) Note. This subclass also provides for those functional derivatives of isocyanates which are generally known as blocked, masked, or hidden isocyanates. These materials are those which revert on heating to the -N=C=X group (e.g., urethanes or ureides of phenols, alkanols, etc.).

590 With reactant containing at least one C-OH, (C=O)-OH or -C-O-C- Group:
This subclass is indented under subclass 589. Subject matter wherein the solid polymer or SICP is derived from the -N=C=X reactant and a reactant containing at least one C-OH, -OH, or -C-O-C- group.

591 Water DNRM:
This subclass is indented under subclass 590. Subject matter wherein water as a DNRM is admixed with the solid polymer or SICP.

592 From ketone or ketene reactant:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer or SICP derived form at least one ketone reactant.

(1) Note. See the Class 520 Glossary for a definition of the term “ketone”.

(2) Note. For purposes of this subclass, a reactant having a ketene (C=C=O) group is considered as being a ketone.

593 From aldehyde or derivative reactant:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer or SICP derived from at least one aldehyde or aldehyde derivative reactant.

(1) Note. See the Class 520 Glossary for a definition of the terms “aldehyde” and “aldehyde derivative”.

594 With phenol or inorganic phenolate:
This subclass is indented under subclass 593. Subject matter wherein the solid polymer or SICP is derived from the aldehyde or aldehyde derivative reactant and at least one phenol or inorganic phenolate reactant.

SEE OR SEARCH CLASS:
528, Synthetic Resins and Rubbers, subclass 86, (1) Note, A and C for a definition of the terms phenol or inorganic phenolate.

595 Containing reactant having atom other than C, H, or O:
This subclass is indented under subclass 594. Subject matter wherein the solid polymer or SICP is derived from at least one reactant containing an atom other than carbon, hydrogen, or oxygen.

(1) Note. The reactant containing the atom which is other than carbon, hydrogen, or oxygen can be the phenol or the aldehyde or another reactant.

596 Water DNRM:
This subclass is indented under subclass 594. Subject matter wherein water as a DNRM is admixed with the solid polymer or SICP.

597 Nitrogen-containing reactant:
This subclass is indented under subclass 593. Subject matter wherein the solid polymer or SICP is derived form the aldehyde or aldehyde derivative reactant and at least one nitrogen-containing reactant.

598 Water DNRM:
This subclass is indented under subclass 597. Subject matter wherein water as a DNRM is admixed with the solid polymer or SICP.

599 From carboxylic acid or derivative reactant:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer derived from at least one carboxylic acid or derivative.

(1) Note. See the Class 520 Glossary for the definition of the term "carboxylic acid or derivative".

600 Carboxylic acid contains three or more acid groups or derivative thereof:
This subclass is indented under subclass 599. Subject matter wherein the solid polymer is derived from a carboxylic acid containing three or more --OH groups or three or more derivative groups, or a combination of -OH and derivative groups which is three or more.

601 From dicarboxylic acid or derivative and at least one polyol; or from a diester of a polycarboxylic acid as sole reactant:
This subclass is indented under subclass 599. Subject matter wherein the solid polymer is derived from a polyol and from a carboxylic acid containing two carboxylic acid groups, or from a derivative containing two carboxylic acid derivative groups, or from a reactant containing a carboxylic acid group and a derivative group; or wherein the solid polymer is derived from a dicarboxylic acid diester as the sole solid polymer-forming reactant.

602 Nitrogen-containing reactant:
This subclass is indented under subclass 601. Subject matter wherein at least one of the reactant forming the solid polymer contains a nitrogen atom.

(1) Note. The nitrogen reactant may be a third reactant which is not a carboxylic acid or derivative group reactant or the polyol containing reactant.

603 Reactant contains atom other than C, H, or O:
This subclass is indented under subclass 601. Subject matter wherein at least one of the reactants forming the solid polymer contains an atom other than carbon, hydrogen, or oxygen.

(1) Note. The reactant containing an atom other than carbon, hydrogen, or oxygen may be a third reactant which is not a carboxylic acid or derivative reactant or the polyol containing reactant.

604 At least one polyol containing only two -C-OH groups reactant:
This subclass is indented under subclass 601. Subject matter wherein the polyol reactant contains only two C-OH groups.

605 Derived from terephthalic acid or derivative:
This subclass is indented under subclass 604. Subject matter wherein the carboxylic acid or derivative contains two carboxylic acid or derivative groups in para-position to each other and which carboxylic acid or derivative groups are directly bonded to nuclear carbon atoms of the same aryl ring.

606 Nitrogen-containing reactant:
This subclass is indented under subclass 599. Subject matter wherein the solid polymer is derived form at least one nitrogen-containing reactant, e.g., nylon, etc.

(1) Note. The carboxylic acid or derivative need not be the nitrogen-containing reactant.

607 Two or more carboxylic acids or derivatives, or two or more nitrogen-containing compounds:
This subclass is indented under subclass 605. Subject matter wherein the solid polymer is derived from at least two carboxylic acids, two carboxylic acid derivatives, or at least one carboxylic acid and at least one carboxylic acid derivative; or wherein the solid polymer is derived from at least two nitrogen-containing reactants.

608 Water DNRM containing:
This subclass is indented under subclass 606. Subject matter wherein water as a DNRM is admixed with the solid polymer.

609 From sulfur-containing reactant:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer

derived from at least one sulfur-containing reactant.

610 From reactant-containing atom other than N, C, H, O, or halogen:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer derived from at least one reactant containing an atom other than nitrogen, carbon, hydrogen, oxygen, or a halogen.

611 From phenol reactant:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer derived from at least one phenol reactant.

SEE OR SEARCH CLASS:
528, Synthetic Resins and Rubbers, subclass 86, (1) Note, A, for a definition of the term "phenol".

612 From at least one oxygen or nitrogen-containing reactant:
This subclass is indented under subclass 1. Subject matter which involves the mixing of a nonreactant material with a solid polymer derived from at least one oxygen or nitrogen-containing reactant.

650 Inorganic water settable material containing:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein an inorganic water settable ingredient hardenable by hydration to produce a solid mass is present during formation of at least one solid polymer or SICP, e.g., Portland cement, gypsum cement, etc.

(1) Note. In the instant subclass the inorganic water settable ingredient can be a reactant with the solid polymer or SICP forming system so long as there is present at least one material which is nonreactive (NRM).

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, silicate dioxide, glass, titanium dioxide, or elemental carbon, composition thereof; or process of treating or composition thereof:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein the desired or intentional composition has been produced by formation of at least one solid polymer or SICP in the presence of a designated nonreactant material other than solely H_2O, hydrocarbon, SiO_2, glass, TiO_2, or element carbon.

(1) Note. See the class definition of Class 523 for a definition of DNRM.

(2) Note. Included herein are processes of preparing the composition, the composition itself, as well as processes of chemically reacting or purifying a composition, and the product of such a process when a composition is the result.

(3) Note. See the Class 520 Glossary for a definition of "glass".

(4) Note. Mixtures of the excluded DNRM materials are also excluded herefrom and are to be found below in subclasses 797-881.

SEE OR SEARCH THIS CLASS, SUBCLASS:
797, through 881, for mixtures of the excluded DNRM materials.

SEE OR SEARCH CLASS:
588, Hazardous or Toxic Waste Destruction or Containment, subclass 255 for polymer or resin containing compositions which contain hazardous or toxic waste to prevent its release into the environment.

701 Boron-containing DNRM:
This subclass is indented under subclass 700. Subject matter wherein elemental boron or at least one boron compound is present as a designated nonreactant material during formation of the solid polymer or SICP.

702 Cellular material derived from biological source as DNRM other than farinaceous flour or cotton or diatomaceous earth:
This subclass is indented under subclass 700. Subject matter wherein there is present, during formation of a solid polymer or SICP, at least one designated nonreactant material which is derived from a biological source and which retains at least some cell structure, and excluding farinaceous flour, cotton, or diatomaceous earth.

SEE OR SEARCH THIS CLASS, SUBCLASS:
9, for a complete definition of this material, including all the excluded cellular substances.

703 Corncob, bark, or cork:
This subclass is indented under subclass 702. Subject matter wherein the biological material which retains cell structure is corncob, bark, or cork.

SEE OR SEARCH THIS CLASS, SUBCLASS:
15, and 16, for the definition of "corncob, bark, and cork".

704 Protein or biologically active polypeptide as DNRM:
This subclass is indented under subclass 700. Subject matter wherein a protein or a biologically active polypeptide is present as a designated nonreactant material during formation fo a solid polymer or SICP.

(1) Note. See the Class 520 Glossary for a definition of the terms "protein" and "biologically active polypeptide".

705 Coal or bituminous material, extract or derivative thereof, oil shale, or fatty still residue thereof, as DNRM:
This subclass is indented under subclass 700. Subject matter wherein coal, bituminous material, extract or derivative thereof, oil shale, or fatty still residue is present as a designated nonreactant material during formation of a solid polymer or SICP.

SEE OR SEARCH THIS CLASS, SUBCLASS:
59, for the definition of these DNRM materials.

706 P-containing DNRM:
This subclass is indented under subclass 700. Subject matter wherein elemental phosphorus or a phosphorus containing compound is present as a designated nonreactant during formation of a solid polymer or SICP.

707 Nitrogen:
This subclass is indented under subclass 706. Subject matter wherein the phosphorus compound also contains at least one nitrogen atom.

708 Phosphorus bonded directly to nitrogen:
This subclass is indented under subclass 707. Subject matter wherein there is at least one phosphorus atom bonded directly to nitrogen in the DNRM compound.

709 Tri organo phosphine or phosphonium compound:
This subclass is indented under subclass 706. Subject matter wherein the phosphorus compound is R--R where each R is an organic group bound to P through a carbon linkage, e.g., $P(CH_3)_3$, etc., or $(PR'_4)X$ where X is any anion and R' is H or an organic group bound to P through a + - carbon linkage, e.g., $P(CH_3)_4$ Cl, etc.

710 Organic compound having phosphorus bonded directly to oxygen or sulfur:
This subclass is indented under subclass 706. Subject matter wherein there is at least one designated nonreactive organic compound which contains at least one phosphorus atom bonded directly to oxygen or sulfur, i.e., P-(O) or P-(S).

711 Containing a metal atom DNRM:
This subclass is indented under subclass 710. Subject matter wherein the designated nonreactant P-(O) or P-(S) containing organic compound has at least on metal atom bonded thereto, or where there is present an additional metal atom containing DNRM.

712 Containing halogen DNRM:
This subclass is indented under subclass 710. Subject matter wherein the nonreactive organic P-(O) or P-(S) compound has at least one halogen atom bonded thereto; or where there is present an additional halogen containing DNRM.

713 Containing phenol or carboxylic acid or derivative DNRM:
This subclass is indented under subclass 706. Subject matter wherein the phosphorus compound contains an aryl-OH or salt thereof, or -OH group or derivatives; or where there is present an additional DNRM which is an aryl-OH or salt or carboxylic acid or derivative.

(1) Note. See the Class 520 Glossary for a definiiton of the term "carboxylic acid or derivative".

714 N-containing organic compound excluding unsubstituted ammonium as sole nitrogen in DNRM:
This subclass is indented under subclass 700. Subject matter wherein a nitrogen containing organic compound having N other than NH_4^+ as the sole nitrogen is present as a designated nonreactive material during formation of a solid polymer or SICP.

715 N=N linkage, e.g., azo dyes, etc.:
This subclass is indented under subclass 714. Subject matter wherein the organic compound containing nitrogen has at least one N=N linkage.

716 Carbohydrate or derivative. e.g., nitrocellulose, etc.:
This subclass is indented under subclass 714. Subject matter wherein the nitrogen-containing organic compound is a nitrogen-containing carbohydrate or derivative, e.g., nitrocellulose, chitin, etc.

717 Heterocyclic structure other than per se N-alkyl pyrrolidone:
This subclass is indented under subclass 714. Subject matter wherein the organic compound containing nitrogen has at least one heterocyclic structure other than N-alkyl pyrrolidone.

(1) Note. See the Class 520 Glossary for the definition of "heterocyclic".

SEE OR SEARCH THIS CLASS, SUBCLASS:
726, for N-alkyl pyrrolidone, per se, as DNRM.

718 Hetero nitrogen:
This subclass is indented under subclass 717. Subject matter wherein the heterocyclic compound containing nitrogen has at least one heterocylic ring having at least one nitrogen as a heteroatom.

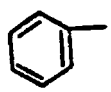
719 Containing hetero chalcogen DNRM:
This subclass is indented under subclass 718. Subject matter wherein the compound containing nitrogen in a heterocyclic ring further contains at least one chalcogen atom in a hetero ring, or wherein there is an additional heterocyclic chalcogen compound as a DNRM.

(1) Note. Chalcogen is limited to oxygen, sulfur, selenium, or tellurium.

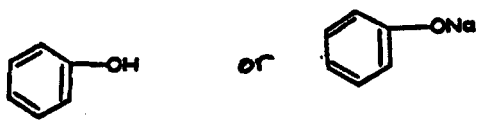
720 Plural hetero N, i.e., same or different ring:
This subclass is indented under subclass 718. Subject matter wherein the compound containing nitrogen in a heterocyclic ring contains more than one heterocyclic nitrogen atom as either members of one ring or in two or more rings.

721 Containing aryl-OH or salt thereof DNRM:
This subclass is indented under subclass 714. Subject matter wherein the organic compound containing nitrogen has an aryl-OH or salt thereof attached thereto, or where there is present an additional DNRM which is a compound having aryl-OH or salt thereof.

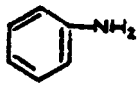
(1) Note. "Aryl" denotes a monovalent aromatic hydrocarbon radical, e.g., as illustrated below. Included herein are phenyl, naphthyl, tolyl, etc.



(2) Note. The OH or salt group is directly attached to the aromatic ring, e.g., as illustrated below, etc.



722 Amine nitrogen directly bonded to aromatic ring:
This subclass is indented under subclass 714. Subject matter wherein the nitrogen containing organic compound has an amine nitrogen directly bonded to an aromatic ring, e.g., as illustrated below, etc.



(1) Note. Amine is defined in the Class 520 Glossary.

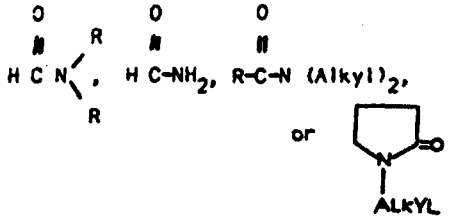
723 Sulfur e.g., sulfonamides, etc.:
This subclass is indented under subclass 714. Subject matter wherein the nitrogen containing organic compound has at least one sulfur atom, e.g., R-SO_2-N, etc.

724 ROH or COOH or salt thereof, e.g., alkanol amine or amino acid, etc.:
This subclass is indented under subclass 714. Subject matter wherein the N-containing organic compound has at least one-OH, C-OH, or salt (e.g., alkoxide or carboxylate) attached thereto.

(1) Note. The R group in the R-OH refers to the nitrogen containing residue. Similarly, the COOH group is attached to a nitrogen containing residue.

725 Nitrile:
This subclass is indented under subclass 714. Subject matter wherein the nitrogen containing organic compound has at least one -C N group.

726 Formamide or N, N-dialkyl amide or N-alkyl pyrrolidone:
This subclass is indented under subclass 714. Subject matter wherein the nitrogen containing organic compound is as illustrated below where alkyl is an aliphatic hydrocarbon moiety.



727 With metal-containing material DNRM:
This subclass is indented under subclass 726. Subject matter wherein there is additionally present a metal containing material as a DNRM.

728 (C=O)N:
This subclass is indented under subclass 714. Subject matter wherein the nitrogen containing organic compound has at least one -N group.

729 X(C=X)X wherein X is chalcogen DNRM, e.g., carbonate, etc.:
This subclass is indented under subclass 700. Subject matter wherein an organic compound having at least one X--X group where X is chalcogen, e.g., organic carbonates, etc., is present as a DNRM during formation of a solid polymer or SICP.

(1) Note. Chalcogen is limited to oxygen, sulfur, selenium, or tellurium.

730 DNRM contains Si-C, Si-H, contains DNRM metal-C or metal-H bond or organic compound containing Si:
This subclass is indented under subclass 700. Subject matter wherein a compound having at least one Si-C, Si-H, metal-C or metal-H bond or an organic compound containing Si is present as DNRM during formation of a solid polymer or SICP.

731 Diorgano siloxane contains units of -[(R)Si(R)-O-] * where * is subscript two or more:
This subclass is indented under subclass 730. Subject matter wherein the organic silicon compound contains two or more units, e.g. polydimethyl siloxane oil, etc., as illustrated below.

(1) Note. R is preponderately a hydrocarbon radical.

732 Carbohydrate or derivative as DNRM:
This subclass is indented under subclass 700. Subject matter wherein a carbohydrate or derivative is present as DNRM during formation of a solid polymer or SICP.

SEE OR SEARCH THIS CLASS, SUBCLASS:
(1) Note. See the Class 520 Glossary for the definition of "carbohydrates' and "carbohydrate derivative".

733 Cellulose or derivative, e.g., cotton, paper pulp, etc.:
This subclass is indented under subclass 732. Subject matter wherein the carbohydrate is cellulose or a derivative.

SEE OR SEARCH THIS CLASS, SUBCLASS:
35, for the definition of "cellulose".

734 Starch or derivative, farinaceous flour or meal:
This subclass is indented under subclass 732. Subject matter wherein the carbohydrate is a starch or a derivative, or farinaceous flour or meal.

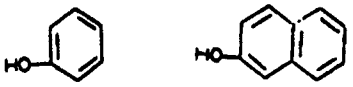
SEE OR SEARCH THIS CLASS, SUBCLASS:
9, for the definition of "farinaceous flour or meal".
47, for the definition of "starch".

735 Lignin, tannin, or derivative as DNRM:
This subclass is indented under subclass 700. Subject matter wherein lignin, tannin, or a derivative of these is present as DNRM during formation of a solid polymer or SICP.

(1) Note. See the Class 520 Glossary for a definition of the terms "lignin" and "lignin derivative".

(2) Note. Tannins appear to be esters of gallic acid whose carboxyl group is esterified by the hydroxyl group of a second molecule of gallic acid or the glucosides thereof.

736 Aryl-OH or salt thereof as DNRM:
This subclass is indented under subclass 700. Subject matter wherein a compound having at least one -OH group or salt thereof directly bonded to an aromatic carbocyclic nucleus, i.e., phenol compound, is present as DNRM during formation of a solid polymer or SICP, e.g.,



SEE OR SEARCH THIS CLASS, SUBCLASS:
755, for DNRM having aryl ether linkages.

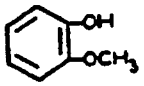
738 Plural separate aryl-OH groups or polyhydric aryl-OH, or salts thereof, e.g., resorcinol, etc.:
This subclass is indented under subclass 736. Subject matter wherein the phenol compound or salt thereof contains two or more -OH groups or salts directly bonded to the same of separate aromatic carbocyclic nucleus.

(1) Note. Included herein are, e.g., resorcinol, bisphenol A, etc.

739 Plural separate aryl-OH or salt groups bonded through carbon or a chalcogen-containing radical, e.g., bisphenol A, etc.:
This subclass is indented under subclass 738. Subject matter wherein the phenol compound or salt thereof has plural separate aryl-OH

groups or salts thereof bonded together through carbon or a chalcogen containing radical.

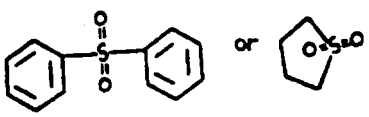
740 Aryl-OH or salt compound having at least one chalcogen containing substituent, e.g., hydroxy anisole, etc.:
This subclass is indented under subclass 736. Subject matter wherein the phenol compound or salt thereof has at least one chalcogen containing substituent, e.g., as illustrated below, etc.



741 Aryl-OH or salt compound having two or more substituents:
This subclass is indented under subclass 736. Subject matter wherein the phenol compound or salt has two or more substituents bonded to the aromatic carbocyclic nucleus, e.g.,

742 Elemental or organic sulfur compound as DNRM:
This subclass is indented under subclass 700. Subject matter wherein elemental sulfur or an organic compound containing at least one sulfur atom is present as DNRM during formation of a solid polymer or SICP.

743 Sulfone, e.g., sulfolane, etc.:
This subclass is indented under subclass 742. Subject matter wherein the sulfur containing organic compound is a sulfone, e.g.,



744 DMSO with additional oxygen or halogen compound DNRM:
This subclass is indented under subclass 742. Subject matter wherein dimethyl sulfoxide is mixed with an additional oxygen or halogen containing DNRM.

745 Sulfate, sulfonate ester, sulfonic acid, or salt thereof:
This subclass is indented under subclass 742. Subject matter wherein the sulfur containing organic compound is a sulfate ester, e.g., ROOR or ROH, etc., sulfonic acid or ester, e.g. R-OH, etc., or a salt of these materials.

746 Halogenated:
This subclass is indented under subclass 745. Subject matter wherein the organic sulfate, sulfonic, sulfonate, or salt has at least one halogen atom.

747 Containing ether or hydroxyl group DNRM:
This subclass is indented under subclass 745. Subject matter wherein the organic sulfate, sulfonic acid, sulfonate, or salt thereof has an ether or OH group bonded thereto; or wherein there is present an additional DNRM which has an ether group or hydroxyl group.

(1) Note. Hydroxyl group is C-OH wherein the carbon is not doubly bonded to a chalcogen.

748 Containing COOH or salt thereof or ester thereof DNRM:
This subclass is indented under subclass 745. Subject matter wherein the sulfur containing organic compound has a -OH, $-O^{-+}$salt or -OR group where R is an alcohol residue bonded thereto, or wherein there is present as an additional DNRM at least one carboxylic acid, salt, or ester.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative" which includes a discussion of carboxylic acid salts and esters.

750 Mercaptan, mercaptide or thioether, e.g., aryl-SH, etc.:
This subclass is indented under subclass 742. Subject matter wherein the sulfur containing organic compound is R-SH, R-SX or R-S-R wherein X is a cation, e.g., metal or NH^+, etc., and R is the carbon of an organic radical.

751 Heterocyclic chalcogen compound as DNRM:
This subclass is indented under subclass 700. Subject matter wherein a heterocyclic chalcogen ring containing material is present as DNRM during formation of a solid polymer or SICP.

(1) Note. By schedule exclusion, the remaining chalcogen atoms proper for this subclass are oxygen, selenium, or tellurium.

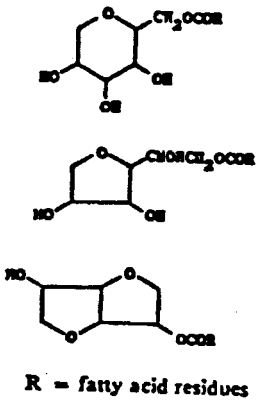
(2) Note. See the Class 520 Glossary for a definition of the term "heterocyclic".

752 With organic chalcogen compound, hydrocarbon, or halogenated hydrocarbon DNRM:
This subclass is indented under subclass 751. Subject matter wherein there is present as an additional DNRM an organic chalcogen compound, hydrocarbon, or halogenated hydrocarbon.

SEE OR SEARCH THIS CLASS, SUBCLASS:
753, for the TWEEN ^{R} and SPAN ^{R} materials which are mixtures of heterocyclic chalcogen compounds.

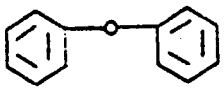
753 Carboxylic acid ester linkage, e.g., oxyalkylated sorbitan ester, etc.:
This subclass is indented under subclass 751. Subject matter wherein said heterocyclic chalcogen compound has at least one carboxylic acid ester linkage.

(1) Note. Included herein are SPAN ^{R} which is a mixture of esters of fatty acids with various hexitol anhydrides (e.g., sorbitan, etc.) derived from sorbitol, as illustrated below (TWEEN ^{R} is oxyalkylated SPAN $^{R)}$:



754 Plural hetero oxygen:
This subclass is indented under subclass 751. Subject matter wherein the heterocyclic chalcogen compound contains two or more oxygen atoms in the same heterocyclic ring or two or more oxygen containing heterocyclic rings.

755 Ether compound DNRM, e.g., aryl ether, dimethylether, etc.:
This subclass is indented under subclass 700. Subject matter wherein a compound having at least one C-O-C linkage where neither carbon is doubly bonded to chalcogen, e.g., as illustrated below, or CH_3-O-CH_3, etc., is present as DNRM during formation of a solid polymer or SICP.



757 Mixture of ether compounds; or only two ether oxygens bonded to a carbon atom, e.g., formal acetal, etc.:
This subclass is indented under subclass 755. Subject matter wherein there are at least two ether compounds as DNRM; or wherein the ether compound has at least one carbon atom which has only two ether linkages attached to the carbon, e.g., -C-O--O-C-, etc.

758 Halogenated:
This subclass is indented under subclass 755. Subject matter wherein the ether compound has at least one halogen atom attached thereto.

759 Containing carboxylic acid or derivative DNRM:
This subclass is indented under subclass 755. Subject matter wherein the ether compound has at least one carboxylic acid or derivative group attached thereto, or wherein there is present an additional DNRM which is a carboxylic acid or derivative:

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative:.

760 Carboxylic acid or derivative has two or more ether linkages:
This subclass is indented under subclass 759. Subject matter wherein the carboxylic acid or derivative has at least two ether linkages attached thereto.

761 Containing hydroxyl group DNRM:
This subclass is indented under subclass 755. Subject matter wherein the ether compound has at least one hydroxyl group attached thereto, or wherein there is present as an additional DNRM a hydroxyl bearing compound other than water.

762 Two or more ether linkages in the hydroxyl group bearing molecule:
This subclass is indented under subclass 761. Subject matter wherein the hydroxyl group bearing molecule has two or more ether linkages, e.g., hydroxyl terminated polyether, etc.

763 Oxygen containing wax as DNRM, e.g., carnauba, montan, ceresin, bees wax, oxidized petroleum wax, etc.:
This subclass is indented under subclass 700. Subject matter wherein an oxygen containing wax is present as DNRM during formation of a solid polymer or SICP.

(1) Note. To be classified herein, a material must be disclosed or claimed as being a wax.

764 Natural resin or derivative as DNRM, e.g., rosin, shellac, etc., excluding tall oil per se:
This subclass is indented under subclass 700. Subject matter wherein a natural resin or derivative including rosin and derivatives is present as DNRM during formation of a solid polymer or SICP.

(1) Note. Resin or its derivatives is included herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:
77, for a discussion on what constitutes natural resin

765 Alcohol compound as DNRM, i.e., R-OH:
This subclass is indented under subclass 700. Subject matter wherein an alcohol compound is present as DNRM during formation of a solid polymer or SICP.

(1) Note. Alcohol is R-OH where R is-- not having chalcogen double bonded directly thereto.

SEE OR SEARCH THIS CLASS, SUBCLASS:
736, for phenol compounds.
779, for metal alkoxides.

766 Two or more alcohols:
This subclass is indented under subclass 765. Subject matter wherein there are at least two alcohols as DNRM's.

767 With water NRM:
This subclass is indented under subclass 765. Subject matter wherein water is present as an additional NRM.

768 With hydrocarbon or halogenated hydrocarbon NRM:
This subclass is indented under subclass 765. Subject matter wherein there is additionally present a hydrocarbon or halogenated hydrocarbon as a NRM.

769 Chalcogen other than as R-OH:
This subclass is indented under subclass 765. Subject matter wherein the alcohol compound has a chalcogen atom in addition to the oxygen in the hydroxy group.

770 Ketone or aldehyde as DNRM:
This subclass is indented under subclass 700. Subject matter wherein a ketone or aldehyde is present as DNRM during formation of a solid polymer or SICP.

(1) Note. "Aldehyde and ketone" are defined in the Class 520 Glossary.

771 With hydrocarbon or halogenated hydrocarbon NRM:
This subclass is indented under subclass 770. Subject matter wherein there is additionally present a hydrocarbon or halogenated hydrocarbon NRM.

772 Carboxylic acid or derivative, e.g., acetoacetic acid or ester or salt thereof, etc.:
This subclass is indented under subclass 770. Subject matter wherein the ketone or aldehyde has attached thereto a carboxylic acid group or derivative.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative".

773 Carboxylic acid or derivative not containing a heavy metal atom as DNRM, e.g., anhydride, acyl halide, ester or salt, etc.:
This subclass is indented under subclass 700. Subject matter wherein a carboxylic acid or derivative not having a heavy metal atom attached thereto is present as DNRM during formation of a solid polymer or SICP.

(1) Note. See the Class 520 Glossary for a definition for the term "carboxylic acid or derivative".

SEE OR SEARCH THIS CLASS, SUBCLASS:
780+, for heavy metal compounds having therein carboxylic acid or derivative groups.

774 Cycloaliphatic group, e.g., dimer acids containing thirty six carbon atoms, tall oil, etc.:
This subclass is indented under subclass 773. Subject matter wherein the carboxylic acid or derivative has attached thereto a cycloaliphatic group.

(1) Note. The C_{36} dimer acids are typically derived by polymerization of C_{18} fatty acids.

775 Aryl group:
This subclass is indented under subclass 773. Subject matter wherein the carboxylic acid or derivative has attached thereto an aryl group.

776 Solid polymer derived from ethylenic monomers only:
This subclass is indented under subclass 775. Subject matter wherein the solid polymer produced is from ethylenically unsaturated monomers only.

777 Group IA, unsubstituted ammonium, or Group IIA salt:
This subclass is indented under subclass 773. Subject matter wherein the carboxylic derivative is a Group IA, NH_4+ or Group IIA salt.

(1) Note. The IA and IIA metals proper herein are Li, Na, K, Rb, Be, Ca, Sr, and Ba.

778 Solid polymer or SICP derived from at least one nonethylenic monomer:
This subclass is indented under subclass 777. Subject matter wherein the solid polymer or SICP which is produced is derived from at least one monomer which is not ethylenically unsaturated.

779 Elemental metal or metal compound not containing silicon DNRM:
This subclass is indented under subclass 700. Subject matter wherein an elemental metal or metal compound which does not contain a silicon atom is present as DNRM during formation of a solid polymer or SICP.

(1) Note. The term "elemental metal" includes alloys, e.g., steel, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
789+, for silicon containing inorganic metal compounds as DNRM.

780 Heavy metal:
This subclass is indented under subclass 779. Subject matter wherein the metal or metal compound is or contains a metal atom having a specific gravity greater than four.

781 Copper:
This subclass is indented under subclass 780. Subject matter wherein the metal atom is copper in elemental or compound form.

783 Group IV or Group IIB, i.e., Ge, Sn, Pb, Zr, Ti, Hf, Zn, Cd, Hg:
This subclass is indented under subclass 780. Subject matter wherein the metal atom is Ge, Sn, Pb, Ti, Zr, Hf, Zn, Cd, or Hg, in elemental or compound form.

784 Tin:
This subclass is indented under subclass 783. Subject matter wherein the metal atom is tin in elemental or compound form.

785 Group VIII, i.e., Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt:
This subclass is indented under subclass 780. Subject matter wherein the metal atom is Fe, Co, Ni, Ru, Rh, Pd, Os, Ir, or Pt in elemental or compound form, i.e., Group VIII.

786 Al:
This subclass is indented under subclass 779. Subject matter wherein the metal atom is aluminum in elemental or compound form.

787 Inorganic metal compound having S, C, or N, e.g., KSCN, etc.:
This subclass is indented under subclass 779. Subject matter wherein the metal compound is inorganic and has at least one atom of carbon, sulfur, or nitrogen.

788 Calcium, e.g., $CaCO_3$, etc.:
This subclass is indented under subclass 787. Subject matter wherein the inorganic metal compound contains calcium.

789 Elemental silicon, soil, or inorganic silicon compound as DNRM:
This subclass is indented under subclass 700. Subject matter wherein elemental silicon, soil, or an inorganic silicon compound is present as DNRM during formation of a solid polymer or SICP.

790 With reactive coupling agent:
This subclass is indented under subclass 789. Subject matter wherein the solid polymer or SICP is formed in the additional presence of a coupling agent which has sites reactive with both a portion of the elemental silicon, soil, or inorganic silicon compound DNRM and with the solid polymer, or SICP-forming system.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200+, for systems wherein an inorganic filler is surface modified with a coupling agent prior to admixture with the solid polymer, SICP, or solid polymer-forming system.

791 Alkali or alkali earth silicate:
This subclass is indented under subclass 789. Subject matter wherein the inorganic silicon DNRM is an alkali or alkali earth silicate.

792 Halogenated hydrocarbon DNRM:
Subject matter under subclas 700 wherein a compound which contains only carbon and halogen atoms or only carbon, halogen, and hydrogen atoms is present as DNRM during formation of a solid polymer or SICP.

793 Halogenated hydrocarbon contains ethylenic unsaturation:
This subclass is indented under subclass 792. Subject matter wherein the halogen DNRM contains ethylenic unsaturation.

(1) Note. The ethylenically unsaturated halogen material is presumed to be a reactant during formation of a solid polymer; therefore, to be placed herein there must be specific disclosure that the material is a nonreactant.

794 With water NRM:
This subclass is indented under subclass 792. Subject matter wherein in addition to the halogen DNRM there is present water as a NRM.

795 Fluorinated:
This subclass is indented under subclass 792. Subject matter wherein the DNRM contains a fluorine atom.

(1) Note. Included herein are perfluorinated hydrocarbons, fluro, chloro-hydrocarbons, etc.

796 Nitrogen, halogen, or compounds thereof DNRM:
This subclass is indented under subclass 700. Subject matter wherein nitrogen, halogen, or a compound having at least one nitrogen or halogen atom is present as DNRM during formation of a solid polymer or SICP.

797 Solid polymer or SICP derived from protein or biologically active polypeptide and ethylenic monomer or SPFI:
This subclass is indented under subclass 1. Subject matter wherein the desired or intentional composition is produced by formation of a solid polymer or SICP by reaction of protein or biologically active polypeptide with an ethylenic monomer or SPFI in the presence of at least one nonreactant material (NRM).

(1) Note. See the class definition of Class 523 for the definition of nonreactant material.

(2) Note. See the Class 520 Glossary for the definition of the terms “protein” and “biologically active polypeptide”.

SEE OR SEARCH THIS CLASS, SUBCLASS:
498, for systems of the instant subclass subsequently admixed with solid polymer or SICP.

798 Solid polymer or SICP derived from natural resin or natural resin derivative and ethylenic monomer or SPFI, e.g., shellac, rosin, etc.:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein the desired or intentional composition is produced by formation of a solid polymer or SICP by reaction of a natural resin or natural resin derivative with an ethylenic monomer of SPFI in the presence of at least one nonreactant material (NRM).

(1) Note. See Class 523, class definition for the definition of nonreactant material (NRM).

(2) Note. See the Class 520 Glossary for the definition of the term “natural resin” and “natural resin derivative”.

799 Solid polymer or SICP derived from lignin or tannin and ethylenic monomer or SPFI:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein the desired or intentional composition is produced by formation of a solid polymer or SICP in the presence of at least one nonreactant material (NRM) by reaction of lignin, tannin, or derivatives with ethylenic monomer or specified polymer- forming ingredients (SPFI).

(1) Note. See the class definition of Class 523 for the definition of nonreactant material NRM.

(2) Note. See Class 520 Glossary for the definition of the terms “lignin” and “lignin derivative”.

(3) Note. Tannins appear to be esters of gallic acid whose carboxyl group is esterified by the hydroxyl group of a second molecule of gallic acid or the glucosides thereof.

(4) Note. Placed herein are aqueous systems of reaction products of ligning, tannins, or lignosulfonates with SPFI. For this purpose, terms such as “tanning extract” or “reaction product” are assumed to result in aqueous systems unless the claim recites removal of water.

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:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein a desired or intentional composition is produced by formation of a solid polymer or SICP in the presence of water as a designated nonreactant material or products thereof.

(1) Note. Included herein are chemically aftertreated products and the process of chemically aftertreating where no NRM

is added subsequent to the initial in situ solid polymer formation.

801 Process of preparing water-in-oil emulsion or dispersion or product thereof:
This subclass is indented under subclass 800. Subject matter wherein the process of forming a solid polymer or SICP in the presence of water results in the formation of a water-in-oil emulsion or dispersion or products thereof.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 21+ for primarily organic continuous liquid phase colloid systems with discontinuous phase primarily inorganic liquid (e.g., water-in-oil emulsions or dispersions) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

802 Aqueous carboxyl-bearing solid polymer or SICP composition chemically treated with aziridine, mono 1,2-epoxide, or cyclic sulfonium compound:
This subclass is indented under subclass 800. Subject matter wherein the solid polymer or SICP which has been prepared in the presence of water is a carboxyl-bearing polymer which is subsequently chemically treated with an aziridine (i.e.,) , or mono 1,2-epoxide (i.e.,) or cyclic sulfonium compound

803 Polyvinyl alcohol or partially hydrolyzed polyvinyl acetate or chemically modified forms thereof:
This subclass is indented under subclass 800. Subject matter wherein the intentional or desired composition, which is prepared by formation of a solid polymer or SICP in the presence of water, contains polyvinyl alcohol (PVA) or chemically modified PVA.

(1) Note. A vinyl alcohol polymer requires at least three CH_2-CH-OH groups in the polymer chain.

804 Solid polymer derived from ethylenic monomers only:
This subclass is indented under subclass 800. Subject matter wherein a solid polymer from ethylenically unsaturated monomers only is formed in the presence of water as a designated nonreactive material.

(1) Note. "Ethylenically unsaturated" is defined in the Class 520 Glossary.

805 Fluorine containing monomer:
This subclass is indented under subclass 804. Subject matter wherein there is at least one ethylenically unsaturated monomer containing fluorine.

SEE OR SEARCH CLASS:
526, Synthetic Resins or Natural Rubbers, subclasses 242+ for solid polymer obtained only from ethylenic monomers, at least one of which contains fluorine.

806 Silicon-containing monomer:
This subclass is indented under subclass 804. Subject matter wherein there is at least one ethylenically unsaturated monomer containing silicon.

SEE OR SEARCH CLASS:
526, Synthetic Resins or Natural Rubbers, subclass 279 for solid polymers obtained only from ethylenic monomers, at least one of which contains silicon.

807 Monomer-containing element other than C, H, O, N, S, Hal, or Group IA metal atom:
This subclass is indented under subclass 804. Subject matter wherein there is at least one ethylenically unsaturated monomer containing an atom other than S, C, O, N, H, halogen, or Group IA metal atom (Li, Na, K, Rb, or Cs).

(1) Note. Included herein are monomers containing, e.g., phosphorus, etc.

808 Monomer contains nitrogen atom as part of a heterocyclic ring:
This subclass is indented under subclass 804. Subject matter wherein there is at least one ethylenically unsaturated monomer which con-

tains at least one nitrogen atom as part of a heterocyclic ring.

(1) Note. "Heterocyclic" is defined in the Class 520 Glossary.

809 Two or more nitrogen atoms in a single ring:
This subclass is indented under subclass 808. Subject matter wherein there are two or more nitrogen atoms in the same heterocyclic ring.

811 Monomer contains chalcogen atom as part of heterocyclic ring:
This subclass is indented under subclass 804. Subject matter wherein at least one ethylenically unsaturated monomer contains at least one chalcogen atom as a member of a heterocyclic ring.

(1) Note. "Heterocyclic" is defined in the Class 520 Glossary.

812 N-containing monomer other than unsubstituted ammonium as sole nitrogen, acrylamide, methylol acrylamide, acrylonitrile and the corresponding methacryl compounds or mixtures thereof:
This subclass is indented under subclass 804. Subject matter wherein there is at least one nitrogen containing monomer which is other than acrylamide, methylol acrylamide, acrylonitrile, methacrylamide, methylol methacrylamide, methacrylonitrile, monomer having NH_4 as the sole nitrogen, or mixtures of any of these.

813 Nitrogen-carbon-oxygen bond containing monomer, e.g., allyl isocyanate, etc.:
This subclass is indented under subclass 812. Subject matter wherein there is at least one monomer containing nitrogen directly bonded to carbon and which carbon is directly bonded to oxygen.

(1) Note. Any possible number of bonds are included, e.g., -N=C=O, -N--, etc.

814 N-monomer contains S:
This subclass is indented under subclass 812. Subject matter wherein there is at least one monomer containing both nitrogen and sulfur atoms.

815 Quaternary nitrogen-containing monomer, e.g., tetramethyl ammonium, etc.:
This subclass is indented under subclass 812. Subject matter wherein there is at least one monomer containing NR_4 wherein each R is linked to the nitrogen through a carbon atom.

816 N-monomer contains carboxylic acid or salt thereof:
This subclass is indented under subclass 812. Subject matter wherein at least one nitrogen containing monomer contains a carboxylic acid or salt thereof.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative" which includes a discussion of carboxylic acid salt.

817 S-containing monomer:
This subclass is indented under subclass 804. Subject matter wherein at least one monomer contains sulfur.

818 Aldehyde or ketone containing monomer:
This subclass is indented under subclass 804. Subject matter wherein at least one monomer contains an aldehyde or ketone group.

(1) Note. "Aldehyde" "aldehyde derivative" and "ketone" are defined in the Class 520 Glossary.

(2) Note. Search appropriate subclasses hereinbelow for monomers which are aldehyde derivatives.

819 Hydrocarbon monomer with carboxylic acid, salt, or nonnitrogen containing derivative monomer:
This subclass is indented under subclass 804. Subject matter wherein there is at least one hydrocarbon monomer in combination with at least one monomer which has a carboxylic acid group, salt, or is a nonnitrogen containing derivative thereof.

(1) Note. The nonnitrogen containing derivatives of carboxylic are esters and acyclic anhydrides.

820 With N monomer:
This subclass is indented under subclass 819. Subject matter wherein at least one nitrogen containing monomer is present in addition to said hydrocarbon monomer and said carboxylic acid, salt, or derivative monomer.

821 Hydrocarbon monomer contains at least two ethylenic groups:
This subclass is indented under subclass 820. Subject matter wherein at least one hydrocarbon monomer contains at least two ethylenically unsaturated groups.

822 Two or more hydrocarbon monomers:
This subclass is indented under subclass 819. Subject matter wherein there are at least two different ethylenically unsaturated hydrocarbon monomers.

823 Two or more monomers-containing carboxylic acid or derivative:
This subclass is indented under subclass 819. Subject matter wherein there are at least two different carboxylic acid or derivative monomers.

824 Aromatic monomer:
This subclass is indented under subclass 823. Subject matter wherein there is at least one aromatic ethylenically unsaturated monomer, e.g., styrene, etc.

825 With halogenated hydrocarbon monomer:
This subclass is indented under subclass 819. Subject matter wherein there is additionally present at least one ethylenically unsaturated monomer containing at least one halogen atom.

827 N-containing monomer:
This subclass is indented under subclass 804. Subject matter wherein there is at least one nitrogen containing ethylenically unsaturated monomer.

828 With hydrocarbon monomer:
This subclass is indented under subclass 827. Subject matter wherein there is additionally present at least one ethylenically unsaturated hydrocarbon monomer.

829 Two or more N monomers:
This subclass is indented under subclass 827. Subject matter wherein there are at least two different ethylenically unsaturated nitrogen containing monomers.

831 With unsaturated carboxylic acid or ester monomer:
This subclass is indented under subclass 827. Subject matter wherein there is additionally present at least one monomer which is an ethylenically unsaturated carboxylic acid or ester thereof.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative" which includes a discussion of carboxylic acid ester.

832 Monomer is carboxylic acid or derivative:
This subclass is indented under subclass 804. Subject matter wherein there are at least one ethylenically unsaturated monomer which is a carboxylic acid or derivative.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative".

833 Two or more carboxylic acids or derivatives:
This subclass is indented under subclass 832. Subject matter wherein there are at least two different monomers which are ethylenically unsaturated carboxylic acids or derivatives thereof.

834 Halogenated hydrocarbon monomer:
This subclass is indented under subclass 804. Subject matter wherein there is at least one ethylenically unsaturated, halogenated hydrocarbon monomer.

(1) Note. See the Class 520 Glossary for a definition of the term "halogenated hydrocarbon".

835 Two or more halogenated hydrocarbon monomers:
This subclass is indented under subclass 834. Subject matter wherein there are at least two different ethylenically unsaturated, halogenated hydrocarbon monomers.

836 Hydrocarbon monomer only:
This subclass is indented under subclass 804. Subject matter wherein all monomers are ethylenically unsaturated hydrocarbons.

837 Solid polymer or SICP derived from Si-containing reactant:
This subclass is indented under subclass 800. Subject matter wherein there is at least one silicon-containing reactant in the solid polymer or SICP formed in the presence of water as a DNRM:

838 N-containing reactant:
This subclass is indented under subclass 837. Subject matter wherein there is at least one nitrogen-containing reactant.

839 Solid polymer or SICP derived from -N=C=X containing reactant:
This subclass is indented under subclass 800. Subject matter wherein there is at least one N=C=X containing reactant in the solid polymer or SICP formed in the presence of water as a DNRM.

(1) Note. X is chalcogen and is limited to oxygen, sulfur, selenium, or tellurium.

(2) Note. Included herein are, e.g., isocyanate reactants, etc.

840 N=C=X reactant has ionic group attached thereto, e.g., carboxyl, sulfonic, etc.:
This subclass is indented under subclass 839. Subject matter wherein at least one N=C=X reactant has ionic groups attached thereto.

(1) Note. Ionic groups included herein are, e.g., $(-O)^-$, $(SO_3)^-$, etc.

841 Solid polymer or SICP derived from a phenolic reactant:
This subclass is indented under subclass 800. Subject matter wherein there is at least one phenolic reactant in the solid polymer or SICP formed in the presence of water as DNRM.

(1) Note. "Phenolic reactant" is defined in the Class 520 Glossary.

842 With carbohydrate reactant, e.g., starch, cellulose, or sugar, etc.:
This subclass is indented under subclass 841. Subject matter where there is at least one carbohydrate or derivative as a reactant in addition to said phenolic reactant.

(1) Note. "Carbohydrates" and "carbohydrate derivative" are defined in the Class 520 Glossary.

843 Solid polymer or SICP derived from an aldehyde or aldehyde derivative reactant:
This subclass is indented under subclass 800. Subject matter wherein there is at least one aldehyde or derivative reactant in the said solid polymer or SICP formed in the presence of water as DNRM.

(1) Note. "Aldehyde" and "aldehyde derivative" are defined in the Class 520 Glossary.

844 With carbohydrate reactant, e.g., starch, cellulose, cork, etc.:
This subclass is indented under subclass 843. Subject matter wherein there is at least one carbohydrate or derivative as a reactant in addition to said aldehyde or derivative.

(1) Note. See the Class 520 Glossary for the terms "carbohydrateS" and "carbohydrate derivatives".

845 Solid polymer derived from a reactant which is a carboxylic acid or derivative:
This subclass is indented under subclass 800. Subject matter wherein there is at least one carboxylic acid or derivative reactant in said solid polymer formed in the presence of water as DNRM.

(1) Note. "Carboxylic acid or derivative" is defined in the Class 520 Glossary.

846 Polymer of an ethylenic reactant with a saturated reactant:
This subclass is indented under subclass 800. Subject matter wherein there is at least one solid polymer of an ethylenic unsaturated reactant with a saturated reactant, said solid polymer formed in the presence of water as DNRM.

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:

This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer or SICP in the presence of a designated nonreactive material which is carbon, TiO_2, glass, or SiO_2 having specified form or numerical limitations other than amount.

(1) Note. Designation of a particular crystalline form, e.g., anatase, cristobalite, diamond, graphite, etc., is treated in the same way as a designation of a material having a specified family of physical properties and is therefore sufficient for inclusion herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:

849, through 881, for compositions produced by formation of a solid polymer or SICP in the presence of a specified amount of a designated nonreactive material which is carbon, TiO_2, glass, or SiO_2.

848 Hydrocarbon material other than solely a fused ring or cyloaliphatic hydrocarbon, benzene, toluene, or xylene or mixture 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:

This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer or SICP in the presence of a designated nonreactive material which is at least one hydrocarbon material having specified numerical properties other than amount and other than benzene, toluene, xylene, or solely a fused ring or cycloaliphatic hydrocarbon or mixtures solely consisting of the excluded species.

(1) Note. Designation of a hydrocarbon compound by name, e.g., heptane or n-heptane, etc., is treated as a designation of a material having a specified family of physical properties and is therefore sufficient for inclusion herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:

849, through 881, for compositions produced by formation of a solid polymer or SICP in the presence of a fused ring or cycloaliphatic hydrocarbon, benzene, toluene or xylene or a specified amount of a designated nonreactive hydrocarbon material or for mixtures solely consisting of the excluded species.

849 Solid polymer from ethylenic monomer only, said polymer formed in the presence of a nonreactant material:

This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer from ethylenically unsaturated monomers only in the presence of at least one nonreactant material.

850 N-containing monomer:

This subclass is indented under subclass 849. Subject matter wherein at least one ethylenically unsaturated monomer contains nitrogen.

851 Halogen-containing monomer:

This subclass is indented under subclass 849. Subject matter wherein at least one ethylenically unsaturated monomer contains halogen.

852 Chalcogen atom containing monomer other than ether oxygen as sole chalcogen:

This subclass is indented under subclass 849. Subject matter wherein at least one ethylenically unsaturated monomer contains a chalcogen atom other than ether oxygen as the sole chalcogen.

(1) Note. Chalcogen is limited to oxygen, sulfur, selenium, or tellurium.

853 Carboxylic acid or derivative monomer:
This subclass is indented under subclass 852. Subject matter wherein there is at least one ethylenically unsaturated carboxylic acid or derivative as monomer.

(1) Note. See the Class 520 Glossary for a definition of the term "carboxylic acid or derivative".

854 Monomer containing at least two carboxylic acid or derivative groups:
This subclass is indented under subclass 853. Subject matter wherein there is at least one ethylenically unsaturated monomer which has two or more carboxylic acid or derivative groups.

855 From unsaturated hydrocarbon monomer solely:
This subclass is indented under subclass 849. Subject matter wherein all monomers are ethylenically unsaturated hydrocarbons.

856 Contains two or more ethylenic unsaturated groups:
This subclass is indented under subclass 855. Subject matter wherein at least one monomer has two or more ethylenically unsaturated groups.

857 Boron or metal-containing reactant forming a solid polymer or SICP in the presence of a nonreactant material:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer or SICP from at least one boron or metal-containing reactant in the presence of a nonreactant material.

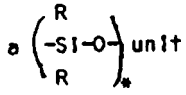
858 Si-containing reactant forming a solid polymer or SICP in the presence of a nonreactant material:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer or SICP from at least one silicon-containing reactant in the presence of a nonreactant material.

859 Silicate containing compound as sole Si-containing reactant, e.g., ortho silicate esters, etc.:
This subclass is indented under subclass 858. Subject matter wherein all silicon-containing reactants contain at least one -O--O- structure.

(1) Note. Included are, e.g., ortho silicate esters, etc.

(2) Note. Silicate structure in siloxane material is conventionally depicted as $SiO^{4/2}$ to indicate four-shared oxygens.

860 Poly (di organo siloxane) reactant, i.e., [R-Si(R)-O]-* where R is an organic radical and * is subscript two or more:
This subclass is indented under subclass 858. Subject matter wherein there is at least one reactant containing the following, illustrated below, where R is an organic radical and the subscript * is two or more.



861 Si-H containing reactant:
This subclass is indented under subclass 860. Subject matter wherein there is at least one Si-H containing reactant.

862 With ethylenically unsaturated reactant:
This subclass is indented under subclass 861. Subject matter wherein at least one ethylenically unsaturated reactant is present in addition to the Si-H reactant.

863 Poly (di organo siloxane) reactant has at least one SiO other than as Si-O-Si, e.g., Si-O-C, or SiOH group, etc.:
This subclass is indented under subclass 860. Subject matter wherein said poly(di organo siloxane) reactant has at least one Si-O-A linkage where A is an atom other than Si.

(1) Note. Included are, e.g., Si-O-C, Si-OH, etc.; these are the so-called hydrolyzable groups.

864 With N-containing reactant:
This subclass is indented under subclass 863. Subject matter wherein at least one nitrogen-containing reactant is present in addition to the Si-O-A reactant.

865 With ethylenic unsaturated reactant:
This subclass is indented under subclass 863. Subject matter wherein an ethylenically unsaturated reactant is present in addition to the Si-O-A reactant.

866 Ethylenically unsaturated reactant:
This subclass is indented under subclass 860. Subject matter wherein there is at least one ethylenically unsaturated reactant.

868 Heterocyclic reactant:
This subclass is indented under subclass 858. Subject matter wherein there is at least one heterocyclic reactant.

(1) Note. "Heterocyclic" is defined in the Class 520 Glossary.

869 N-containing reactant:
This subclass is indented under subclass 858. Subject matter wherein there is at least one reactant which contains nitrogen.

871 N=C=X containing reactant forming a solid polymer or SICP in the presence of a nonreactant material (X is chalcogen):
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer or SICP from at least one N=C=X containing reactant in the presence of a nonreactive material.

(1) Note. X is chalcogen, i.e., O, S, Se, or Te, e.g., isocyanate, etc.

(2) Note. Included herein are the so-called "blocked" isocyanates which regenerate free isocyanate during the course of the reaction, e.g., phenol blocked isocyanates, etc.

872 Two or more N=C=X containing reactants (other than conventional isomer mixtures):
This subclass is indented under subclass 871. Subject matter wherein there are at least two N=C=X containing reactants.

(1) Note. Commercially conventional isomer ratios such as 80:20 2,4-; 2,6- toluene diisocyanate are excluded herefrom since these isomer mixtures are inherent in the method of isocyanate preparation.

873 Aliphatic or cycloaliphatic N=C=X compound:
This subclass is indented under subclass 871. Subject matter wherein there is at least one compound where the -N=C=X group is linked to a carbon which is a member of an aliphatic or cycloaliphatic group.

874 With N-containing reactant:
This subclass is indented under subclass 871. Subject matter wherein there is at least one nitrogen-containing reactant present in addition to the -N=C=X reactant.

875 With two or more alcohol hydroxyl compounds:
This subclass is indented under subclass 871. Subject matter wherein there are at least two C-OH compounds where the carbon is not doubly bonded to chalcogen present in addition to the -N=C=X reactant.

876 Phenolic reactant forming a solid polymer or SICP in the presence of a nonreactant material:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer or SICP from at least one phenolic reactant in the presence of a nonreactant material.

(1) Note. "Phenolic reactant" is defined in the Class 520 Glossary.

877 Aldehyde or derivative or ketone as reactant forming a solid polymer or SICP in the presence of a nonreactant material:
This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is pro-

duced by formation of a solid polymer or SICP from at least one aldehyde or derivative or ketone reactant in the presence of a nonreactant material.

(1) Note. "Aldehyde" "aldehyde derivative" and "ketone" are defined in the Class 520 Glossary.

878 Carboxylic acid or derivative, excluding nitrile as sole derivative as reactant forming a solid polymer in the presence of a nonreactant material:

This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer from at least one carboxylic acid or derivative excluding nitrile derivative as reactant in the presence of a nonreactant material.

(1) Note. "Carboxylic acid or derivative" is defined in the Class 520 Glossary.

SEE OR SEARCH CLASS:

523, Synthetic Resins or Natural Rubbers, subclass 1 for a nitrile containing reactant.

879 Nitrogen-containing reactant:

This subclass is indented under subclass 878. Subject matter wherein there is at least one nitrogen-containing reactant.

881 Ethylenically unsaturated compound or compound containing element other than C, H, O, or N (e.g., P, S, etc.) as reactant forming a solid polymer in the presence of a NRM:

This subclass is indented under subclass 1. Subject matter under Class 523, ... wherein said desired or intentional composition is produced by formation of a solid polymer from at least one compound containing an atom other than C, H, O, or N in the presence of a nonreactant material or from at least one ethylenically unsaturated compound with at least one non(ethylenically unsaturated) compound in the presence of a nonreactant material.

(1) Note. Included are reactants containing, e.g., P, S, etc.

CROSS-REFERENCE ART COLLECTIONS

The following subclasses are collections of published disclosure pertaining to various aspects of art relating to intentional compostions involving solid polymers or specified intermediate condensation products, and which aspects do not form an appropriate base for subclass classification in the classification schedule.

(1) Note. Disclosures are placed for value as a search aid and in no instance do they represent the entire extent of the prior art.

900 ANTIGEN-ANTIBODY:

Subject matter involving polymer-protein compositions having antigen or antibody activity.

901 ELECTRODEPOSITABLE COMPOSITIONS:

Subject matter involving compositions which are depositable upon application of an electric field.

902 ELECTROSTATIC SPRAY:

This subclass is indented under subclass 901. Subject matter involving electrostatic spray compositions.

903 AEROSOL COMPOSITIONS:

Subject matter involving compositions suitable for use as aerosols.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 1+ for continuous gas or vapor phase colloid system (e.g., smoke, fog, aerosol, cloud, mist) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

904 POWDER COATING COMPOSITIONS:

Subject matter wherein the composition is suitable for application as a powder coating, e.g., fluidized bed, etc.

905 ETCH MASKING COMPOSITIONS:

Subject matter involving composition suitable as an etch mask.

906 MULTIPACKAGE COMPOSITIONS:
Subject matter wherein the various components of a composition are arranged in separate packages or compartments intended for subsequent admixture.

907 ADDITIVE OF SPECIFIED SHAPE OTHER THAN FIBER, PARTICLE, OR POWDER:
Subject matter wherein the composition contains an additive of specified shape.

908 COMPOSITION HAVING SPECIFIED SHAPE, E.G., ROD, STICK, OR BALL, ETC., AND OTHER THAN SHEET, FILM, OR FIBER:
Subject matter wherein the overall composition has a specified shape, e.g., rod, stick, or ball, etc., and is other than a sheet, film, or powder.

909 REVERSE OSMOSIS MEMBRANE COMPOSITIONS, E.G., DESALINIZATION, ETC.:
Subject matter wherein the composition is suitable for use in a reverse osmosis membrane.

910 ANTISTATIC COMPOSITIONS:
Subject matter wherein the composition has antistatic property.

911 Composition to apply to a substrate to be destaticized:
This subclass is indented under subclass 910. Subject matter involving compositions to apply to a substrate to be destaticized.

912 Contains metal, boron, phosporus, or silicon:
This subclass is indented under subclass 910. Subject matter involving antistatic compositions containing metal, boron, phosphorus, or silicon atoms.

913 Contains nitrogen nonreactant material:
This subclass is indented under subclass 910. Subject matter involving antistatic compositions containing nitrogen atoms in the nonreactant material.

914 FLOOR COVERING COMPOSITIONS:
Subject matter involving compositions suitable for use as floor coverings.

915 CARPET BACKING ADHESIVES:
Subject matter involving compositions suitable for use as carpet backing adhesives.

916 HYDROGEL COMPOSITIONS:
Subject matter involving hydrogel compositions.

SEE OR SEARCH CLASS:
516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 98+ for colloid systems of continuous or semicontinuous solid phase with discontinuous liquid phase (gels, pastes, flocs, coagulates) or agents for such systems or making or stabilizing such systems or agents, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

917 OIL SPILL RECOVERY COMPOSITIONS:
Subject matter involving compositions suitable for use in oil spill recovery.

918 WOOD PATCHING COMPOSITION:
Subject matter involving compositions suitable for patching wood, e.g., wood putty or filler, etc.

919 METAL PATCHING COMPOSITIONS, E.G., BODY SOLDER, ETC.:
Subject matter involving compositions suitable for metal patching, e.g., body putty, etc.

920 COILABLE PIPE COMPOSITIONS:
Subject matter involving compositions suitable for making coilable pipe, e.g., coilable pvc pipe, etc.

921 ELASTIC MEMORY OR HEAT SHRINKABLE COMPOSITIONS:
Subject matter involving compositions which are heat shrinkable or have elastic memory.

922 FLOCCULATING, CLARIFYING, OR FINING COMPOSITIONS:
Subject matter involving compositions suitable for flocculating, clarifying, or fining.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclasses 98+ for colloid systems of continuous or semicontinuous solid phase with discontinuous liquid phase (gels, pastes, flocs, coagulates) or agents for such systems or making or stabilizing such systems or agents, subclasses 113+ for compositions for or subcombination compositions for or breaking of or inhibiting of colloid systems (e.g., foam breaking, emulsion breaking, dispersion inhibiting, suspension settling, gel breaking, smoke suppressing coagulating, flocculating); in each instance, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

923 TREATING OR PREPARING A NONAQUEOUS DISPERSION OR EMULSION OF A SOLID POLYMER OR SPECIFIED INTERMEDIATE CONDENSATION PRODUCT:

Subject matter involving treating or preparing nonaqueous dispersions or emulsions of solid polymer or SICP.

SEE OR SEARCH CLASS:

516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, subclass 20 for primarily organic continuous liquid phase colloid systems with discontinuous phase primarily organic liquid (e.g., oil-in-oil emulsions or dispersions), subclass 31 primarily organic continuous liquid phase colloid systems with discontinuous phase primarily organic solid or semisolid (e.g., polyetrafluoroethylene dispersed in organic liquid), or agents for such systems or making or stabilizing such systems or agents; in each instance, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

924 TREATING OR PREPARING A NONAQUEOUS SOLUTION OF A SOLID POLYMER OR SPECIFIED INTERMEDIATE CONDENSATION PRODUCT:

Subject matter involving treating or preparing a nonaqueous solution of a solid polymer or SICP.

925 NATURAL RUBBER COMPOSITIONS HAVING NONREACTIVE MATERIALS (DNRM) OTHER THAN: CARBON, SILICON DIOXIDE, GLASS TITANIUM DIOXIDE, WATER, HYDROCARBON:

Subject matter involving natural rubber compositions having a DNRM.

926 With water as NRM, exemplified:

This subclass is indented under subclass 925. Subject matter involving rubber compositions containing water as well as a DNRM. The system is either claimed or appears in an operative embodiment.

927 Before 1930:

This subclass is indented under subclass 926. Subject matter wherein the patent is before 1930.

928 Before 1930, exemplified:

This subclass is indented under subclass 925. Subject matter wherein the patent is before 1930 and the system is either claimed or appears in an operative embodiment.

929 Natural rubber broadly disclosed, nonclaimed:

This subclass is indented under subclass 925. Subject matter wherein there is no claim or exemplification of a natural rubber containing composition.

END