

III. CLASSIFICATION

1. All classifications should be made solely on the basis of chemical composition with the single exception of use as pigments, lakes or dyes with classification of these according to color, and then subclassification by chemical composition of the color. No distinction in classification is to be made between purchased and manufactured materials.
2. The degree of subdivision for classification should be based solely on frequency of use regardless of how many possible compositions might occur in any of the proposed classes. It is obvious that most classes could contain thousands. It is equally obvious that our operations would be thoroughly hampered by having a lot of closely related compositions in our inventory.
3. Following the principles stated in Item 2, a preferred degree of classification would place not less than 10 and not more than 25 general numbers in any one class. If, in use, the general numbers in any one class greatly exceeds 25, it automatically invites criticism of the class for:
 - (a) Readjustment of the classification, and
 - (b) Examination of the necessity of all of the items and a standardization down to a smaller number
4. GENERAL NUMBERS are dry and circle numbers, containing 3 or 4 digits and no letters, for materials used in two or more product lines controlled by different laboratories, and with some degree of permanence.

For example: (145) Mineral Spirits and 6621 Rutile Titanium Dioxide are widely used in hundreds of products formulated in two or more of our laboratories, and appear to be permanent in years of use. In contrast, (36C38) a component of Super Kem Tone, has been made and used for several years in several factories but the control of (36C38) quality remains in just one location, so that it remains a LOCAL NUMBER, as indicated by the letter "C." A new vehicle, such as (39C65), has been introduced into Kem Glo and is being tried in Trade Sales and other lines. When, and only when, it shows promise of "permanent" use in several product lines, it should be reassigned a general number, such as (3967).

- (b) DRY NUMBERS are now defined as any solid materials used permanently in products whose quality is controlled in more than one laboratory, regardless of the number of factories in which the material is used.
 - (c) CIRCLE NUMBERS are now defined as any liquid materials used permanently in products whose quality is controlled in more than one laboratory, regardless of the number of factories in which the material is used.
5. (a) GENERAL NUMBERS are assigned only by Cleveland Technical Service Department. General numbers can be reassigned from old "permanent" dry and circle numbers after a void period of five to ten years. Any reassignment is preceded by an individual investigation of the prior use of the number to minimize errors in identity.

- (b) There should be no duplication between dry and circle numbers even though the circle (parentheses) designation for liquids is continued in the "General" series and is used in "Local" numbers.
6. (a) LOCAL NUMBERS are assigned to materials actually used and which become a part of our products (see Scope in Section I) but are:
- 1. Used in only one general line or products, either temporarily or permanently, as discussed above under "General Numbers".
 - 2. Used temporarily in any number of lines of products as discussed above.
 - 3. Unnecessary for laboratory samples of materials and other things covered under Scope and hypothetical uses in cost calculations.
- (b) LOCAL NUMBERS consist of three parts:
- 1. One or two digits corresponding to the digits in the thousand and hundred places in the general numbers.
 - 2. A letter showing laboratory location in terms of plant filling code letters, A - Cleveland, C - Chicago, etc., as in Section II of this bulletin.
 - 3. A consecutive number - for instance, 32 F 13, is the thirteenth consecutive assignment at Gibbsboro in class 32. Liquid materials should be written as circles (in parentheses), e.g., (39 C 12). Single blank spaces should separate the plant letter from both the class and consecutive numbers. These local numbers replace not only the older V and W numbers, but also those dry and circle numbers which had only local control. Note that "local" refers to point of control, not point of use. Thus, only a local number would be needed for a material used only in Kem-Tone (controlled solely in Chicago) even though the material would be used in making Kem-Tone in several plants.
7. CLASSIFICATION in both dry and circle general numbers is attained in just one system consisting of:
- (a) Up to 99 general classes containing 100 numbers each where the general class is indicated by the digits in the thousands place, if any, and hundred place. Thus 800 through 899 is a general class covering certain soaps, and 3200 through 3299 is a general class covering certain monomeric resins and oil varnishes made from them. Although 800 and 3200 are the correct terms for these two classes, they may, for short, be referred to as Classes 8 and 32.

- (b) Up to 10 subclasses in each general class may be indicated in the tens place. Thus, 800 and through 819, covers a subclass of soaps containing metals of Major Periodic Group I (of the chemical elements) 820, and through 839, covers a subclass of soaps containing metals of Major Group II, etc. Subclass 3200 covers Resins, Manila of Macassar packing; 3210 covers white; 3230, Shellac, orange, etc.
- (c) Although subclassification of general numbers is established in section 7 (b), its extension to local numbers is unnecessary. It is possible by use of the subclass digit after the plant code letter to subclassify local numbers - thus Cleveland set aside 9Alh0 through 9Alh9 for manganese soaps.
- (d) A REFERENCE SUBCLASSIFICATION should be made on all local numbers so that non-technical personnel can easily sort local numbers for purposes of standardization, material procurement, etc. This consists simply of writing the real classified general number or a potential classified-general number which the local number most nearly resembles. If (6107) were given a local classified assignment, such as (36 Cl3) its reference subclassification is 364h, which happens to be an existing assignment. (39 C 1)'s reference number would be 3938. These reference subclassification numbers should be written on:

- 1) X-167 cards in "Composition Sub-Class"
- 2) AlM and AlV cards in "Composition Class"
- 3) Al35 base cards under "Card No." in the right side of "Customer"

8. Records

- (a) All purchased materials should, at the time of assignment, be recorded on an X-167 form "Raw Material Characteristics Card", giving in every case the
 - 1. Composition subclass
 - 2. Trade name; and source (on back)
 - 3. Chemical name or class
 - 4. Usage - product name or product class; e.g., G71 or Rex 471
 - 5. Enough limiting characteristics to assure its performance in the product
 - 6. Name of the chemist responsible for the use of the material
 - 7. Flash point

This X-167 card should be sent promptly as a wet ditto master to Cleveland Service Department for general distribution.

(b) All intermediates should, at the time of assignment, be recorded on either the AIM and AIV cards for unpigmented materials, in conformity with R & P Bulletin 126 on "Vehicle Records and Information" or on the A135 for pigmented materials. Lacquer intermediates can continue on A135 cards.

(c) Assignment bulletins should be issued on local numbers by the local laboratory, either once per month or oftener if the need arises. It is suggested that a cumulative bulletin be issued at the end of the fiscal year by the local laboratory giving all of its assignments and an indication of their being active or void. More details on these bulletins are given in Material Assignment Bulletin No. 1, February 1, 1951, Routine and Policy Consecutive No. 159.

Cleveland Technical Service issues periodic bulletins of general assignments, and also issues a consolidated Material Register, showing active assignments in both the General, Dry and Circle numbers, and a classified consolidation of the local numbers. This register is issued to all departments having need for such information.

(d) Void cards and bulletins should be issued on any:

- 1) Local material which is definitely known, on a local basis, to have no further use
- 2) General material after it has been out of use for one year or after inquiry to every laboratory brings no reply showing continued need.

9. Alternate Sources for One Code Number

(a) Materials may be purchased under one number from two, or more sources only under a carefully written specification with the intent of assuring reasonably identical composition through numerical limits on composition tests and/or physical characteristics; plus the added requirement that any new source or any change in an existing source is approved in a production scale test wherever practical.

(b) If only a factory performance is required on a given material, then every source for the material should be purchased under a separate code number. If, through production experience, no way is found to show practical performance differences through physical or chemical laboratory tests, then the conflicting sources should be purchased under separate code numbers.

10. Definitions of the classes and subclasses will naturally be subject to revision with changing needs for materials. An annual readjustment is probably advisable and suggestions for such revision should be offered freely. It is hoped that the general arrangement of the definitions is sufficiently broad that no major revision will be necessary for many years.

The broad classes of definitions are as follows:

100 thru 2499	Organic Monomers, Non Resinous, Non-Pigment
2500 thru 4999	Organic Polymers and Resinous Monomers
5000 thru 5999	Inorganic Materials, Non Pigment
6000 thru 8999	Pigments, Classified by Color
9000 thru 9999	Open for future use

There follows a one page "Brief Outline" of the classification. This, in turn, is followed by "Material Classification Definitions" with all of the details which have been adopted to date. For distribution as a Routine and Policy bulletin, these details will follow immediately, but in the Formulators' Handbook, they will appear only on the first page of each classified section.

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Research Administration

JCW:VC

Directed to:

1. Routine and Policy Bulletin Mailing List
2. Formulators' Handbook (revised mailing list)

IV. Classification in Brief Outline
Abridged from Detailed Definitions

MONOMERS, ORGANIC

100 Hydrocarbons, non-cyclic, volatile
200 " " " " , non-volatile
300 " cyclic
400 Alcohols, mono-and polyhydric

500 Aldehydes, ketones and quinones
600 Acids, Carboxylic, fatty
700 Acids, " non-fatty
800 Soaps and Salts of metal groups I-III
900 Soaps " " " " " IV-VIII

1000 Phenols, Naphthols, Quinols
1100 Open
1200 Esters of monoalcohols and monoacids
1300 Esters of " " polyacids
1400 Esters of polyalcohols and monoacids,
non-drying
1500 Esters of polyalcohols and monoacids
drying

1600 Open
1700 Amines and their salts
1800 Open
1900 Nitrogen compounds, non-amine

2000 Organic sulfates and sulfonates
2100 Sulfur compounds outside 2000
2200 Open
2300 Open
2400 Misc. and unidentified monomers

POLYMERS & RESINS

2500 Oils, polymerized by heat
2600 Open
2700 Oils, polymerized otherwise
2800 Open
2900 Open

3000 Black, non-pigmented
3100 Natural resins, Copal type
3200 Natural resins, Spirit Soluble
3300 Rosin, unesterified & Oil Varnishes
3400 Rosin, esters and oil varnishes

3500 Rosin esters, phenol modified & oil
varnishes
3600 Rosin esters, acid mod. & oil varn.
3700 Phthalate esters, resin modified
3800 Phthalate esters, non-color retentive
3900 Phthalate esters, color retentive

4000 Phthalate esters, non-drying
4100 Phenol ethers & oil varnishes
4200 Open
4300 Phenol-aldehyde resins & oil varn.
4400 Vinyl polymers of low molecular wt.

Material Code System for
Sherwin-Williams Institution

4500 Vinyl polymers of high molecular wt.
4600 Cellulose resins
4700 Open
4800 Amine resins
4900 Misc. & unidentified polymers

INORGANIC, NON-PIGMENTS

5000 Open
5100 Non-metals & non-salts of VI and VII
5200 " " " " " , others
5300 Salts of metal groups I
5400 " " " " " II and III

5500 Salts of metal groups IV and V
5600 " " " " " VI and VII
5700 " " " " " VIII
5800 Metals and non-salts of III-VIII
5900 " " " " " I and II

PIGMENTS, LAKES & DYES

6000 Inert silicas and aluminas
6100 Open
6200 Silicates, not subclassified
6300 Inert carbonates & sulfates
6400 Open

6500 Open
6600 White, titanium dioxides
6700 White, zinc oxide & sulfide
6800 White, lead pigments & misc.
6900 Open

7000 Black, Carbon, pure
7100 " " impure & misc. inorganic
7200 Black, organic
7300 Open
7400 Metallic pigments, all colors

7500 Open
7600 Blue & Violet, inorganic
7700 Blue & Violet, organic
7800 Green, inorganic
7900 Green, organic

8000 Yellow, Orange & Brown, inorganic
8100 Yellow, Orange & Brown, organic
8200 Yellow, Orange & Brown iron oxides
8300 Open
8400 Red & Maroon iron oxides

8500 Red & Maroon, inorganic misc.
8600 Red & Maroon, α - β naphthol
8700 Red & Maroon, other azo
8800 Red & Maroon, non-azo
8900 Open

VI MATERIAL CLASSIFICATION DEFINITIONS

100 thru 2499 - Organic monomeric materials, not including monomeric resins

100 thru 199 - Hydrocarbons, non-cyclic, volatile, including their halides

- 100 - 119 - C₁ through C₇ and any mixture of hydrocarbons having Tag Open Cup flash points below 20°F.
- 120 - 139 - C₈ and C₉ and any mixture of hydrocarbons having Tag Open Cup flash points between 20°F and 80°F.
- 140 - 159 - C₁₀ and up and any mixture of hydrocarbons having a Tag Open Cup flash point above 80°F.
- 160 - 179 - Volatile, chlorinated, non-cyclic hydrocarbons
- 180 - 199 - Open

200 thru 299 - Hydrocarbons, non-cyclic, non-volatile, including their halides

- 200 - 209 - Mineral oils with viscosities at 100°F. of not over 75 seconds Saybolt Universal
- 210 - 219 - Mineral oils with viscosities at 100°F. of 75 to 125 SSU.
- 220 - 229 - Mineral oils with viscosities at 100°F. of 125 or more SSU
- 230 - 249 - Open
- 250 - 259 - Petrolatums
- 260 - 269 - Paraffin (slack waxes, scale waxes, white paraffin and micro crystalline)
- 270 - 279 - Other hydrocarbon waxes (ozokerite, ceresin, montan, candelilla)
- 280 - 289 - Non-volatile, chlorinated, non-cyclic hydrocarbons
- 290 - 299 - Open

300 thru 399 - Hydrocarbon, cyclic, both volatile and non-volatile, including halides

- 300 - 309 - C₃ through C₆ monocyclic (benzene, cyclohexane, naphthenes)
- 310 - 319 - C₇ monocyclic hydrocarbons and all mixtures of cyclic hydrocarbons having a Tag Open Cup flash point below 80°F. (toluene, toluene substitutes, methyl cyclohexane and C₇ naphthenes)
- 320 - 339 - C₈ and higher aromatic monocyclic hydrocarbons and mixtures of monocyclic hydrocarbons having Tag Open Cup flash points above 80°F. (Xylene, cumene, "High Flash Naphtha", crude heavy naphtha, creosote oils).
- 340 - 349 - C₈ and higher non-aromatic cyclic hydrocarbons and mixtures thereof having Tag Open Cup flash points above 80°F. (Terpenes such as turpentine, pinene, dipentene, limonene, etc., alkyl hexane and alkyl naphthenes).
- 350 - 359 - Non-volatile cyclic hydrocarbons (coal tar neutral oil, rosin oil, naphthalene, anthracene, etc.)
- 360 - 369 - Chlorinated cyclic hydrocarbons (chlorobenzene, etc. This doesn't include chlorinated diphenyls which will be found in class 49).
- 370 - 399 - Open

400 thru 499 - Alcohols, including halogen substituted

- 400 thru 449 - Alcohols, monohydric
- 400 - 409 - Alcohols, C₁ through C₃
- 410 - 419 - Alcohols, C₄ through C₇
- 420 - 429 - Alcohols, C₈ through C₁₂
- 430 - 439 - Alcohols, C₁₃ and up
- 440 - 449 - Open
- 450 - 459 - Dihydric (glycol, diethylene glycol, hexylene glycol, etc.)

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- 460 - 469 - Trihydric (glycerine, trimethylol methane, etc.)
- 470 - 479 - Tetra and higher hydric alcohols (PE, DiPE, Mannitol, etc.)
- 480 - 499 - Open

500 thru 599 - Aldehydes, ketones, quinones and any other compound in which a carbonyl is the sole or principal functional group, including halogen substituted.

- 500 - 519 - Open
- 520 - 529 - Aldehydes
- 530 - 549 - Ketones of C₂ through C₈ (Acetone, MEK, MIB, etc.)
- 550 - 559 - Ketones of C₈ and higher (diisobutyl Ketone)
- 560 - 569 - Open
- 570 - 579 - Quinones
- 580 - 599 - Open

600 thru 699 - Acids, carboxylic, fatty only, including halogen substituted

- 600 - 619 - C₁ through C₁₀ (Formic, acetic, propionic, etc.)
- 620 - 629 - C₁₁ through C₁₄ (Undecylenic, lauric, myristic)
- 630 - 649 - C₁₅ and up, substantially unmodified (palmitic, stearic, soya, linseed, etc.)
- 650 - 669 - C₁₅ and up, substantially modified as with rosin acids (tall oil)
- 670 - 699 - Open

700 thru 799 - Acids, carboxylic, non-fatty, including halogen substituted

- 700 - 749 - Monobasic
- 750 - 799 - Dibasic and polybasic

800 thru 899 - Soaps or salts of carboxylic acids of classes 600 and 700 containing metals of the first three major and minor periodic groups.

- 800 - 819 - Major Group I plus ammonia (Li, Na, K, Rb, Cs)
- 820 - 839 - Minor Group I (Copper, Silver and Gold)
- 840 - 859 - Major Group II (Be, Mg, Ca, Sr, Ba, Ra)
- 860 - 879 - Minor Group II (Zinc, cadmium and mercury)
- 880 - 899 - Group III, major and minor (Aluminum, etc.)

900 thru 999 - Soaps or salts of carboxylic acid containing metals of the 4th through 8th major and minor periodic groups

- 900 - 919 - Group IV, major and minor (lead, tin, Ti, etc.)
- 920 - 929 - Group V, major and minor (antimony, Bi, Va, etc.)
- 930 - 939 - Group VI, major and minor (chromium, etc.)
- 940 - 949 - Group VII, major and minor (manganese, etc.)
- 950 - 969 - Group VIII, (cobalt, iron, nickel, etc.)
- 970 - 999 - Combinations of any class 9 compounds with or without class 8 compounds.

1000 thru 1099 - Phenolic compounds and their metal compounds, including halogen substituted.

- 1000 - 1009 - Phenol
- 1010 - 1019 - Cresols and Xylenols (cresylic acids, etc.)
- 1020 - 1029 - All other alkyl and aryl phenols
- 1030 - 1049 - Phenols, halogenated (chloro phenols)

(Routine and Policy Bulletin 4, Consecutive 177 - Sept. 1, 1955)

- 1050 - 1059 - Naphthols
- 1060 - 1069 - Dihydric phenols (hydroquinone, bisphenol, etc.)
- 1070 - 1099 - Miscellaneous phenols not previously covered.

1100 thru 1199 - Open - Possibly for future classification of ethers

1200 thru 1299 - Esters of monohydric alcohols and monobasic acids

- 1200 - 1219 - Volatile esters with initial boiling points (A.S.T.M. D 1078) up to 100°C. (ethyl acetate)
- 1220 - 1239 - Volatile esters with initial boiling points (A.S.T.M. D 1078) above 100°C. (Butyl acetate, amyl acetate, Butyl lactate, etc.)
- 1240 - 1249 - Mixtures of volatile compounds which contain a substantial fraction of volatile esters (many "thinners" for N/C and other lacquers, vinyl coatings, etc.)
- 1250 - 1269 - Non-volatile esters derived from alcohols of C₇ through C₈ (methyl linoleate, butyl stearate, methyl abitate, etc.)
- 1270 - 1289 - Non-volatile esters derived from alcohols of C₉ and higher (beeswax, Carnauba wax, cetyl palmitate).
- 1290 - 1299 - Open

1300 thru 1399 - Esters of monohydric alcohols and polybasic acids. No sub-classification will be made for the present until larger usage makes this necessary. (dioctyl phthalate, tricresyl phosphate, dibutyl sebacate, etc.)

1400 thru 1499 - Esters and partial esters of polyhydric alcohols and monobasic acids, non-drying

- 1400 - 1429 - Esters of dihydric alcohols (glycol diacetate, diglycol oleate)
- 1430 - 1459 - Esters of trihydric alcohols (coconut, corn, cottonseed and castor oils and their mono and diglycerides, Japan Wax (tripalmitin))
- 1460 - 1499 - Esters of tetra- or higher polyhydric alcohols (PE esters, Marmitol and Mannitan esters, such as Atlas Powder's Tweens and Spans)

1500 thru 1599 - Esters and partial esters of polyhydric alcohols and monobasic acids, drying

- 1500 - 1509 - Soya oil
- 1510 - 1519 - Safflower oil
- 1520 - 1529 - Linseed oil
- 1530 - 1539 - Fish oil
- 1540 - 1549 - Open
- 1550 - 1559 - Dehydrated castor oil
- 1560 - 1569 - Tung oil
- 1570 - 1579 - Oiticica oil
- 1580 - 1599 - Open

1600 thru 1699 - Open

1700 thru 1799 - Amines and their salts, not including sulfur containing compounds, for which see classes 20 and 21.

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- 1700 - 1719 - Alkyl amines (ethyl amine, triethyl amine, etc.)
- 1720 - 1739 - Alkanol and alkyl-alkanol amines (ethyl diethanol amine, isopropanol amine, etc.)
- 1740 - 1749 - Open
- 1750 - 1769 - Aniline and its homologues and analogues (toluidine, ben-
zidine, anisidine, diphenyl amine, naphthylamine)
- 1770 - 1799 - Other amines.

1800 thru 1899 - Open

1900 thru 1999 - Nitrogen compounds other than amines (Class 1700), but not
including sulfur containing compounds, for which see Classes 20 and 21

- 1900 - 1909 - Aliphatic nitro compounds (nitropropane)
- 1910 - 1929 - Aryl nitro compounds (nitrobenzene, o-nitro-chlorobenzene
p-chlor-o-nitraniline, etc.)
- 1930 - 1949 - Nitrogen ring compounds (pyridine, quinoline, pyrazolene, etc.)
- 1950 - 1999 - All other nitrogen compounds not previously covered (Oximes,
amides, etc.)

2000 thru 2099 - Organic sulfates and sulfonates and their salts

- 2000 - 2049 - Sulfates ("sulfonated" castor oil, turkey red oil, sodium
aluryl sulfate, Gardinol, etc.)
- 2050 - 2069 - Sulfonates of benzene, naphthalene and related aromatic
compounds, including phenols, naphthols, aniline and
naphthylamine
- 2070 - 2099 - Other sulfonates

2100 thru 2199 - Sulfur compounds not covered in class 20

2200 thru 2299 - Open

2300 thru 2399 - Open

2400 thru 2499 - Miscellaneous and unidentified monomeric non-resinous organic
compounds (Peroxides, perfumes, complex mixtures, etc.)

2500 thru 4999 - Polymeric and Resinous materials

2500 thru 2999 - Oily, non-resinous, non-black polymers, with or without
volatile diluents

- 2500 - 2599 - Fatty oils, polymerized, by heat or catalysts, containing
only catalysts or volatile diluents as additives. The last
two numbers should, where possible, indicate viscosity,
in stokes, of the undiluted oil.
- 2600 - 2699 - Open - Because of extensive present use in both circle and
dry series; may later be used for expansion from class 25.
- 2700 - 2899 - Fatty oils, polymerized or made viscous, with or without
volatile diluents by:

- a) Oxidation
- b) vulcanization, e.g., S or S C
- c) soap formation in quantities too minor to be
covered by classes 8 and 9, including "boiled"
drier treated oils
- d) any other treatment not covered in class 25.
The last two numbers should, where possible,
indicate viscosity, in stokes, of the undiluted
oil.

2800 - 2899 - Open
2900 - 2999 - Open

3000 thru 3099 - Black materials, unpigmented, Polymeric or Resinous, including both original and added soluble, minor coloration where additive is not large enough for class 72. Includes modification by both volatile diluents and resinous and oily materials.

3000 - 3009 - Asphalts and Tars, natural mineral, e.g., Gilsonite, Manjack.

3010 - 3019 - Asphalts and Tars, synthetic mineral, e.g., petroleum asphalt, plain or air blown; coal tar

3020 - 3029 - Asphalts, Tars and Pitches, non-mineral, e.g., vegetable oil pitches, tall oil pitch, pine tar

3030 - 3039 - Asphaltic combinations of any of the preceding three sub-classes

3040 - 3049 - Asphalts modified by any other resinous material, e.g., by rosin but not by fatty oils.

3050 - 3099 - Asphalts modified by fatty oils, with or without other modifiers. The last two numerals may, where possible, indicate twice the percentage of oil content in the non-volatile portion.

3100 thru 3199 - Monomeric Resins, Natural, "Sopal" (Congro, Kauri, East India, Damar and related "copal" and damar type natural resins)

3100 - 3109 - Congo Gum, natural and processed

3110 - 3119 - Kauri, East India and Damar resins

3120 - 3129 - Miscellaneous, related resins

3130 - 3199 - Oil varnishes of class 31 resins, wherein the last two numerals indicate the approximate oil content in the non-volatile portion.

3200 thru 3299 - Monomeric Resins, Spirit Soluble (excluding rosin) and Gums

3200 - 3209 - Manilla resins, Macassar

3210 - 3219 - Manilla resins, Phillipine and misc. origins, Pontianak and Boea

3220 - 3229 - Shellac, Orange and semi-refined

3230 - 3239 - Shellac, White refined

3240 - 3249 - Miscellaneous alcohol soluble, including Accroides, Sandarac, Elemi, Mastic

3250 - 3259 - Open

3260 - 3269 - Water soluble or dispersible natural gums including Arabic, Karaya, Tragacanth

3270 - 3279 - Gums, glucose related, including starches, dextrin, British gum

3280 - 3299 - Open

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3300 thru 3399 - Rosin, unesterified, and spirit and oil varnishes made therefrom

3300 - 3309 - Rosin, Unpolymerized and spirit solutions thereof.

3310 - 3319 - Rosin, polymerized, hydrogenated, disproportionated or otherwise processed without added materials other than H, O or X, and spirit solutions thereof,

3320 - 3329 - Rosin, metallized (limed rosin, gloss oils, etc.) and spirit solutions thereof

3330 - 3399 - Rosin and oil varnishes, where last two numerals indicate % oil content

3400 thru 3499 - Rosin esters, unmodified by other resins, and spirit and oil varnishes made therefrom

3400 - 3409 - Open - because of previous use

3410 - 3419 - Rosin esters of Di and Trifunctional alcohols, and spirit solutions thereof.

3420 - 3429 - Rosin esters, tetra and higher functional alcohols, and spirit solutions thereof.

3430 - 3499 - Rosin ester oil varnishes thereof where last two numerals indicate % oil content.

3500 thru 3599 - Rosin esters modified by phenolic condensates and oil varnishes made therefrom.

3500 - 3509 - Rosin esters, modified by alkyl phenol - aldehyde condensates

3510 - 3519 - Rosin esters, modified by bis phenol-aldehyde condensate

3520 - 3529 - a) Rosin esters, modified by unidentified phenol-aldehyde condensates

b) Terpene-phenols and other condensations of phenol with terpene or olefinic compounds (Durez 220, Navillac RT, etc.)

3530 - 3599 - Varnishes based on these resins where last two numerals indicate % oil content

3600 thru 3629 - Rosin esters of any polyalcohol, modified by any maleic, fumaric or other acid capable of forming a diene adduct with rosin

3630 thru 3699 - Varnishes based on these resins where last two numerals indicate % oil content

3700 thru 3799 - Phthalate and related esters,* containing more than trivial amounts of phthalic esters, modified by any other resin former, including rosin esters (simple and complex) styrene and other vinyl polymers. The last two numerals indicate approximate % oil content.

3800 thru 3899 - Phthalate and related esters, *non color retentive, drying, containing more than trivial amounts of phthalic esters, unmodified by more than insignificant quantities of other resin forming materials. The last two numerals indicate approximate % oil content. (Includes Tung, Oiticica, Linseed and Fish Oils).

*See next page for note.

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3900 thru 3999 - Phthalate and related* esters, color retentive, drying, containing more than trivial amounts of phthalic esters, unmodified by more than insignificant quantities of other resin forming materials. The last two numerals indicate approximate % oil content. (Includes Dehydrated Castor, Soya, Sunflower, Safflower Oils).

4000 thru 4099 - Phthalate and related* esters, non-drying, containing more than trivial amounts of phthalic esters, unmodified by more than insignificant quantities of other resin forming materials. The last two numerals indicate approximate % oil content. (Includes Raw Castor, Coconut and Cottonseed Oils).

* - Related esters refer to other polybasic acids and their anhydrides having relatively low molecular weights or high acid functionality. These would include esters of terephthalic, chlorophthalic, carbic, Petrex, succinic, azelaic, etc. They would not include rosin dimer acid (Subclass 3310, etc.) fatty acid dimers (Class 750 esterified into classes 2500 and 2700), Vinylite VAGH (Subclass 4560), etc.

4100 thru 4199 - Phenol ethers and their oil varnishes.

4100 - 4109 - Phenol ethers of difunctional alcohols

4110 - 4119 - Phenol ethers of tri- and higher functional alcohols (Epons)

4120 - 4129 - Open

4130 - 4199 - Oil varnishes of phenol ethers where last two numerals indicate % oil content.

4200 - 4299 - Open

4300 thru 4399 - Phenol-aldehyde resins, unmodified, and oil varnishes made therefrom

4300 - 4309 - Reactive phenol-aldehyde syrups and dispersions

4310 - 4329 - Hard phenol-aldehyde resins

4330 - 4399 - Oil varnishes of these resins where last two numerals indicate % oil content

4400 thru 4499 - Vinyl polymers of low to intermediate molecular weight, soluble in fatty oils

4400 - 4409 - Styrene and its homologues including minor modifications by butadiene and other olefins

4410 - 4419 - Cumarone, idene and terpene polymers and copolymers

4420 - 4429 - Valsicol, cyclopentadiene resins

4430 - 4499 - Oil varnishes of these resins where last two numerals indicate % oil content

4500 thru 4599 - Vinyl polymers of high molecular weight, not easily soluble in fatty oils

4500 - 4509 - Rubber, natural or synthetic, Spirit Soluble, Cyclized (Pliolite)

4510 - 4519 - Rubber, natural or synthetic, Spirit Soluble, Linear (Natural, GRS, GRN, etc.)

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4520 - 4529 - Rubber, natural or synthetic, Emulsified
 4530 - 4539 - Rubber, natural or synthetic, Chlorinated (Parlon)
 4540 - 4549 - Acrylic; Spirit soluble
 4550 - 4559 - Acrylic, Emulsions
 4560 - 4569 - Polyvinyl - Chloride - Acetate, Butyral Spirit Soluble
 4570 - 4579 - Polyvinyl Alcohol, Spirit Soluble
 4580 - 4589 - Polyvinyl Chloride-acetate, butyral or alcohol, Emulsified
 4590 - 4599 - Open

4600 thru 4699 - Cellulose resins

4600 - 4609 - Nitrocellulose; 0-1" viscosity
 4610 - 4619 - Nitrocellulose; 1-2"
 4620 - 4629 - Nitrocellulose; 2-6"
 4630 - 4639 - Nitrocellulose 6-30"
 4640 - 4649 - Nitrocellulose 30" - up
 4650 - 4659 - Carboxymethyl and methyl cellulose
 4660 - 4669 - Ethyl cellulose; 0-100 cps. viscosity
 4670 - 4679 - Ethyl cellulose, 100 cps. and up viscosity
 4680 - 4689 - Cellulose acetate
 4690 - 4699 - Cellulose acetobutyrate and miscellaneous

4700 thru 4799 - Open

4800 thru 4899 - Amine aldehyde resins

4800 - 4849 - Urea-aldehyde resins
 4850 - 4899 - Melamine and misc. amine resins

4900 thru 4999 - Miscellaneous and unidentified resins and polymers

4900 - 4949 - Miscellaneous polymers (proteins, casein, alginates, glue, polyethylene glycols, chlorinated diphenyls, silicones)
 4950 - 4999 - Mixtures and unidentified

5000 thru 5999 - Elements and inorganic compounds other than pigments

5000 thru 5099 - Open
 5100 thru 5199 - Non-metals of periodic groups VI and VII plus their oxides, hydrides and other non-metallic compounds

5100 - 5149 - Hydrogen and the halogens (H, F, Cl, Br, I)
 5150 - 5199 - Group VI non-metallic elements (O, S, Se)

5200 thru 5299 - Non-metals of all other groups plus their oxides and other non-metallic compounds; except ammonia

5200 - 5249 - Group V, non-metallic elements (N, P, As)
 5250 - 5299 - All other non-metallic elements (C, B and inert gases)

5300 thru 5399 - Salts of Group I metals

5300 - 5349 - Alkali metals (Li, Na, K, Rb, Cs)
 5350 - 5499 - Group I, Sub-group B elements (Cu, Ag, Au)

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5400 - Salts of metals of Groups II and III

5400 - 5449 - Group II (Be, Mg, Ca, Sr, Ba, Ra, Zn, Cd, Hg)
5450 - 5499 - Group III (Al, Sc, etc.)

5500 thru 5599 - Salts of Groups IV and V

5500 - 5549 - Group IV, (Si, Ti, Zr, Hf, Th, Ge, Sn, Pb)
5550 - 5599 - Group V (V, Nb, Ta, Pa, Sb, Bi)

5600 thru 5699 - Salts of metals of Groups VI and VII

5600 - 5649 - Group VI (Cr, Mo, W, U; Te, Po)
5650 - 5699 - Group VII (Mn, Re, Rh)

5700 thru 5799 - Salts of Metals of Group VIII (Fe, Co, Ni, etc.)

5800 thru 5899 - Metals of periodic groups III through VIII, plus their oxides, hydroxides and their other compounds except salts, not further subclassified. Does not include flake pigments, such as Al, bronze, etc., for which see class 7400.

5900 thru 5999 - Metals of periodic groups I and II plus their oxides, hydroxides and their other compounds except salts. Ammonia is also included.

5900 - 5949 - Group I metals plus ammonia
5950 - 5999 - Group II metals

6000 thru 8999 - Pigments, lakes and dyes in which the major classification is color and subclassification is chemical composition

6000 thru 6499 - Inert pigments

6000 - 6099 - Silicon and aluminum oxides and hydroxides with no subclassifications (amorphous and crystalline silica, diatomaceous earth, silica aerogel, blastite, aluminum hydroxide, etc.) See classes 52 and 58 for related non-pigment compounds.

6100 thru 6199 - Open

6200 thru 6299 - Silicates not subclassified (clays Zeolite, pumice, slate (Fuller's earth, bentonite, talc, asbestos, portland cement).

6300 thru 6399 - Carbonates and sulfates

6300 - 6339 - Calcium carbonates
6340 - 6349 - Magnesium carbonates
6350 - 6369 - Calcium sulfates
6370 - 6379 - Barium sulfates
6380 - 6399 - Open

6400 thru 6499 - Open

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- 6500 thru 6999 - White Pigments
 - 6500 thru 6599 - Open
 - 6600 thru 6609 - Titanium dioxide, pure and reduced
 - 6610 - 6679 - Rutile, pure, not further subclassified
 - 6680 - 6699 - Reduced anatase and Rutile
- 6700 thru 6799 - Zinc Oxides and sulfides
 - 6700 - 6749 - Zinc oxide
 - 6750 - 6799 - Zinc sulfides, pure and lithopone
- 6800 thru 6899 - Lead pigments and miscellaneous white
 - 6800 - 6809 - Basic white lead (carbonate) and basic lead silicate
 - 6810 - 6819 - Basic lead sulfate
 - 6820 - 6849 - Lead zinc oxide
 - 6850 - 6859 - Antimony oxide pigments
 - 6860 - 6899 - Any other white pigments
- 6900 thru 6999 - Open
- 7000 thru 7399 - Black pigments
 - 7000 thru 7099 - Carbon, pure
 - 7000 - 7019 - Carbon; high color
 - 7020 - 7029 - Carbon; medium color
 - 7030 - 7039 - Carbon; low color
 - 7040 - 7049 - Carbon; furnace
 - 7050 - 7059 - Carbon; lamp
 - 7060 - 7099 - Open
 - 7100 thru 7199 - Impure carbon graphite, mineral and miscellaneous inorganic
 - 7100 - 7109 - Bone black
 - 7110 - 7119 - Mineral black, any amorphous carbon
 - 7120 - 7129 - Graphites, both natural and synthetic
 - 7130 - 7149 - Open
 - 7150 - 7159 - Iron oxide blacks
 - 7160 - 7169 - Open
 - 7170 - 7179 - Open
 - 7180 - 7199 - Open
 - 7200 thru 7299 - Organic black pigments and dyes, not subclassified (Nigrosine)
 - 7300 thru 7399 - Open
- 7400 thru 7499 - Metallic pigments of all colors
 - 7400 thru 7479 - Aluminum flake, in natural aluminum color, plus other metals in natural color
 - 7480 - 7419 - Aluminum paste; leafing
 - 7420 - 7439 - Aluminum paste, non-leafing

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- 7440 - 7459 - Aluminum powder, leafing
- 7460 - 7479 - Aluminum powder, non-leafing and other non-colored metal pigments (lead and stainless steel)
- 7480 - 7499 - Colored metallic flake pigments including gold, orange, red, blue and violet
- 7500 thru 7999 - Blue, violet and green pigments
 - 7500 thru 7599 - Open
 - 7600 thru 7699 - Blue and violet pigments, inorganic
 - 7600 - 7649 - Iron blues (Prussian, Chinese, Milori)
 - 7650 - 7679 - Ultramarine blues
 - 7680 - 7699 - Miscellaneous inorganic blue and violet pigments
 - 7700 thru 7799 - Blue and violet pigments, organic
 - 7700 - 7719 - Phthalocyanine blues (Monastral, etc.)
 - 7720 - 7739 - Miscellaneous organic blues (Methyl violet, Indanthrene, blue)
 - 7740 - 7799 - Open
 - 7800 thru 7899 - 7849 - Inorganic greens
 - 7800 - 7849 - Chrome greens
 - 7850 - 7859 - Chromium oxide and hydroxide
 - 7860 - 7899 - Other inorganic greens
 - 7900 thru 7999 - Organic greens
 - 7900 - 7949 - Phthalocyanine greens (Monastral, etc.)
 - 7950 - 7999 - Miscellaneous greens (Malachite, Brilliant, etc.)
- 8000 thru 8399 - Yellow, orange and brown pigments, inorganic
 - 8000 thru 8099 - Inorganic yellow, orange and brown pigments, other than iron oxides
 - 8000 - 8049 - Lead chromate, including molybdate modifications
 - 8050 - 8059 - Zinc chromates
 - 8060 - 8069 - Other metal chromates including strontium and barium
 - 8070 - 8079 - Cadmium lithopone
 - 8080 - 8099 - Miscellaneous inorganic yellow, orange and brown pigments
 - 8100 thru 8199 - Yellow, orange and brown organic pigments including dyes, toners and lakes. No subclassification at present.
 - 8200 thru 8299 - Yellow, orange and brown iron oxides
 - 8200 - 8249 - Earth colors (sienna, ochre and umbers, both raw and burnt)
 - 8250 - 8299 - Synthetic iron oxides
 - 8300 thru 8399 - Open

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8400 thru 8999 - Red and maroon pigments, toners, lakes and dyes

8400 thru 8499 - Red iron oxides, natural and synthetic, not subclassified. (Indian, Spanish, Venetian, Ruscan, Persian Gulf)

8500 thru 8599 - Inorganic reds other than iron oxides

8500 - 8549 - Red lead

8550 - 8599 - Cadmium lithopone and miscellaneous

8600 thru 8699 - Organic reds and maroons, Azo, coupled to Beta Naphthol

8600 - 8649 - From diazo compounds containing sulfonic or carboxyl groups, or salts thereof. (Lithols and sodium, calcium and variations, e.g., Graphic and Britone)

8650 - 8699 - From diazo compounds containing no sulfonic or carboxyl groups or salts thereof. (Para red, Cl-p-nitraniline reds, toluidine reds)

8700 thru 8799 - Organic reds and maroons, Azo, coupled to materials other than Beta naphthol.

8700 - 8749 - Containing sulfonic or carboxyl groups, or salts thereof on either diazo or coupling group. (Scarlet lake, Pigment Scarlet, Lithol Rubine or Rubinox, Solfast, Martoon Toner).

8750 - 8799 - Containing no sulfonic or carboxyl groups or salts thereof on either diazo or coupling group.

8800 thru 8899 - Organic reds, Non-azo
(Indigo, Rose Pink, Rhodamine, Alizarine, Turkey Red)

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