NOTES
1. In section C, the definitions of groups of chemical elements are as follows:
   - ALKALI METALS: Li, Na, K, Rb, Cs, Fr
   - ALKALINE EARTH METALS: Ca, Sr, Ba, Ra
   - LANTHANIDES: elements with atomic numbers 57 to 71 inclusive
   - RARE EARTHS: Sc, Y, Lanthanides
   - ACTINIDES: elements with atomic numbers 89 to 103 inclusive
   - REFRACTORY METALS: Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, W
   - HALOGENS: F, Cl, Br, I, At
   - NOBLE GASES: He, Ne, Ar, Kr, Xe, Rn
   - PLATINUM GROUP: Os, Ir, Pt, Ru, Rh, Pd
   - NOBLE METALS: Ag, Au, Platinum group
   - LIGHT METALS: alkali metals, alkaline earth metals, Be, Al, Mg
   - HEAVY METALS: metals other than light metals
   - IRON GROUP: Fe, Co, Ni
   - NON-METALS: H, B, C, Si, N, P, O, S, Se, Te, noble gases, halogens
   - METALS: elements other than non-metals
   - TRANSITION ELEMENTS: elements with atomic numbers 21 to 30 inclusive, 39 to 48 inclusive, 57 to 80 inclusive, 89 upwards

2. The following notes are meant to assist in the use of this part of the classification scheme; they must not be read as modifying in any way the elaborations.
   1. Section C covers:
      a. pure chemistry, which covers inorganic compounds, organic compounds, macromolecular compounds, and their methods of preparation;
      b. applied chemistry, which covers compositions containing the above compounds, such as: glass, ceramics, fertilisers, plastics compositions, paints, products of the petroleum industry. It also covers certain compositions on account of their having particular properties rendering them suitable for certain purposes, as in the case of explosives, dyestuffs, adhesives, lubricants, and detergents;
      c. certain marginal industries, such as the manufacture of coke and of solid or gaseous fuels, the production and refining of oils, fats, and waxes, the fermentation industry, (e.g. brewing and wine-making) the sugar industry;
      d. certain operations or treatments, which are either purely mechanical, e.g. the mechanical treatment of leather and skins, or partly mechanical, e.g. the treatment of water, or the prevention of corrosion in general;
      e. metallurgy, ferrous or non-ferrous alloys.
   2. a. In the case of operations, treatments, products, or articles which have both a chemical and non-chemical part or aspect, the general rule is that the chemical part or aspect is covered by section C.
      b. In some of these cases, the chemical part or aspect brings with it a non-chemical one, even though purely mechanical, because this latter aspect either is essential to the operation or treatment or constitutes an important element of it; it has seemed, in fact, more logical not to dissociate the different parts or aspects of a coherent whole. This is the case for applied chemistry and for the industries, operations, and treatments mentioned in Notes 1), c), d) and e). For example, furnaces peculiar to the manufacture of glass are covered by class C03 and not by class F27.
      c. There are, however, some exceptions in which the mechanical (or non-chemical) aspect carries with it the chemical aspect, for example:
         • certain extractive processes in subclass A61K;
         • the chemical purification of air in subclass A61L;
         • chemical methods of fire-fighting in subclass A62D;
         • chemical processes and apparatus in class B01;
         • impregnation of wood in subclass B27K;
         • chemical methods of analysis or testing in subclass G01N;
         • photographic materials and processes in class G03, and generally, the chemical treatment of textiles and the production of cellulose or paper in section D.
      d. In still other cases, the pure chemical aspect is covered by section C and the applied chemical aspect by another section such as A, B, F, e.g. the use of a substance or composition for
         • treatment of plants or animals covered by subclass A01N;
         • foodstuffs covered by class A23;
         • munitions or explosives covered by class F42.
      e. When the chemical and mechanical aspects are so closely interlocked that a neat and simple division is not possible, or when certain mechanical processes follow as a natural or logical continuation of a chemical treatment, section C may cover, in addition to the chemical aspect, a part only of the mechanical aspect, e.g. after-treatments of artificial stone covered by class C04. In this latter case a note or a reference is usually given to make the position clear, even if sometimes the division is rather arbitrary.
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C01 INORGANIC CHEMISTRY

NOTES
1. In this class, in the absence of an indication to the contrary, a compound is classified in the last appropriate place; { except compounds of group C01B 6/00 which takes precedence over the other groups of class C01}.
2. The name of compounds is to be taken in a strictly limitative sense. With the exception of hydrogen and oxygen, in order to include water of hydration and acid salts, compounds may not contain other parts than its name suggests. In some cases however subgroups are provided for compounds containing more parts than their name suggests, e.g. group C01F 7/76, providing for alum, is a subgroup of group C01F 7/74 covering aluminium sulfates. In such a case, this note is applicable to the particular subgroup
3. In class C01 it is desirable to add the indexing codes relating to structural and physical aspects of solid inorganic compounds. The indexing codes are choosen from the groups of C01P

C01B NON-METALLIC ELEMENTS; COMPOUNDS THEREOF; [METALLOIDS OR COMPOUNDS THEREOF NOT COVERED BY SUBCLASS C01C]

NOTES
1. In this subclass, tradenames that are often found in scientific and patent literature have been used in order to define precisely the scope of the groups.
2. Attention is drawn to the definitions of groups of chemical elements following the title of section C.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - C01B 35/16, C01B 35/18 covered by C01B 35/00
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C01C AMMONIA; CYANOGEN; COMPOUNDS THEREOF ( {metal hydrides, monoborane, diborane or addition complexes thereof C01B 6/00}; salts of oxyacids of halogens C01B 11/00; peroxides, salts of peroxyacids C01B 15/00; thiosulfates, dithionites, polythionates C01B 17/64; compounds containing selenium or tellurium C01B 19/00; azides C01B 21/08; {compounds other than ammonia or cyanogen, containing nitrogen, non-metals and optionally metals C01B 21/082}; metal imides or amides C01B 21/092; nitrites C01B 21/50; {compounds of noble gases C01B 23/0005}; phosphides C01B 25/08; nitrites C01B 21/50; {compounds of noble gases C01B 23/0005}; phosphides C01B 25/08; {compounds containing silicon C01B 33/00; compounds containing boron C01B 35/00})

C01D COMPOUNDS OF ALKALI METALS, i.e. LITHIUM, SODIUM, POTASSIUM, RUBIDIUM, CAESIUM, OR FRANCIUM (metal hydrides {monoborane, diborane or addition complexes thereof} C01B 6/00; salts of oxyacids of halogens C01B 11/00; peroxides, salts of peroxyacids C01B 15/00; sulfides C01B 17/22; thiosulfates, dithionites, polythionates C01B 17/64; compounds containing selenium or tellurium C01B 19/00; binary compounds of nitrogen with metals C01B 21/06; azides C01B 21/08; {compounds other than ammonia and cyanogen, containing nitrogen and other non-metals C01B 21/082}; metal amides C01B 21/092; nitrites C01B 21/50; phosphides C01B 25/08; {compounds of noble gases C01B 23/0005}; phosphides C01B 25/08; salts of oxyacids of phosphorus C01B 25/16; carbides C01B 32/90; compounds containing silicon C01B 33/00; compounds containing boron C01B 35/00; cyanides C01C 3/08; salts of cyanic acid C01C 3/14; salts of cyanamide C01C 3/16; thiocyanates C01C 3/20)
C01F  COMPOUNDS OF THE METALS BERYLLIUM, MAGNESIUM, ALUMINIUM, CALCIUM, STRONTIUM, BARIUM, RADIUM, THORIUM, OR OF THE RARE-EARTH METALS (metal hydrides {monoborane, diborane or addition complexes thereof} C01B 6/00; salts of oxyacids of halogens C01B 11/00; peroxides, salts of peroxyacids C01B 15/00; sulfides or polysulfides of magnesium, calcium, strontium, or barium C01B 17/42; thiosulfates, dithionites, polythionates C01B 17/64; compounds containing selenium or tellurium C01B 19/00; binary compounds of nitrogen with metals C01B 21/06; azides C01B 21/08; compounds other than ammonia or cyanogen containing nitrogen and non-metals and optionally metals C01B 21/082; amides or imides of silicon C01B 21/087; metal {imides or} amides C01B 21/092, [C01B 21/0923]; nitrites C01B 21/50; compounds of noble gases C01B 23/0005; phosphides C01B 25/08; salts of oxyacids of phosphorus C01B 25/16; carbid C01B 32/90; compounds containing silicon C01B 33/00; compounds containing boron C01B 35/00; compounds having molecular sieve properties but not having base-exchange properties C01B 37/00; compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites, C01C 3/08; compounds containing nitrogen other non-metals and metal C01B 21/082; metal amides C01B 21/092; nitrites C01B 21/50; compounds of noble gases C01B 23/0005; phosphides C01B 25/08; salts of oxyacids of phosphorus C01B 25/16; carbid C01B 32/90; compounds containing silicon C01B 33/00; compounds containing boron C01B 35/00; compounds having molecular sieve properties but not having base-exchange properties C01B 37/00; compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites, C01C 3/08; cyanides C01C 3/08; salts of cyanamide C01C 3/16; thiocyanates C01C 3/20; double sulfates of magnesium with sodium or potassium C01D 5/12; with other alkali metals C01D 15/00, C01D 17/00])

C01G  COMPOUNDS CONTAINING METALS NOT COVERED BY SUBCLASSES C01D OR C01F (metal hydrides {monoborane, diborane or addition complexes thereof} C01B 6/00; salts of oxyacids of halogens C01B 11/00; peroxides, salts of peroxyacids C01B 15/00; thiosulfates, dithionites, polythionates C01B 17/64; compounds containing selenium, or tellurium C01B 19/00; binary compounds of nitrogen with metals C01B 21/06; azides C01B 21/08; compounds containing nitrogen, other non-metals and metal C01B 21/082; metal amides C01B 21/092; nitrites C01B 21/50; compounds of noble gases C01B 23/0005; phosphides C01B 25/08; salts of oxyacids of phosphorus C01B 25/16; carbid C01B 32/90; compounds containing silicon C01B 33/00; compounds containing boron C01B 35/00; compounds having molecular sieve properties but not having base-exchange properties C01B 37/00; compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites, C01C 3/08; cyanides C01C 3/08; salts of cyanamide C01C 3/16; thiocyanates C01C 3/20)

C01P  INDEXING SCHEME RELATING TO STRUCTURAL AND PHYSICAL ASPECTS OF SOLID INORGANIC COMPOUNDS

NOTES
1. This subclass constitutes an internal scheme for indexing only.
2. The indexing scheme is used to identify structural and physical aspects of solid inorganic compounds, already classified in class C01 or subclass C09C.

C02  TREATMENT OF WATER, WASTE WATER, SEWAGE, OR SLUDGE

C02F  TREATMENT OF WATER, WASTE WATER, SEWAGE, OR SLUDGE (separation in general B01D; special arrangements on waterborne vessels of installations for treating water, waste water or sewage, e.g. for producing fresh water, B63J; adding materials to water to prevent corrosion C23F; treating radioactively-contaminated liquids G21F 9/04; regeneration of reactants for recirculation into processes, see the relevant places for the processes)

NOTE
When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
C02F (continued)  
C02F 9/02-C02F 9/14 covered by C02F 9/00 and subgroup

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C03  GLASS; MINERAL OR SLAG WOOL

C03B  MANUFACTURE, SHAPING, OR SUPPLEMENTARY PROCESSES

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   C03B 8/00 covered by C03B 19/00, C03B 37/00
   C03B 8/02 covered by C03B 19/065, C03B 19/12, C03B 37/011, C03B 37/016
   C03B 8/04 covered by C03B 19/106, C03B 19/14, C03B 37/014

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C03C  CHEMICAL COMPOSITION OF GLASSES, GLAZES, OR VITREOUS ENAMELS; SURFACE TREATMENT OF GLASS; SURFACE TREATMENT OF FIBRES OR FILAMENTS MADE FROM GLASS, MINERALS OR SLAGS; JOINING GLASS TO GLASS OR OTHER MATERIALS

NOTES
1. This subclass covers compositions of polycrystalline fibres
2. This subclass does not cover the preparation of single-cristal fibres, which is covered by subclass C30B

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   C03C 6/00 - C03C 6/10 covered by C03C 1/00 - C03C 1/105
   C03C 10/02 - C03C 10/14 covered by C03C 10/00
   C03C 13/02 covered by C03C 13/00
   C03C 27/12 covered by B32B 17/00

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C04  CEMENTS; CONCRETE; ARTIFICIAL STONE; CERAMICS; REFRACTORIES

NOTE
This class does not cover mechanical features provided for elsewhere, e.g. mechanical working B28, kilns F27.

C04B  LIME, MAGNESIA; SLAG; CEMENTS; COMPOSITIONS THEREOF, e.g. MORTARS, CONCRETE OR LIKE BUILDING MATERIALS; ARTIFICIAL STONE { roofing granules E04D 7/005}; CERAMICS (devitrified glass-ceramics C03C 10/00); REFRACTORIES; TREATMENT OF NATURAL STONE

NOTES
1. In this subclass, the following terms or expressions are used with the meanings indicated:
   • “fillers” includes pigments, aggregates and fibrous reinforcing materials;
   • “active ingredients” includes processing aids or property improvers, e.g. grinding aids used after the burning process or used in the absence of a burning process;
   • “mortars”, “concrete” and “artificial stone” are to be considered as a single group of materials, and therefore, in the absence of an indication to the contrary, they include mortar, concrete and other cementitious compositions.
2. In groups C04B 7/00 - C04B 32/00, in the absence of an indication to the contrary, classification is made in the last appropriate place.
3. A composition classified in groups C04B 26/00 or C04B 28/00 is also classified in groups C04B 14/00 - C04B 24/00 if a filler or active ingredient is of interest.
4. In groups C04B 2/00 - C04B 32/00 and C04B 38/00 - C04B 41/00 it is desirable to classify the individual constituents of the mixtures, or other aspects relating to the mixtures or constituents, using Combination Sets with symbols chosen from groups C04B 2/00 - C04B 41/00.
CHEMISTRY

5. In groups C04B 2/00 - C04B 32/00 and C04B 38/00 - C04B 41/00 it is desirable to classify the function of the individual constituents of the mixtures, or other aspects relating to the properties or uses of the mixtures or products obtained, using Combination Sets with symbols chosen from groups C04B 2103/00 - C04B 2111/00.

6. Groups C04B 20/123 and C04B 20/126 are used for indexing purposes only of documents classified in C04B 20/12.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

C05

FERTILISERS; MANUFACTURE THEREOF

NOTES

1. An ingredient in a mixture of fertilisers, or a single fertiliser which contains more than one of the chemical elements on which the subdivision into subclasses is based, is classified only in the first of the appropriate subclasses. Thus, a nitrophosphate or an ammoniated superphosphate is classified in C05B but not in C05C, magnesium phosphate is classified in C05B but not in C05D, and calcium cyanamide in C05C but not in C05D.

2. In this class, mixtures of fertilizers are classified in the first appropriate place. After the notation of the appropriate classification symbol and separated therefrom by a + sign, notations concerning the ingredients of the mixture, not covered by the chosen classification symbol, may be added. These notations are selected from class C05 and are presented in the following way, e.g. C05B 1/02 + C05D 1/02 + C05D 9/02.

C05B

PHOSPHATIC FERTILISERS

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

C05C

NITROGENOUS FERTILISERS

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

CPC - 2020.02

5
C05D INORGANIC FERTILISERS NOT COVERED BY SUBCLASSES C05B, C05C; FERTILISERS PRODUCING CARBON DIOXIDE

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

C05D 11/00 covered by C05D 1/00 - C05D 9/00
(see internal note after the title of class C05)

C05F ORGANIC FERTILISERS NOT COVERED BY SUBCLASSES C05B, C05C, e.g. FERTILISERS FROM WASTE OR REFUSE {{breeding of earthworms A01K 67/0332}}

NOTE

Processes where the composting step is the characterising feature, or apparatus therefor, are classified in group C05F 17/00.

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

C05F 15/00 covered by C05F 1/00 - C05F 11/00
(see also internal note after the title of class C05)

C05G MIXTURES OF FERTILISERS COVERED INDIVIDUALLY BY DIFFERENT SUBCLASSES OF CLASS C05; MIXTURES OF ONE OR MORE FERTILISERS WITH MATERIALS NOT HAVING A SPECIFIC FERTILISING ACTIVITY, e.g. PESTICIDES, SOIL-CONDITIONERS, WETTING AGENTS (organic fertilisers containing added bacterial cultures, mycelia, or the like C05F 11/08; organic fertilisers containing plant vitamins or hormones C05F 11/10; FERTILISERS CHARACTERISED BY THEIR FORM

NOTES

1. This subclass covers mixtures of fertilisers with soil-conditioning or soil-stabilising materials characterised by their fertilising activity.
2. This subclass does not cover mixtures of fertilisers with soil-conditioning or soil-stabilising materials characterised by their soil-conditioning or soil-stabilising activity, which are covered by group C09K 17/00.
3. In this subclass, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, may also be classified in each of those groups.

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

C05G 1/02 - C05G 1/10 covered by C05 (see internal note after the title of class C05)

C06 EXPLOSIVES; MATCHES

C06B EXPLOSIVES OR THERMIC COMPOSITIONS (blasting F42D); MANUFACTURE THEREOF; USE OF SINGLE SUBSTANCES AS EXPLOSIVES (compounds in general C01, C07 or C08; {demolition agents based on cementitious or like materials C04B 41/0009})

NOTES

1. This subclass covers:
   - compositions which are:
     a. explosive: compositions included are those containing both a fuel and sufficient oxidiser so that, upon initiation, they are capable of undergoing a chemical change of a relatively high rate of speed, resulting in the production of usable force for blasting, firearms, propelling missiles, or the like;
     b. thermic: compositions included have
       i. a consumable fuel component which consists of any element which is a metal, B, Si, Se or Te, or mixtures, intercompounds, or hydrides thereof; and
       ii. in combination an oxidant component which is either a metal oxide or a salt (organic or inorganic) capable of yielding a metal oxide on decomposition;
     c. fuels for rocket engines and intended for reaction with an oxidant, excluding air, in order to provide thrust for motive power purposes;
d. for use in affecting the explosion environment, e.g. for neutralising the poisonous gases of explosives, for cooling the explosion gases, or the like;
• methods or apparatus for preparing or treating such compositions not otherwise provided for;
• methods of using single substances as explosives.
2. In this subclass, the following term is used with the meaning indicated:
• "nitrated" covers compounds having a nitro group or a nitrate ester group.
3. Methods or apparatus for preparing or treating such compositions are classified according to the particular components of the compositions.
4. In this subclass, the words "based on", with reference to explosive compositions, refer to the explosive ingredient present in the largest proportion by weight
5. In the absence of an indication to the contrary a composition is classified in the last place that provides for an ingredient

C06C 
DETONATING OR PRIMING DEVICES; FUSES (ammunition fuzes F42C); CHEMICAL LIGHTERS; PYROPHORIC COMPOSITIONS

C06D 
MEANS FOR GENERATING SMOKE OR MIST; GAS-ATTACK COMPOSITIONS; GENERATION OF GAS FOR BLASTING OR PROPULSION (CHEMICAL PART) (fuels C10)

C06F 
MATCHES; MANUFACTURE OF MATCHES

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C07 
ORGANIC CHEMISTRY

NOTES
1. In this class, the following term is used with the meaning indicated:
• "preparation" covers purification, separation, stabilisation or use of additives, unless a separate place is provided therefor.
2. Biocidal, pest repellant, pest attractant or plant growth regulatory activity of compounds or preparations is further classified within IPC. [This IPC Note does not apply in CPC]
3. In subclasses C07C-C07K, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, and with the exception referred to below, a compound is classified in the last appropriate place. For example, 2-butyl-pyridine, which contains an acyclic chain and a heterocyclic ring, is classified only as a heterocyclic compound, in subclass C07D. In general, and in the absence of an indication to the contrary, such as mentioned in groups C07C 59/58, C07C 59/70, the terms "acyclic" and "aliphatic" are used to describe compounds in which there is no ring; and, if a ring were present, the compound would be taken by the "last place" rule to a later group for cycloaliphatic or aromatic compounds, if such a group exists. Where a compound or an entire group of compounds exists in tautomeric forms, it is classified as though existing in the form which is classified last in the system, unless the other form is specifically mentioned earlier in the system.
4. Chemical compounds and their preparation are classified in the groups for the type of compound prepared. The processes of preparation are also classified in places for the types of reaction employed, if of interest. Examples of such places outside this class are:
   C12P  Fermentation or enzyme-using processes to synthesise a desired chemical compound or composition or to separate optical isomers from a racemic mixture
   C25B  Electrolytic production of organic compounds
   C25B  Electrophoretic production of compounds
5. General processes for the preparation of a class of compounds falling into more than one main group are classified in the groups for the processes employed, when such groups exist. The compounds prepared are also classified in the groups for the types of compound prepared, if of interest.
6. In this class, in the absence of an indication to the contrary, the compounds containing carboxyl or thiocarboxyl groups are classified as the relevant carboxylic or thiocarboxylic acids, unless the "last place rule" (see Note (3), above) dictates otherwise; a carboxyl group being a carbon atom having three bonds, and no more than three, to hetero atoms, other than nitrogen atoms of nitro or nitroso groups, with at least one multiple bond to the same hetero atom and a thiocarboxyl group being a carboxyl group having at least one bond to a sulfur atom, e.g. amides or nitriles of carboxylic acids, are classified with the corresponding acids.
7. Salts of a compound, unless specifically provided for, are classified as that compound, e.g. aniline hydrochloride is classified as containing carbon, hydrogen and nitrogen only in group C07C 211/46, sodium malonate is classified as malonic acid in C07C 55/08, and a mercaptide is classified as the mercaptan. Metal chelates are dealt with in the same way. Similarly, metal alcoholates and metal phenates are classified in subclass C07C and not in subclass C07F, the alcohates for instance in groups C07C 31/28-C07C 31/32 and the phenates in group C07C 39/235 or C07C 39/44. Salts, adducts or complexes formed between two or more organic compounds are classified according to all compounds forming the salts, adducts or complexes.
C07B  GENERAL METHODS OF ORGANIC CHEMISTRY; APPARATUS THEREFOR
(preparation of carboxylic acid esters by telomerisation C07C 67/47; telomerisation C08F)

NOTES
1. In this subclass, the functional group which is present already in some residue being introduced and is not substantially involved in a chemical reaction, is not considered as the functional group which is formed or introduced as a result of the chemical reaction.
2. In this subclass, the following term is used with the meaning indicated:
   • “separation” means separation only for the purposes of recovering organic compounds.
3. When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
4. In this subclass, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place according to the type of reaction employed, noting the bond or the functional group which is formed or introduced as a result of the chemical reaction.
5. (C07B 59/00) and subgroups thereof are used for the classification of individual labelled compounds as well as for general methods.
6. (C07B 61/02) is used for the classification of individual free radicals as well as for general methods.

WARNING
The following IPC group is not in the CPC scheme. The subject matter for this IPC group is classified in the following CPC group:
C07B 60/00 covered by C07B 61/02

C07C  ACYCLIC OR CARBOCYCLIC COMPOUNDS

NOTES
1. In this subclass, the following terms or expressions are used with meanings indicated:
   • “bridged” means the presence of at least one fusion other than ortho, peri or spiro;
   • two rings are “condensed” if they share at least one ring member, i.e. “spiro” and “bridged” are considered as condensed;
   • “condensed ring system” is a ring system in which all rings are condensed among themselves;
   • “number of rings” in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;
   • “quinones” are compounds derived from compounds containing a six-membered aromatic ring or a system comprising six-membered aromatic rings (which system may be condensed or not condensed) by replacing two or four CH groups of the six-membered aromatic rings by C=O groups, and by removing one or two carbon-to-carbon double bonds, respectively, and rearranging the remaining carbon-to-carbon double bonds to give a ring or ring system with alternating double bonds, including the carbon-to-oxygen bonds; this means that acenaphthenequinone or camphorquinone are not considered as quinones.
2. In this subclass, in the absence of an indication to the contrary, a process is classified in the last appropriate place.
3. In this subclass, in the absence of an indication to the contrary, “quaternary ammonium compounds” are classified with the corresponding “non-quaternised nitrogen compounds”.
4. For the classification of compounds in groups C07C 1/00 - C07C 71/00 and C07C 401/00 - C07C 409/00:
   • a compound is classified considering the molecule as a whole (rule of the “whole molecule approach”);
   • a compound is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
   • a compound is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes six-membered aromatic ring, unless otherwise specified or implicitly derivable from the subdivision.
5. For the classification of compounds in groups C07C 201/00 - C07C 395/00, i.e. after the functional group has been determined according to the “last place rule”, a compound is classified according to the following principles:
   • compounds are classified in accordance with the nature of the carbon atom to which the functional group is attached;
   • a carbon skeleton is a carbon atom, other than a carbon atom of a carboxyl group, or a chain of carbon atoms bound to each other, a carbon skeleton is considered to be terminated by every bond to an element other than carbon or to a carbon atom of a carboxyl group;
   • when the molecule contains several functional groups, only functional groups linked to the same carbon skeleton as the one first determined are considered;
   • a carbon skeleton is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
   • a carbon skeleton is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes a six-membered aromatic ring.
6. When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.
7. When a process is classified in a process group, combination sets are used to indicate the product of the process. A combination set consists of a process group, followed by and linked to the group of the product. The products are selected from the corresponding product groups.
**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

- C07C 27/02 covered by C07C 29/00, C07C 51/00
- C07C 47/042, C07C 47/045, C07C 47/048, C07C 47/052, C07C 47/055, C07C 47/058 covered by C07C 47/04
- C07C 47/07, C07C 47/09 covered by C07C 47/06
- C07C 53/04 covered by C07C 53/02
- C07C 57/045, C07C 57/05, C07C 57/055, C07C 57/065, C07C 57/07, C07C 57/075 covered by C07C 57/04
- C07C 69/025, C07C 69/03, C07C 69/035 covered by C07C 69/003 - C07C 69/017 and C07C 69/02
- C07C 69/347, C07C 69/353 covered by C07C 69/003 - C07C 69/017 and C07C 69/34
- C07C 69/027 covered by C07C 69/003 - C07C 69/017 and C07C 69/52
- C07C 69/767, C07C 69/773 covered by C07C 69/003 - C07C 69/017 and C07C 69/76
- C07C 69/83 covered by C07C 69/003 - C07C 69/017 and C07C 69/82

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**C07D**

**HETEROCYCLIC COMPOUNDS**

**NOTES**

1. This subclass does not cover compounds containing saccharide radicals as defined in Note (3) following the title of subclass C07H, which are covered by subclass C07H.

2. In this subclass, in compounds containing a hetero ring covered by group C07D 295/00 and at least one other hetero ring, the hetero ring covered by group C07D 295/00 is considered as an acyclic chain containing nitrogen atoms.

3. In this subclass, the following terms or expressions are used with the meaning indicated:
   - “hetero ring” is a ring having at least one halogen, nitrogen, oxygen, sulfur, selenium or tellurium atom as a ring member;
   - “bridged” means the presence of at least one fusion other than ortho, peri or spiro;
   - two rings are “condensed” if they share at least one ring member, i.e. “spiro” and “bridged” are considered as condensed;
   - “condensed ring system” is a ring system in which all rings are condensed among themselves;
   - “number of relevant rings” in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;
   - “relevant rings” in a condensed ring system, i.e. the rings which taken together describe all the links between every atom of the ring system, are chosen according to the following criteria consecutively:
      a. lowest number of ring members;
      b. highest number of hetero atoms as ring members;
      c. lowest number of members shared with other rings;
      d. last place in the classification scheme.

4. Attention is drawn to Note (3) after class C07, which defines the last place priority rule applied in the range of subclasses C07C - C07K and within these subclasses.

5. Therapeutic activity of compounds is further classified in subclass A61P.

6. In this subclass, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary:
   a. compounds having only one hetero ring are classified in the last appropriate place in one of the groups C07D 203/00, C07D 347/00. The same applies for compounds having more hetero rings covered by the same main group, neither condensed among themselves nor condensed with a common carbocyclic ring system;
   b. compounds having two or more hetero rings covered by different main groups neither condensed among themselves nor condensed with a common carbocyclic ring system are classified in the last appropriate place in one of the groups C07D 401/00, C07D 421/00;
   c. compounds having two or more relevant hetero rings, covered by the same or by different main groups, which are condensed among themselves or condensed with a common carbocyclic ring system, are classified in the last appropriate place in one of the groups C07D 451/00, C07D 519/00.

7. In this subclass:
   - where a compound may exist in tautomeric forms, it is classified as though existing in the form which is classified last in the system. Therefore, double bonds between ring members and non-ring members and double bonds between ring members themselves are considered equivalent in determining the degree of hydrogenation of the ring. Formulae are considered to be written in Kekule form;
   - hydrocarbon radicals containing a carbocyclic ring and an acyclic chain by which it is linked to the hetero ring and being substituted on both the carbocyclic ring and the acyclic chain by hetero atoms or by carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, are classified according to the substituents on the acyclic chain. For example, the compound
     ```
     \[
     \text{NH} \quad \text{CH}_2\text{CH}_2\text{CH}_2\text{C} = \text{C} \quad \text{X} \quad \text{H} \quad \text{OH}
     \]`
     ```
CHEMISTRY

C07D (continued)

is classified in group C07D 233/22.

and the compound

\[
\text{NH}_2\text{CH}_2\text{CH}_2\text{CH}_2\xrightarrow{3} \text{X}
\]

is classified in groups C07D 233/24 and C07D 233/26, where \( \text{X} \) —\( \text{NH}_2 \), —\( \text{NHCOCH}_3 \), or —\( \text{COOCH}_3 \).

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C07F ACYCLIC, CARBOCYCLIC OR HETEROCYCLIC COMPOUNDS CONTAINING ELEMENTS OTHER THAN CARBON, HYDROGEN, HALOGEN, OXYGEN, NITROGEN, SULFUR, SELENIUM OR TELLURIUM (metal-containing porphyrins C07D 487/22)

NOTES

1. Attention is drawn to Note (3) C07, which defines the last place priority rule applied in the range of subclasses C07C-C07K and within these subclasses.

2. Attention is drawn to Note (6) following the title of class C07.

3. Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers.

4. In this subclass, organic acid salts, alcoholates, phenates, chelates or mercaptides are classified as the parent compounds.

5. Compounds containing Se or Te are classified with their sulfur homologues.

6. A hydrocarbon chain is considered to be terminated by a heteroatom or by a carbon atom having three bonds to heteroatoms with at the most one to halogen.

7. When groups, e.g. aromatic or aliphatic groups, are mentioned without further indications, it means that the group concerned can be further substituted. Otherwise it will be indicated, e.g. C07F 9/11 with hydroxyalkyl compounds without further substituents on alkyl.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   C07F 9/6593 covered by C07F 9/65815

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C07G COMPOUNDS OF UNKNOWN CONSTITUTION

NOTE

This subclass does not cover peptides or proteins of unknown constitution, which are covered by subclass C07K.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C07H SUGARS; DERIVATIVES THEREOF; NUCLEOSIDES; NUCLEOTIDES; NUCLEIC ACIDS (derivatives of aldonic or saccharic acids C07C, C07D; aldonic acids, saccharic acids C07C 59/105, C07C 59/285; cyanohydrins C07C 255/16; glycals C07D; compounds of unknown constitution C07G; polysaccharides, derivatives thereof C08B; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification C12N 15/00; sugar industry C13)

NOTES

1. This subclass covers compounds containing saccharide radicals (see the definitions in Note (3) below).

2. This subclass does not cover polysaccharides which for the purpose of this subclass are defined as having more than five saccharide radicals attached to each other by glycosidic linkages.

3. In this subclass, the following expressions are used with the meanings indicated:
CHEMISTRY

C07H
(continued)

• "saccharide radical" which is derived from acyclic polyhydroxy-aldehydes or acyclic polyhydroxy-ketones, or from their
cyclic tautomers, by removing hydrogen atoms or by replacing hetero bonds to oxygen by the same number of hetero
bonds to halogen, nitrogen, sulfur, selenium, or tellurium, in accordance with either of the following definitions:
  a. It
    i. consists of an uninterrupted carbon skeleton and oxygen atoms directly attached thereto, and
    ii. is considered to be terminated by every bond to a carbon atom of a cyclic structure and by every bond to a carbon
    atom having three bonds to hetero atoms, e.g. ester or nitrile radicals, and
    iii. contains within the carbon skeleton an unbranched sequence of at the most six carbon atoms in which at least three
carbon atoms — at least two in the case of a skeleton having only four carbon atoms — have one single bond to an
    oxygen atom as the only hetero bond, and
  A. in a cyclic or acyclic sequence, at least one other carbon atom has two single bonds to oxygen atoms as the only hetero
    bonds, or
  B. in an acyclic sequence, at least one other carbon atom has one double bond to an oxygen atom as the only hetero
    bond, the said sequence containing at the most one double bond, i.e. C=C or possibly ketalised C=O), in addition
to the hetero bonds mentioned above under (A) or (B), e.g. the compounds

\[
\begin{align*}
\text{CHO} \\
\text{CHOH} \\
\text{CHO} \\
\text{CHOH} \\
\end{align*}
\]

\[
\begin{align*}
\text{CH}_n\text{OH}
\end{align*}
\]

of at the most six carbon atoms, having bonds to oxygen as defined in this Note

\[
\begin{align*}
\text{CHO} \\
\text{CHOH} \\
\text{CHO} \\
\text{CHO} \\
\text{CH}_n\text{OH}
\end{align*}
\]

\[
\begin{align*}
\text{CHO} \\
\text{CHO} \\
\text{CHOH} \\
\text{CHOH} \\
\text{CH}_n
\end{align*}
\]

n being an integer, are classified in group C07H 3/02;

b. It is also a radical derived from a radical as defined in (a) above by replacing at the most four of the specified hetero
bonds to oxygen by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium;
• "heterocyclic radical" or "hetero ring" is considered to exclude saccharide radicals as defined above

4. Attention is drawn to Note (3) after class C07, which defines the last place priority rule applied in the range of subclasses
C07C-C07K and within these subclasses.

C07J STEROIDS (seco-steroids C07C)

NOTE
This subclass covers compounds containing a cyclopenta[a]hydrophenanthrene skeleton or a ring structure derived therefrom:
• by contraction or expansion of one ring by one or two atoms;
• by contraction or expansion of two rings each by one atom;
• by contraction of one ring by one atom and expansion of one ring by one atom;
• by substitution of one or two carbon atoms of the cyclopenta[a]hydrophenanthrene skeleton, which are not shared by
  rings, by hetero atoms, in combination with the above defined contraction or expansion or not, or;
• by condensation with carbocyclic or heterocyclic rings in combination with one or more of the foregoing alterations or
  not.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the
scheme.
C07K  PEPTIDES (peptides in foodstuffs A23; obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs A23J; preparations for medicinal purposes A61K; peptides containing beta-lactam rings C07D; cyclic dipeptides not having in their molecule any other peptide link than those which form their ring, e.g. piperazine-2,5-diones, C07D; ergot alkaloids of the cyclic peptide type C07D 519/02; macromolecular compounds having statistically distributed amino acid units in their molecules, i.e. when the preparation does not provide for a specific; but for a random sequence of the amino acid units, homopolyamides and block copolyamides derived from amino acids C08G 69/00; macromolecular products derived from proteins C08H 1/00; preparation of glue or gelatine C09H; single cell proteins, enzymes C12N; genetic engineering processes for obtaining peptides C12N 15/00; compositions for measuring or testing processes involving enzymes C12Q; investigation or analysis of biological material G01N 33/00)

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:
   • "amino acids" are compounds in which at least one amino group and at least one carboxyl group are bound to the same carbon skeleton and the nitrogen atom of the amino group may form part of a ring;
   • "normal peptide link" is one between an alpha-amino group of an amino acid and the carboxyl group - in position 1 - of another alpha-amino acid;
   • "abnormal peptide link" is a link where at least one of the linked amino acids is not an alpha-amino acid or a link formed by at least one carboxyl or amino group being part of the side chain of a alpha-amino acid;
   • "peptides" are compounds containing at least two amino acid units, which are bound through at least one normal peptide link, including oligopeptides, polypeptides and proteins, where:
     i. "linear peptides" may comprise rings formed through S-S bridges, or through a hydroxy or a mercapto group of an hydroxy- or mercapto-amino acid and the carboxyl group of another amino acid, (e.g. peptide lactones) but do not comprise rings which are formed only through peptide links;
     ii. "cyclic peptides" are peptides comprising at least one ring formed only through peptide links; the cyclisation may occur only through normal peptide links or through abnormal peptide links, e.g. through the 4-amino group of 2,4-diamino-butanolic acid. Thus, cyclic compounds in which at least one link in the ring is a non-peptide link are considered as "linear peptides";
     iii. "depsipeptides" are compounds containing a sequence of at least two alpha-amino acids and at least one alpha-hydroxy carboxylic acid, which are bound through at least one normal peptide link and ester links, derived from the hydroxy carboxylic acids, where:
        a. "linear depsipeptides" may comprise rings formed through S-S bridges, or through an hydroxy or a mercapto group of an hydroxy- or mercapto-amino acid and the carboxyl group of another amino- of hydroxy-acid but do not comprise rings formed only through peptide or ester links derived from hydroxy carboxylic acids, e.g. Gly-Ala-Gly-OCH$_2$COH and Gly-OCH$_2$CO-Ala-Gly are considered as "linear depsipeptides", but HOCH$_2$CO-Gly-Ala-Gly does not contain an ester link, and is thus a derivative of Gly-Ala-Gly which is covered by C07K 5/08;
        b. "cyclic depsipeptides" are peptides containing at least one ring formed only through peptide or ester links - derived from hydroxy carboxylic acids -, e.g. Gly-Ala-Gly-OCH$_2$CO.

2. Fragments of peptides or peptides modified by removal or addition of amino acids, by substitution of amino acids by others, or by combination of these modifications, are classified as the parent peptides. However, fragments of peptides having only four or less amino acids are also classified in group C07K 5/00.

3. Peptides prepared by chemical processes and having an amino acid sequence derived from naturally occurring peptides are classified as the parent one.

4. Peptides prepared by recombinant DNA technology are not classified according to the host, but according to the original peptide expressed, e.g. HIV peptide expressed in E. coli is classified with HIV peptides.

5. When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - C07K 5/023 covered by C07K 5/0202
   - C07K 5/027 covered by C07K 5/0205
   - C07K 5/03 covered by C07K 5/0207
   - C07K 5/033 covered by C07K 5/0215
   - C07K 5/037 covered by C07K 5/06017
   - C07K 5/06 covered by C07K 5/06078
   - C07K 5/068 covered by C07K 5/06086
   - C07K 5/072 covered by C07K 5/06104
   - C07K 5/075 covered by C07K 5/0613
C08 ORGANIC MACROMOLECULAR COMPOUNDS; THEIR PREPARATION OR CHEMICAL WORKING-UP; COMPOSITIONS BASED THEREON

C08B POLYSACCHARIDES; DERIVATIVES THEREOF (polysaccharides containing less than six saccharide radicals attached to each other by glycosidic linkages C07H; fermentation or enzyme-using processes C12P 19/00; sugar industry C13; production of cellulose D21)

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - C08B 37/02 covered by C08B 37/0021
   - C08B 37/04 covered by C08B 37/0045
   - C08B 37/06 covered by C08B 37/0072 (chitin), C08B 37/0073 (hyaluronic acid) and C08B 37/0069 (chondroitin sulfate)
   - C08B 37/10 covered by C08B 37/0075
   - C08B 37/16 covered by C08B 37/0012

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C08C TREATMENT OR CHEMICAL MODIFICATION OF RUBBERS

NOTE
This subclass covers:
• processes directed to natural rubber or to conjugated diene rubbers
• processes directed to rubbers in general.

WARNING
The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - C08C 1/16 covered by C08C 1/14

C08F MACROMOLECULAR COMPOUNDS OBTAINED BY REACTIONS ONLY INVOLVING CARBON-TO-CARBON UNSATURATED BONDS

NOTES
1. In this subclass, boron or silicon are considered as metals.
2. In this subclass, the following expression is used with the meaning indicated:
   • “aliphatic radical” means an acyclic or a non-aromatic carbocyclic carbon skeleton which is considered to be terminated by every bond to:
     a. an element other than carbon;
     b. a carbon atom having a double bond to one atom other than carbon;
c. an aromatic carbocyclic ring or a heterocyclic ring.
Examples: Polymers of
a. CH$_2$=CH—O—CH$_2$—NH—COO—CH$_2$—CH$_2$—OH are classified in group C08F 16/28;
b. CH$_3$=C(=O)-CH=CH$_2$ are classified in group C08F 16/36;
c. para-C$_6$H$_4$Cl(CH=CH$_2$) are classified in group C08F 12/18.

3. Therapeutic activity of compounds is further classified in subclass A61P.
4. In this subclass, in the absence of an indication to the contrary in the scheme or definitions, classification is made in the last appropriate place.
5. In this subclass:
   a. macromolecular compounds and their preparation are classified in the groups for the type of compound prepared. General processes for the preparation of macromolecular compounds according to more than one main group are classified in groups C08F 2/00-C08F 8/00 for the processes employed. Processes for the preparation of macromolecular compounds are also classified in the groups for the types of reactions employed, if of interest;
   b. subject matter relating to both homopolymers and copolymers is classified in groups C08F 10/00-C08F 38/00;
   c. subject matter limited to homopolymers is classified only in groups C08F 110/00-C08F 138/00;
   d. subject matter limited to copolymers is classified only in groups C08F 210/00-C08F 246/00;
   e. in groups C08F 210/00-C08F 238/00, in the absence of an indication to the contrary, a copolymer is classified according to the major monomeric component.
6. This subclass covers also compositions based on monomers which form macromolecular compounds classifiable in this subclass. In this subclass:
   a. if the monomers are defined, classification is made according to the polymer to be formed:
      • in groups C08F 10/00-C08F 246/00 if no preformed polymer is present;
      • in groups C08F 251/00 - C08F 291/00 if a preformed polymer is present, considering (or not) the reaction to take place as a graft or cross-linking reaction;
   b. if the presence of compounding ingredients is of interest, classification is made in group C08F 2/44;
   c. if the compounding ingredients are of interest per se, classification is also made in subclass C08K.
7. In this subclass, combination sets [C-Sets] are used. The detailed information about the C-Sets construction and the associated syntax rules are found in the Definitions.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C08G MACROMOLECULAR COMPOUNDS OBTAINED OTHERWISE THAN BY REACTIONS ONLY INVOLVING UNSATURATED CARBON-TO-CARBON BONDS

NOTES
1. Therapeutic activity of compounds is further classified in subclass A61P.
2. In this subclass, group C08G 18/00 takes precedence over the other groups. A further classification is given if the polymers are obtained by reactions forming specific linkages for which an appropriate group is provided.
3. Within each main group of this subclass, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.
4. This subclass covers also compositions based on monomers which form macromolecular compounds classifiable in this subclass. In this subclass:
   a. if the monomers are defined, classification is made in groups C08G 2/00 - C08G 79/00, C08G 83/00 according to the polymer to be formed;
   b. if the monomers are defined in a way that a composition cannot be classified within one main group of this subclass, the composition is classified in group C08G 85/00;
   c. if the compounding ingredients are of interest per se, classification is also made in subclass C08K.
5. In this subclass, combination sets [C-Sets] are used. The detailed information about the C-Sets construction and the associated syntax rules are found in the Definitions.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   C08G 14/067, C08G 14/073, C08G 14/09 covered by C08G 14/06
   C08G 59/16, C08G 59/17 covered by C08G 59/14
   C08G 63/49 covered by C08G 63/48
   C08G 65/28 covered by C08G 65/26
   C08G 73/04 covered by C08G 73/02
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
C08H DERIVATIVES OF NATURAL MACROMOLECULAR COMPOUNDS (polysaccharides C08B; natural rubber C08C; natural resins or their derivatives C09F; bituminous materials C10)

WARNING
The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

- C08H 7/00 covered by C08H 6/00

C08J WORKING-UP; GENERAL PROCESSES OF COMPOUNDING; AFTER-TREATMENT NOT COVERED BY SUBCLASSES C08B, C08C, C08F, C08G (mechanical aspects B29; layered products, manufacture thereof B32B; treatment of macromolecular material specially adapted to enhance its filling properties in mortars, concrete or artificial stone C04B 16/04, C04B 18/20, C04B 20/00; treatment of textiles D06)

NOTES
1. This subclass covers processes, not covered by subclasses C08B - C08H, for treating polymers.
   In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. When classifying in subclass C08J, the treatment of specific polymers is indicated using indexing codes chosen from C08J 2300/00 or subgroups thereof.
   Example:
   - Preparation of particles of polystyrene by impregnation of the particles with the blowing agent: C08J 9/18 and C08J 2325/06.
3. The use of a polymeric component in minority, e.g. masterbatch, coating, impregnating agent or thin binder is indicated using indexing codes chosen from C08J 2400/00 or subgroups thereof.
   Examples:
   - Use of PMMA as masterbatch in a polystyrene composition: C08J 3/226 and C08J 2325/06 and C08J 2433/10
   - Bonding of polystyrene by heating: C08J 5/121 and C08J 2325/06
   - Coating of a polyethylene substrate with a polyurethane coating: C08J 7/0427 and C08J 2323/06 and C08J 2475/04
4. In the following subgroups, the codes of C08J 2300/00 - C08J 2399/00 are used to specify:
   - C08J 3/226: the polymeric material to which the masterbatch carrier is added.
   - C08J 7/0427: the polymeric substrate to be coated.
   - C08J 9/0061: the polymeric component in majority in a multicomponents foamable blend.
5. Group C08J 2400/00 was introduced on January 1st, 2012. Patent documents are continuously being reclassified. As a consequence, documents published before 01/01/2012, to which C08J 2400/00 indexing codes were allocated, are indexed in the corresponding head group.
   Example:
   - Use of PMMA as masterbatch in a polystyrene composition: C08J 3/226 and C08J 2325/06 and C08J 2433/00, instead of C08J 2433/10.
6. In the following subgroups, the codes of C08J 2400/00 - C08J 2499/00 are used to specify:
   - C08J 3/226: the polymeric carrier in a masterbatch.
   - C08J 5/12: the chemical nature of the adhesive
   - C08J 7/0427: the chemical nature of the coating(s).
   - C08J 9/0061: the polymeric component in minority in a multicomponents foamable blend.
   - C08J 9/224, C08J 9/236, C08J 9/36, C08J 9/40 and C08J 9/42: the polymer used for coating, binding, or impregnating the foam. C08J 9/26: the polymer to be leached out.
   - C08J 9/33 and C08J 9/35: the foam fragments included in the (foamable) polymer matrix.
   - in all other subgroups, when the presence of a polymeric component in minority is of relevance.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - C08J 5/16 covered by C10N 2250/18
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
**C08K** Use of inorganic or non-macromolecular organic substances as compounding ingredients (paints, inks, varnishes, dyes, polishes, adhesives C09)

**NOTES**

1. In this subclass, in the absence of an indication to the contrary, an ingredient is classified in the last appropriate place.

2. In this subclass:
   - a mixture of ingredients is classified in the most indented group covering all the essential ingredients of the mixture, e.g.:
     - a mixture of a monohydric and a polyhydric alcohol C08K 5/05
     - a mixture of two polyhydric alcohols C08K 5/053
     - a mixture of an alcohol and an ether C08K 5/04
     - a mixture of an ether and an amine C08K 5/00
     - a mixture of an amine and a metal C08K 13/02
   [This note is applied only for mixtures with more than three essential ingredients. Mixtures with two or three ingredients are classified in the appropriate groups of C08K, e.g. a mixture of Al2O3, an ether and an amine is classified in C08K 3/22, C08K 5/06 and C08K 5/17]
   - ammonium salts are classified in the same way as metal salts

3. In this subclass, any ingredient of a mixture which is not identified by the classification according to Note (2) above, and the use of which is determined to be novel and non-obvious, must also be classified in this subclass according to Note (1). The ingredient can be either a single compound or a composition in itself. [This IPC Note does not apply in CPC]

4. Any ingredient of a mixture which is not identified by the classification according to Notes (2) or (3) above, and which is considered to represent information of interest for search, may also be classified in this subclass according to Note (1). This can, for example, be the case when it is considered of interest to enable searching of mixtures using a combination of classification symbols. Such non-obligatory classification should be given as "additional information". [This IPC Note does not apply in CPC]

5. In this subclass, combination sets [C-Sets] are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the definitions of C08K

6. In this subclass, organic acid salts, alcoholates, phenolates or mercaptides are classified in the groups or subgroups of the parent compounds.

**WARNING**

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

C08K 5/5445 covered by C08K 5/544

**C08L** COMPOSITIONS OF MACROMOLECULAR COMPOUNDS (compositions based on polymerisable monomers C08F, C08G; artificial filaments or fibres D01F; textile treating compositions D06)

**NOTES**

1. In this subclass, the following term is used with the meaning indicated:
   - Rubber includes:
     a. natural or conjugated diene rubbers;
     b. rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for compositions of such macromolecular compounds).

2. In this subclass:
   a. compositions are classified according to the mutual proportions by weight of only the macromolecular constituents;
   b. compositions are classified according to the macromolecular constituent or constituents present in the highest proportion: if all these constituents are present in equal proportions the composition is classified according to each of these constituents.

3. Any macromolecular constituent of a composition which is not identified by the classification according to Note (2) above, and the use of which is determined to be novel and non-obvious, must also be classified in this subclass. For example, a composition containing 80 parts polyethene and 20 parts polyvinyl chloride is classified in both groups C08L 23/06 and C08L 27/06, if the use of polyvinyl chloride is determined to be novel and non-obvious. [This IPC Note does not apply in CPC]

4. Any macromolecular constituent of a composition which is not identified by the classification according to Notes (2) or (3) above, and which is considered to represent information of interest for search, may also be classified in this subclass. This can, for example, be the case when it is considered of interest to enable searching of compositions using a combination of classification symbols. Such non-obligatory classification should be given as "additional information". [This IPC Note does not apply in CPC]

5. [Compositions classified in C08K according to note 3 of C08K, are not classified in C08L.]

6. In this subclass, combination sets [C-Sets] are used. The detailed information about the C-Sets construction and the associated syntax rules is present in the definitions of C08L.
7. {C08L 2666/00 indexing codes were used for C-Sets classification of documents before April 2012. In addition to note (6), for searching documents classified before April 2012, see also C08L 2666/00 in the definitions of C08L.}

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   - C08L 61/08-C08L 61/10 covered by C08L 61/06
   - C08L 63/02 covered by C08L 63/00
   - C08L 83/05 covered by C08L 83/04
   - C08L 83/07 covered by C08L 83/04

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C09

DYES; PAINTS; POLISHES; NATURAL RESINS; ADHESIVES; COMPOSITIONS NOT OTHERWISE PROVIDED FOR; APPLICATIONS OF MATERIALS NOT OTHERWISE PROVIDED FOR

C09B

ORGANIC DYES OR CLOSELY-RELATED COMPOUNDS FOR PRODUCING DYES {, e.g. PIGMENTS}; MORDANTS; LAKES (fermentation or enzyme using processes to synthesise a desired chemical compound C12P)

NOTE

In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place

WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   - C09B 23/01 covered by C09B 23/0008 - C09B 23/0091
   - C09B 29/01 covered by C09B 29/0003 - C09B 29/0022
   - C09B 29/03 covered by C09B 29/0007
   - C09B 29/033 covered by C09B 29/0025
   - C09B 29/036 covered by C09B 29/0029
   - C09B 29/039 covered by C09B 29/0074 - C09B 29/0081
   - C09B 29/042 covered by C09B 29/0085
   - C09B 29/045 covered by C09B 29/0088
   - C09B 29/048 covered by C09B 29/0092
   - C09B 29/085 covered by C09B 29/0093 - C09B 29/0848
   - C09B 29/09 covered by C09B 29/0025, C09B 29/0801 - C09B 29/0848
   - C09B 29/15 covered by C09B 29/103
   - C09B 29/40 covered by C09B 29/3608 - C09B 29/3613
   - C09B 29/42 covered by C09B 29/3617 - C09B 29/3639
   - C09B 29/44 covered by C09B 29/3643
   - C09B 29/46 covered by C09B 29/3652
   - C09B 29/48 covered by C09B 29/3656
   - C09B 29/50 covered by C09B 29/3666
   - C09B 29/52 covered by C09B 29/3665
   - C09B 33/13 covered by C09B 33/12
   - C09B 46/00 covered by C09B 27/00 - C09B 45/00
   - C09B 67/02 covered by C09B 67/0097
   - C09B 67/04 covered by C09B 67/0001
   - C09B 67/06 covered by C09B 67/0003
   - C09B 67/08 covered by C09B 67/0004
   - C09B 67/10 covered by C09B 67/0014
   - C09B 67/12 covered by C09B 67/0016
   - C09B 67/14 covered by C09B 67/0017
   - C09B 67/16 covered by C09B 67/0019
   - C09B 67/18 covered by C09B 67/002
   - C09B 67/20 covered by C09B 67/0006
   - C09B 67/22 covered by C09B 67/0033
   - C09B 67/24 covered by C09B 67/0072
   - C09B 67/26 covered by C09B 67/0073
   - C09B 67/28 covered by C09B 67/0077
   - C09B 67/30 covered by C09B 67/0078
   - C09B 67/32 covered by C09B 67/0075
TREATMENT OF INORGANIC MATERIALS, OTHER THAN FIBROUS FILLERS, TO ENHANCE THEIR PIGMENTING OR FILLING PROPERTIES (preparation of inorganic compounds or non-metallic elements C01; treatment of materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone C04B 14/00, C04B 18/00, C04B 20/00); PREPARATION OF CARBON BLACK; {PREPARATION OF INORGANIC MATERIALS WHICH ARE NO SINGLE CHEMICAL COMPOUNDS AND WHICH ARE MAINLY USED AS PIGMENTS OR FILLERS} 

NOTES
1. In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place
2. Treatment by polymerisation onto particle is classified in C08F 292/00. Only treatment by already polymerised agents is classified in C09C
3. Whenever in groups C09C 1/00 - C09C 1/66 the materials consist of a particulate core bearing a coating or any other deposit, classification is done only according to the composition of the core, unless otherwise stated, e.g. C09C 1/0015, C09C 1/0078
4. Preparations of those materials which are no single chemical compounds comprise those of many ceramic pigments (C09C 1/0009), consisting of solid solutions or polycristalline structures, and those defined as composite materials (C09C 1/0081)
5. Preparation and treatment steps are not always easy to distinguish from each other, e.g. preparation in the presence of treating agents (by precipitation or calcination), precise reacting conditions, affecting pigmentary effects. It is common practice to include these complex topics in C09C 1/00 while avoiding redundancy
6. When classifying in this subclass, the indexing codes of subclass C01P are used to identify structural or physical aspects of solid inorganic compounds

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   C09C 1/68 covered by C09K 3/14
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

COATING COMPOSITIONS, e.g. PAINTS, VARNISHES OR LACQUERS; FILLING PASTES; CHEMICAL PAINT OR INK REMOVERS; INKS; CORRECTING FLUIDS; WOODSTAINS; PASTES OR SOLIDS FOR COLOURING OR PRINTING; USE OF MATERIALS THEREFOR (cosmetics A61K; processes for applying liquids or other fluent materials to surfaces, in general, B05D; staining wood B27K 5/02; glazes or vitreous enamels C03C; natural resins, French polish, drying-oils, driers, turpentine, per se, C09F; polishing compositions other than French polish, ski waxes C09G; adhesives or use of materials as adhesives C09J; materials for sealing or packing joints or covers C09K 3/10; materials for stopping leaks C09K 3/12; processes for the electrolytic or electrophoretic production of coatings C25D)

NOTES
1. In this subclass, the following terms or expressions are used with the meanings indicated:
   • "use of materials for coating compositions" means the use of known or new polymers or products;
   • "rubber" includes:
     a. natural or conjugated diene rubbers;
     b. rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for coating compositions based on such macromolecular compounds);
c. "based on" is defined by means of Note 3, below;

d. "filling pastes" means materials used to fill up the holes or cavities of a substrate in order to smooth its surface prior to coating.

2. In this subclass, coating compositions containing specific macromolecular substances are classified only according to the macromolecular substance, non-macromolecular substances not being taken into account.
   • Example: a coating composition containing polyethylene and amino-propyltrimethoxysilane is classified in group C09D 123/06.
   • However, coating compositions containing combinations of organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond with prepolymer or polymers other than unsaturated polymers of groups C09D 159/00 - C09D 187/00 are classified according to the unsaturated non-macromolecular component in group C09D 4/00.
   • Example: a coating composition containing polyethylene and styrene monomer is classified in group C09D 4/06.
   • Aspects relating to the physical nature of the coating compositions or to the effects produced, as defined in group C09D 5/00, if clearly and explicitly stated, are also classified in this subclass.
   • Coating compositions characterised by other features, e.g. additives, are classified in group C09D 7/00, unless the macromolecular constituent is specified.

3. In this subclass, coating compositions comprising two or more macromolecular constituents are classified according to the macromolecular constituent or constituents present in the highest proportion, i.e. the constituent on which the composition is based. If the composition is based on two or more constituents, present in equal proportions, the composition is classified according to each of these constituents.
Examples:
   • A coating composition containing 80 parts of polyethylene and 20 parts of polyvinylchloride is classified in group C09D 123/06;
   • A coating composition containing 40 parts of polyethylene and 40 parts of polyvinylchloride is classified in groups C09D 123/06 and C09D 127/06.

4. [In this subclass, combination sets [C-Sets] are used. Detailed information about the C-Sets construction and the associated syntax rules is found in the definitions for C09D.]

5. [In addition to Note (4) above C08L 2666/00 indexing codes were used for C-Sets classification of documents before April 2012. See C-Sets Search Rules in C08L, in C09D, or in C09J Definitions.]
ADHESIVES; NON-MECHANICAL ASPECTS OF ADHESIVE PROCESSES IN GENERAL; ADHESIVE PROCESSES NOT PROVIDED FOR ELSEWHERE; USE OF MATERIAL AS ADHESIVES (surgical adhesives A61L 24/00; adhesives on the basis of non-specified organic macromolecular compounds used as bonding agents in layered products B32B; organic labelling fabrics or comparable materials or articles with deformable surface using adhesives and thermo-activatable adhesives respectively B65C 5/02, B65C 5/04; preparation of glue or gelatine C09H; adhesive labels, tag tickets or similar identification of indication means G09F 3/10)

NOTES
1. In this subclass, the following terms or expressions are used with the meanings indicated:
   2. "use of materials as adhesives" means the use of known or new polymers or products;
      • "rubber" includes:
         a. natural or conjugated diene rubbers;
         b. rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for adhesives based on such macromolecular compounds);
      • "based on" is defined by means of Note 3, below.
3. In this subclass, adhesives containing specific macromolecular substances are classified only according to the macromolecular substance, non-macromolecular substances not being taken into account.
   • Example: an adhesive containing polyethylene and amino-propyltrimethoxysilane is classified in group C09J 123/06.
   • However, adhesives containing combinations of organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond with prepolymers or polymers other than unsaturated polymers of groups C09J 159/00 - C09J 187/00 are classified according to the unsaturated non-macromolecular component in group C09J 4/00.
   • Example: an adhesive containing polyethylene and styrene monomer is classified in group C09J 4/06.
   • Aspects relating to the physical nature of the adhesives or to the effects produced, as defined in group C09J 9/00, if clearly and explicitly stated, are also classified in this subclass.
   • Adhesives characterised by other features, e.g. additives, are classified in group C09J 11/00, unless the macromolecular constituent is specified.
4. In this subclass, adhesives comprising two or more macromolecular constituents are classified according to the macromolecular constituent or constituents present in the highest proportion, i.e. the constituent on which the adhesive is based. If the adhesive is based on two or more constituents, present in equal proportions, the adhesive is classified according to each of these constituents.
   • Examples: An adhesive containing 80 parts of polyethylene and 20 parts of polyvinylchloride is classified in group C09J 123/06; an adhesive containing 40 parts of polyethylene and 40 parts of polyvinylchloride is classified in groups C09J 123/06 and C09J 127/06.
   • An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups C09J 123/06 and C08K 5/544.
5. [An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups C09J 123/06 and C08K 5/544]
6. [In this subclass, combination sets [C-Sets] are used. The detailed information about the C-Sets construction and the associated syntax rules are found in the Definitions of C09J]
7. [In addition to note (5), C08L 2666/00 indexing codes were used for C-Sets classification of documents before April 2012 (see also C-Sets search rules in C08L, C09D, in C09J definition)]

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   C09J 4/02 covered by C09J 4/00
   C09J 4/04 covered by C09J 4/00
   C09J 161/08 - C09J 161/10 covered by C09J 161/06
   C09J 163/02 covered by C09J 163/00
   C09J 183/05 covered by C09J 183/04
   C09J 183/07 covered by C09J 183/04
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

MATERIALS FOR MISCELLANEOUS APPLICATIONS, NOT PROVIDED FOR ELSEWHERE

NOTES
1. This subclass covers also the use of specified materials in general or their use for the applications not specially provided for elsewhere.
2. In this subclass, the following term is used with the meaning indicated:
“materials” includes compositions.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - C09K 11/78 - C09K 11/86

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C10 PETROLEUM, GAS OR COKE INDUSTRIES; TECHNICAL GASES CONTAINING CARBON MONOXIDE; FUELS; LUBRICANTS; PEAT

C10B DESTRUCTIVE DISTILLATION OF CARBONAGEOUS MATERIALS FOR PRODUCTION OF GAS, COKE, TAR, OR SIMILAR MATERIALS (cracking oils C10G; underground gasification of minerals E21B 43/295)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C10C WORKING-UP PITCH, ASPHALT, BITUMEN, TAR; PYROLIGNEOUS ACID (compositions of bituminous materials C08L 95/00; carbon filaments by decomposition of organic filaments D01F 9/14)

C10F DRYING OR WORKING-UP OF PEAT

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C10G CRACKING HYDROCARBON OILS; PRODUCTION OF LIQUID HYDROCARBON MIXTURES, e.g. BY DESTRUCTIVE HYDROGENATION, OLIGOMERISATION, POLYMERISATION (cracking to hydrogen or synthesis gas C01B; cracking or pyrolysis of hydrocarbon gases to individual hydrocarbons or mixtures thereof of definite or specific constitution C07C; cracking to cokes C10B); RECOVERY OF HYDROCARBON OILS FROM OIL-SHALE, OIL-SAND, OR GASES; REFINING MIXTURES MAINLY CONSISTING OF HYDROCARBONS; REFORMING OF NAPHTHA; MINERAL WAXES (inhibiting corrosion or incrustation in general C23F)

NOTES

1. In this subclass,
   - groups C10G 9/00 - C10G 49/00 are limited to one-step processes;
   - combined or multi-step processes are covered by groups C10G 51/00 - C10G 69/00;
   - refining or recovery of mineral waxes is covered by group C10G 73/00

2. In this subclass, the following terms or expressions are used with the meanings indicated:
   - “in the presence of hydrogen” or “in the absence of hydrogen” mean treatments in which hydrogen, in free form or as hydrogen generating compounds, is added, or not added, respectively;
   - “hydrotreatment” is used for conversion processes as defined in group C10G 45/00 or group C10G 47/00;
   - “hydrocarbon oils” covers mixtures of hydrocarbons such as tar oils or mineral oils.

3. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - C10G 73/23
   - covered by C10G 73/06

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
C10H PRODUCTION OF ACETYLENE BY WET METHODS \{(purification of acetylene C07C 7/00)\}

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C10J PRODUCTION OF PRODUCER GAS, WATER-GAS, SYNTHESIS GAS FROM SOLID CARBONACEOUS MATERIAL, OR MIXTURES CONTAINING THESE GASES (synthesis gas from liquid or gaseous hydrocarbons C01B; underground gasification of minerals E21B 43/295); CARBURETTING AIR OR OTHER GASES

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C10K PURIFYING OR MODIFYING THE CHEMICAL COMPOSITION OF COMBUSTIBLE GASES CONTAINING CARBON MONOXIDE

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C10L FUELS NOT OTHERWISE PROVIDED FOR (fuels for generating pressure gas, e.g. for rockets C06D 5/00; candles C11C; nuclear fuel G21C 3/00); NATURAL GAS; SYNTHETIC NATURAL GAS OBTAINED BY PROCESSES NOT COVERED BY SUBCLASSES C10G, C10K; LIQUEFIED PETROLEUM GAS; ADDING MATERIALS TO FUELS OR FIRES TO REDUCE SMOKE OR UNDESIRABLE DEPOSITS OR TO FACILITATE SOOT REMOVAL; FIREFIGHTERS

NOTE
In subclass C10L it is desirable to give indexing codes for information about components of solid, liquid and gaseous fuels or firelighters, their additives and constituents and their preparation and use. The indexing codes are taken from C10L 2200/00 - C10L 2290/60

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C10M LUBRICATING COMPOSITIONS (well drilling compositions C09K 8/02); USE OF CHEMICAL SUBSTANCES EITHER ALONE OR AS LUBRICATING INGREDIENTS IN A LUBRICATING COMPOSITION {{lubricants for medical use A61} ; mould release, i.e. separating, agents for metals B22C 3/00, for plastics or substances in a plastic state, in general B29C 33/56, for glass C03B 40/02, use of particular substances in particular apparatus or conditions, see F16N or the relevant groups for the application, e.g. A21D 8/08, B21C 9/00, H01B 3/18; immersion oils for microscopy G02B 21/33)

NOTES
1. In this subclass, the following terms are used with the meanings indicated:
   • "lubricant" or "lubricating composition" includes cutting oils, hydraulic fluids, metal drawing compositions, flushing oils, slushing oils, or the like;
   • "aliphatic" includes "cycloaliphatic".
2. In respect of the classification of mixtures, attention is drawn to Note (4) (e) below.
3. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place. Thus, a compound having an aromatic ring is classified as aromatic regardless of whether the substituent(s) of interest are on the ring or on an aliphatic part of the molecule.
4. In this subclass:
   a. metal or ammonium salts of a compound are classified as that compound;
   b. salts or adducts formed between two or more organic compounds are classified according to all compounds forming the salt or adduct, if of interest;
c. a specified compound, e.g. phenols, acids, substituted by a macromolecular hydrocarbon radical is classified as that compound;

d. base-materials or thickeners or additives consisting of a mixture for which no specific main group is provided are classified in the most indented group covering all essential constituents of the mixture, for example,
   • a base-material mixture of ketone and amide - group C10M 105/00
   • a base-material mixture of ketone and ether - group C10M 105/08
   • an additive mixture of long and short chain esters - group C10M 129/00
   • an additive mixture of short chain aliphatic and aromatic carboxylic acids - group C10M 129/26;

e. except for aqueous lubricating compositions containing more than 10% water, which are classified separately, classification is made according to the type of ingredient or mixture of types of ingredient (base-material, thickener or additive) which characterises the composition. Attention is drawn to the fact that a mixture of essential ingredients characterised by only one of its components, rather than by the mixture as a whole, is not classified as a mixture, e.g. a lubricating composition consisting of:
   • a known base-material and a new additive is classified only in the "additive" part of the classification scheme;
   • a known base-material with both a thickener and a further additive as essential ingredients, which may be individually classified as a mixture of thickener and additive;
   • known base-material with a combination of additives as essential ingredients, which may be individually known or not, is classified in the appropriate place for the additive mixture.

5. In this subclass, it is desirable to add the indexing codes of:
   • subclass C10M, relating to the chemical constitution of individual compounds of the lubricating compositions;
   • subclass C10N, relating to physico-chemical aspects of the lubricating compositions or of their compounding ingredients.
For more information about the way of allocating these indexing codes, see the notes after the titles of the respective subclasses.

6. In this subclass, until May 2003, indexing codes were added, relating to:
   • each of the essential ingredients of a mixture. However, in the case of an aqueous lubricating composition covered by group C10M 173/00, the presence of water is not indicated;
   • each of the essential reactants of a reaction product covered by groups C10M 109/02, C10M 121/04 or C10M 159/12
The indexing codes, which are chosen from groups C10M 101/00 - C10M 177/00.

7. In this subclass, until May 2003, the indexing codes of subclass C10N were added.
   Documents classified with Combination Sets according to internal Notes 2), 3) and 5) are in the state of being reclassified according to Note 1).

WARNING
The following groups are no longer used for the classification of new documents from January, 1978:
- C10M 1/00 - C10M 7/00
The backlog of these groups is continuously being reclassified in groups C10M 101/00 - C10M 177/00.

C10N INDEXING SCHEME ASSOCIATED WITH SUBCLASS C10M RELATING TO LUBRICATING COMPOSITIONS

NOTES
1. This subclass constitutes an indexing scheme associated with subclass C10M, relating to:
   • metals and the metal of a compound in group C10N 2010/00;
   • the properties of the lubricant composition or constituents thereof in groups C10N 2020/00, C10N 2030/00;
   • the use or application of the lubricant composition in group C10N 2040/00;
   • the form in which the lubricant composition is applied in group C10N 2050/00;
   • chemical modification by after-treatment of lubricant constituents in group C10N 2060/00;
   • special methods of preparation in group C10N 2070/00;
   • special pretreatment of the material to be lubricated in group C10N 2080/00.
2. In this subclass, the following terms or expressions are used with the meanings indicated:
   • "lubricant" or "lubricating composition" includes cutting oils, hydraulic fluids, metal drawing compositions, flushing oils, slushing oils, or the like;
   • "aliphatic" includes "cycloaliphatic".

C11 ANIMAL OR VEGETABLE OILS, FATS, FATTY SUBSTANCES OR WAXES; FATTY ACIDS THEREFROM; DETERGENTS; CANDLES
CPC - 2020.02

C11B PRODUCING (PRESSING, EXTRACTION), REFINING AND PRESERVING FATS, FATTY SUBSTANCES (e.g. LANOLIN), FATTY OILS AND WAXES, INCLUDING EXTRACTION FROM WASTE MATERIALS; ESSENTIAL OILS; PERFUMES (drying-oils C09F)

NOTE
In this subclass, boron and silicon are considered as metals

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C11C FATTY ACIDS FROM FATS, OILS OR WAXES; CANDLES; FATS, OILS OR FATTY ACIDS BY CHEMICAL MODIFICATION OF FATS, OILS, OR FATTY ACIDS OBTAINED THEREFROM

C11D DETERGENT COMPOSITIONS (preparations specially adapted for washing the hair A61Q 5/02, A61K 8/00; methods or apparatus for disinfection or sterilisation A61L; special washing compositions for cleaning semi-permeable membranes B01D 65/06); USE OF SINGLE SUBSTANCES AS DETERGENTS; SOAP OR SOAP-MAKING; RESIN SOAPS; RECOVERY OF GLYCEROL

NOTE
Documents classified in groups C11D 1/37, C11D 1/645 - C11D 1/655, C11D 1/825 - C11D 1/86, C11D 1/94 - C11D 1/945 and C11D 10/00 - C11D 10/047, are indexed using codes chosen from C11D 1/00 - C11D 1/92 to provide information on the individual ingredients on the compositions

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

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<th>IPC groups</th>
<th>Covered by</th>
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<td>C11D 10/06</td>
<td>C11D 9/00</td>
</tr>
</tbody>
</table>

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C12 BIOCHEMISTRY; BEER; SPIRITS; WINE; VINEGAR; MICROBIOLOGY; ENZYMEOLOGY; MUTATION OR GENETIC ENGINEERING

NOTES
1. In subclasses C12M - C12Q and within each of these subclasses, in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. In this class, viruses, undifferentiated human, animal or plant cells, protozoa, tissues, and unicellular algae are considered as microorganisms.
3. In this class, unless specifically provided for, undifferentiated human, animal or plant cells, protozoa, tissues and unicellular algae are classified together with microorganisms. Sub-cellular parts, unless specifically provided for, are classified with the whole cell.

**C12C** 
**BEER; PREPARATION OF BEER BY FERMENTATION** (ageing or ripening by storing C12H 1/22; methods for reducing the alcohol content after fermentation C12H 3/00; methods for increasing the alcohol content after fermentation C12H 6/00; venting devices for casks, barrels or the like C12L 9/00); **PREPARATION OF MALT FOR MAKING BEER; PREPARATION OF HOPS FOR MAKING BEER**

**C12F** 
**RECOVERY OF BY-PRODUCTS OF FERMENTED SOLUTIONS** (removal of yeast from wine or sparkling wine C12G 1/08); **DENATURED ALCOHOL; PREPARATION THEREOF**

**C12G** 
**WINE; PREPARATION THEREOF; ALCOHOLIC BEVERAGES** (beer C12C); **PREPARATION OF ALCOHOLIC BEVERAGES NOT PROVIDED FOR IN SUBCLASSES C12C OR C12H**

**WARNING**
The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

- C12G 1/022 covered by C12G 1/0203
- C12G 1/024 covered by C12G 1/0209
- C12G 1/026 covered by C12G 1/02
- C12G 1/028 covered by C12G 1/0213
- C12G 1/032 covered by C12G 1/0216
- C12G 1/036 covered by C12G 1/0206
- C12G 1/067 covered by C12G 1/06
- C12G 1/073 covered by C12G 1/06, C12G 1/064
- C12G 1/09 covered by C12G 1/06
- C12G 1/10 covered by C12G 1/00, C12H 1/10, C12H 1/18
- C12G 1/12 covered by C12G 1/00

**C12H** 
**PASTEURISATION, STERILISATION, PRESERVATION, PURIFICATION, CLARIFICATION OR AGEING OF ALCOHOLIC BEVERAGES; METHODS FOR ALTERING THE ALCOHOL CONTENT OF FERMENTED SOLUTIONS OR ALCOHOLIC BEVERAGES** (simulation ageing by flavouring C12G 3/06)

**NOTE**
When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

**WARNING**
The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

- C12H 1/044 - C12H 1/048 covered by C12H 1/0408
- C12H 1/052 covered by C12H 1/0416
- C12H 1/056 covered by C12H 1/0424
- C12H 1/065 covered by C12H 1/061
- C12H 1/07 – C12H 1/075 covered by C12H 1/063
- C12H 1/15 covered by C12H 1/003

**C12J** 
**VINEGAR; PREPARATION OR PURIFICATION THEREOF**

**C12L** 
**PITCHING OR DEPITCHING MACHINES; CELLAR TOOLS** (cleaning of casks B08B 9/00)
C12M  APPARATUS FOR ENZYMIOLOGY OR MICROBIOLOGY; {APPARATUS FOR CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS}

NOTES
1. In this subclass the term microorganism includes prokaryotic and eukaryotic cells. Viruses, human, animal or plant cells, protozoa, tissues and unicellular algae are considered microorganisms.
2. When classifying an apparatus according to its use in group C12M 21/00, classification should also be given in at least one of the groups C12M 23/00-C12M 99/00.
3. This subclass covers apparatus or devices for the fermentation or for growing microorganisms or animal tissues of both laboratory and industrial scale, i.e bioreactors.
4. This subclass covers also apparatus or devices for the pre-treatment or after-treatment of the biomass or microorganisms to be cultured or that have been cultured. 
5. This subclass does not cover the methods or processes taking place in the bioreactors that are not based on the use of the parts of the apparatus.
6. This subclass does not cover:
   • apparatus for culturing plant tissue, which are covered by A01H 4/001;
   • apparatus for preservation of living parts of bodies of humans or animals, which are covered by A01N 1/0242;
   • apparatus or devices for testing sterility conditions not linked to a bioreactor or fermenter growing biomass, which are covered by A61L 2/00, G01N 31/226;
   • apparatus for biological treatment of water, waste water, sewage or sludge, which are covered by C02F 3/00, C02F 11/00;
   • apparatus for brewing of beer, which are covered by C12C;
   • apparatus for production of wine or vinegar, which are covered by C12G, C12J 1/10;
   • apparatus or devices for DNA and RNA technology, which are covered by B01L 7/52, B01J 19/0046, C12N 15/1003;
   • fermentation processes, which are covered by C12P;
   • apparatus for bioleaching of ores, which are covered by C22B 3/18;
   • removing cellulose from cellulosic substances, which is covered by D21C;
   • apparatus or devices for sampling, detection, investigation or analysis of microorganisms or biosensors, which are covered by G01N 33/48;
   • apparatus for automatic analysis not linked to a bioreactor or fermenter growing biomass, which are covered by G01N 35/00;
   • testing or evaluating the effect of a chemical or biological compound involving human or animal cells, which are covered by G01N 33/505;
   • apparatus for immunological test processes, which are covered by G01N 33/5302.

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C12N  MICROORGANISMS OR ENZYMES; COMPOSITIONS THEREOF; PROPAGATING, PRESERVING, OR MAINTAINING MICROORGANISMS; MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA (microbiological testing media C12Q 1/00)

NOTES
1. Documents relating to the use of vectors or hosts for the preparation of specific peptides, e.g. enzymes, are classified in subclass C07K or in group C12N 9/00 according to the peptides, with the appropriate indexing codes.
2. Attention is drawn to Notes (1) to (3) following the title of Class C12.
3. When classifying in this group, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   C12N 1/11 covered by C12N 15/79
   C12N 1/13 covered by C12N 15/79
   C12N 1/15 covered by C12N 15/80
   C12N 1/19 covered by C12N 15/81
   C12N 1/21 covered by C12N 15/74
   C12N 5/02 covered by C12N 5/0006, C12N 5/04 - C12N 5/166
   C12N 5/07 - C12N 5/095 covered by C12N 5/06
   C12N 5/18 covered by C12N 5/16
   C12N 5/20 covered by C12N 5/163
   C12N 5/22 covered by C12N 5/16
C12N (continued)

C12N 5/24  covered by  C12N 5/163
C12N 5/26  covered by  C12N 5/166
C12N 5/28  covered by  C12N 5/166
C12N 15/53  covered by  C12N 9/0004
C12N 7/01  covered by  C12N 7/00
C12N 9/02-C12N 9/08  covered by  C12N 9/0004
C12N 9/26  covered by  C12N 9/2408
C12N 9/32  covered by  C12N 9/242
C12N 9/34  covered by  C12N 9/242
C12N 9/36  covered by  C12N 9/2462
C12N 9/38  covered by  C12N 9/2468
C12N 9/40  covered by  C12N 9/2465
C12N 9/42  covered by  C12N 9/2434
C12N 9/44  covered by  C12N 9/2451
C12N 9/46  covered by  C12N 9/2454
C12N 9/56  covered by  C12N 9/54
C12N 9/66  covered by  C12N 9/6448
C12N 9/68  covered by  C12N 9/6435
C12N 9/70  covered by  C07K 14/3153
C12N 9/72  covered by  C12N 9/6462
C12N 9/74  covered by  C12N 9/6429
C12N 9/76  covered by  C12N 9/6427
C12N 15/05  covered by  C12N 5/14
C12N 15/06  covered by  C12N 5/16
C12N 15/07  covered by  C12N 5/16
C12N 15/08  covered by  C12N 5/166
C12N 15/12  covered by  C07K 14/435
C12N 15/13  covered by  C07K 1600
C12N 15/14  covered by  C07K 14/765
C12N 15/15  covered by  C07K 14681
C12N 15/16  covered by  C07K 14/575
C12N 15/17  covered by  C07K 14/62
C12N 15/18  covered by  C07K 14/61
C12N 15/19  covered by  C07K 14/52
C12N 15/20  covered by  C07K 14/555
C12N 15/21  covered by  C07K 14/56
C12N 15/22  covered by  C07K 14/565
C12N 15/23  covered by  C07K 14/57
C12N 15/24  covered by  C07K 14/54
C12N 15/25  covered by  C07K 14/545
C12N 15/26  covered by  C07K 14/55
C12N 15/27  covered by  C07K 14/53
C12N 15/28  covered by  C07K 14/525
C12N 15/29  covered by  C07K 14/415
C12N 15/30  covered by  C07K 14/44
C12N 15/31  covered by  C07K 14/195, C07K 14/005
C12N 15/32  covered by  C07K 14/325
C12N 15/33  covered by  C07K 14/005
C12N 15/34  covered by  C07K 14/401
C12N 15/35  covered by  C07K 140015
C12N 15/36  covered by  C07K 14/402
C12N 15/37  covered by  C07K 14025
C12N 15/38  covered by  C07K 14/403
C12N 15/39  covered by  C07K 14/065
C12N 15/40  covered by  C07K 14/08
C12N 15/41  covered by  C07K 14/085
C12N 15/42  covered by  C07K 14/09
C12N 15/43  covered by  C07K 14/105
C12N 15/44  covered by  C07K 14/11
C12N 15/45  covered by  C07K 14/115
C12N 15/46  covered by  C07K 14/114
C12N 15/47  covered by  C07K 14/145
C12N 15/48  covered by  C07K 14/15
C12N 15/49  covered by  C07K 14/155
C12N 15/50  covered by  C07K 14/165
C12N 15/51  covered by  C07K 14002, C07K 14/10, C07K 14/18
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C12P  FERMENTATION OR ENZYME-USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE {(brewing of beer C12C; producing vinegar C12J; producing specific peptides or proteins C07K; producing enzymes C12N 9/00; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification C12N 15/00; measuring or testing processes involving enzymes or microorganisms C12Q; measuring or testing processes involving nucleic acid amplification reactions C12Q 1/68; fermentation processes to form a food composition, A21 or A23; compounds in general, see the relevant compound class, e.g. C01, C07)}

NOTES
1. This subclass covers the production of compounds or compositions by biochemical transformation of matter performed by using enzymes or microorganisms, wherein microorganisms are defined as any single-celled organisms, including bacteria, fungi, yeast or microalgae, or plant or mammalian cells in the form of cell cultures.
2. In this subclass, documents are primarily classified according to the compounds produced. In addition, if appropriate, classification according to the method or biocatalyst used to produce the compound is made.
3. Classification in groups C12P 19/14 - C12P 19/24, C12P 39/00, C12P 41/00 - C12P 41/009 should only be made together with the corresponding product groups.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   - C12P 21/04 covered by C07K 7/50
   - C12P 21/08 covered by C07K 16/00
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C12Q  MEASURING OR TESTING PROCESSES INVOLVING ENZYMES, NUCLEIC ACIDS OR MICROORGANISMS (immunoassay G01N 33/53; COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION-RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMEOLOGICAL PROCESSES

NOTES
1. This subclass does not cover the observation of the progress or of the result of processes specified in this subclass by any of the methods specified in groups G01N 3/00 - G01N 29/00, which is covered by subclass G01N.
2. In this subclass, the following expression is used with the meaning indicated: ”involving”, when used in relation to a substance, includes the testing for the substance as well as employing the substance as a determinant or reactant in a test for a different substance.
3. Attention is drawn to Notes (1) to (3) following the title of class C12.
4. In this subclass, test media are classified in the appropriate group for the relevant test process.
5. Documents describing the use of an electrode for analysis of a specific analyte are classified in C12Q 1/001 or subgroups and not according to the last place rule.
6. Documents relating to new peptides, e.g. enzymes, or new DNA or its corresponding mRNA, encoding for the peptides, and their use in measuring or testing processes are classified in subclass C07K or in group C12N 9/00 according to the peptides, with the appropriate indexing codes relating to their use in diagnostics. However where the new nucleic acids are principally used in diagnostic processes, e.g. PCR, hybridisation reactions, the documents are also classified in group C12Q 1/68.
CHEMISTRY

C12Q
(continued)

7. When classifying in groups C12Q 1/68 - C12Q 1/70 it is desirable to classify with symbols from groups C12Q 2500/00 - C12Q 2565/634, relating to relevant technical features of the invention, using Combination Sets.

8. In groups C12Q 1/6876 - C12Q 1/6895 and C12Q 1/70 - C12Q 1/708 it is desirable to add the indexing codes C12Q 2600/000 - C12Q 2600/178 which reflect the use of the product in combination with the virus groups only if the application refers to products.

C12R

PROCESSES USING MICROORGANISMS

NOTE


WARNINGS

1. The following IPC indexing groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   C12R 1/92 - C12R 1/94 covered by C12R 1/91, C12N 2710/00 - C12N 2795/00

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C12Y

ENZYMES

NOTES

1. This subclass covers all enzymes.

2. In this subclass, each enzyme is classified according to their EC number of the "Enzyme Nomenclature" (as valid on 1 January 2012) recommended by the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology. The EC number appears in the subgroups in parenthesis and is reflected in the classification symbol: the EC number with the notation a.bb.cc.ddd is rendered into a CPC symbol C12Y ABB/CCDDD (with no trailing zeroes at the end) where:
   - EC a.bb.cc.ddd: a ranges from 1 – 6; CPC symbol: A = 1 – 6
   - EC a.bb.cc.ddd: b ranges from 1 – 99 (*); CPC symbol: B = 01 – 99
   - EC a.bb.cc.ddd: c ranges from 1 – 99 (*); CPC symbol: C = 01 – 99
   - EC a.bb.cc.ddd: d ranges from 1 – 400 (*); CPC symbol: D = 001 – 400
   - (*) not all numbers are used

Examples:
- Alcohol dehydrogenase: EC 1.1.1.1. is classified in C12Y 101/01001
- Togavirin: EC 3.4.21.90 is classified in C12Y 304/2109
- Hepsin: EC 3.4.21.106 is classified in C12Y 304/21106
- Cobaltochelatase: EC 6.6.1.2 is classified in C12Y 606/01002

3. This subclass is for discretionary supplementary classification of subject matter already classified as such in other classification places, e.g.:
   - A01N 1/00: Compositions containing enzymes and use of the compositions and compounds for preservation of bodies of humans or animals or parts thereof
   - A01N 3/00: Compositions containing enzymes and use of the compositions and compounds for preservation of plants or parts thereof
   - A01N 63/00: Biocides, pest repellents or attractants or plant growth regulators containing enzymes
   - A21D 10/00, A21D 13/00: Bakery products which may contain enzymes
   - A23: Foods or foodstuffs containing enzymes
   - A61K: Preparations for medical dental or toilet purposes containing enzymes
   - A61K 31/7088: Medical preparations containing nucleic acids encoding enzymes
   - A61K 48/80: Medical preparations containing genetic material encoding enzymes which is inserted into cells of the living body to treat genetic diseases; Gene therapy
   - A61L 12/002: Methods or apparatus for disinfecting or sterilising contact lenses in combination with enzymes
   - A61L 15/38: Bandages, dressings or absorbent pads for physiological fluids containing enzymes
   - A61L 27/3683: Material for prostheses subjected to enzyme treatment prior to implantation
   - C07K 14/81: Protease inhibitors
   - C07K 16/40: Antibodies against enzymes
   - C11D 3/386: Detergent compositions containing enzymes
   - C12C 1/00: Preparation of malt
   - C12M: Apparatus for enzymology
   - C12N 9/00: Enzymes
   - C12N 11/00: Carrier-bound or immobilised enzymes
   - C12N 13/00: Treatment of enzymes with electrical or wave energy
   - C12N 15/00: Nucleic acids encoding (part of) enzymes
   - C12N 15/113, C12N 15/8281: Non-encoding nucleic acids modulating the expression of genes for enzymes
   - C12P: Preparation of compounds using enzymes
   - C12Q 1/00: Measuring or testing processes involving enzymes; Compositions therefor; Processes of preparing such compositions
   - G01N 33/573: Immunoassays for enzymes
4. Specific classification rules for the allocation of C12Y symbols together with any of the groups listed above, are specified within the relevant group, if available.

5. The classification symbols of this subclass are not listed first when assigned to patent documents.

C13  SUGAR INDUSTRY

NOTE
In class C13, the following terms or expressions are used with the meanings indicated:

• “sugars” are a class of edible, water-soluble crystalline carbohydrates, having a characteristic sweet taste, including mono-, di- and oligosaccharides, e.g. sucrose, lactose and fructose. A more specific meaning of the term "sugar" is defined in the note of subclass C13B.

C13B  PRODUCTION OF SUCROSE; APPARATUS SPECIALLY ADAPTED THEREFOR
(chemically synthesised sugars or sugar derivatives C07H; fermentation or enzyme-using processes for preparing compounds containing saccharide radicals C12P 19/00)

NOTE
In this subclass, the following terms or expressions are used with the meanings indicated:

• “sugar” is used in its non-scientific meaning and refers to sucrose, also called “table sugar” or saccharose”, a white crystalline disaccharide;
• “sugar juices” are solutions of sugar, essentially comprising sucrose, which are derived from different plants, e.g. beet, cane or maple;
• “syrups” are highly concentrated sugar juices.

C13K  SACCHARIDES, OTHER THAN SUCROSE, OBTAINED FROM NATURAL SOURCES OR BY HYDROLYSIS OF NATURALLY OCCURRING DI-, OLIGO- OR POLYSACCHARIDES
(chemically synthesised sugars or sugar derivatives C07H; polysaccharides, e.g. starch, derivatives thereof C08B; malt C12C; fermentation or enzyme-using processes for preparing compounds containing saccharide radicals C12P 19/00)

C14  SKINS; HIDES; PELTS; LEATHER

C14B  MECHANICAL TREATMENT OR PROCESSING OF SKINS, HIDES OR LEATHER IN GENERAL; PELT-SHEARING MACHINES; INTESTINE-SPLITTING MACHINES
(making leather substitutes B29, D06N; making articles from leather B68F; mechanical cleaning of hides or the like D06G; artificial leather D06N)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C14C  CHEMICAL TREATMENT OF HIDES, SKINS OR LEATHER, e.g. TANNING, IMPREGNATING, FINISHING; APPARATUS THEREFOR; COMPOSITIONS FOR TANNING (bleaching of leather or furs D06L; dyeing of leather or furs D06P)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

METALLURGY

C21  METALLURGY OF IRON

C21B  MANUFACTURE OF IRON OR STEEL
(preliminary treatment of ferrous ores or scrap C22B 1/00; electric heating H05B)

NOTE
This subclass covers:

• the production of iron or steel from source materials, e.g. the production of pig-iron;
METALLURGY

C21B (continued)

• apparatus specially adapted therefor, e.g. blast furnaces or air heaters.

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C21C PROCESSING OF PIG-IRON, e.g. REFINING, MANUFACTURE OF WROUGHT-IRON OR STEEL; TREATMENT IN MOLTEN STATE OF FERROUS ALLOYS (refining metals in general C22B 9/00)

C21D MODIFYING THE PHYSICAL STRUCTURE OF FERROUS METALS; GENERAL DEVICES FOR HEAT TREATMENT OF FERROUS OR NON-FERROUS METALS OR ALLOYS; MAKING METAL MALLEABLE BY DECARBURISATION, TEMPERING OR OTHER TREATMENTS (cementation by diffusion processes C23C; surface treatment of metallic material involving at least one process provided for in class C23 and at least one process covered by this subclass, C23F 17/00; unidirectional solidification of eutectic materials or unidirectional demixing of eutectoid materials C30B)

C22 METALLURGY; FERROUS OR NON-FERROUS ALLOYS; TREATMENT OF ALLOYS OR NON-FERROUS METALS

C22B PRODUCTION AND REFINING OF METALS (electrolytic C25); PRETREATMENT OF RAW MATERIALS

NOTE

In this subclass, groups for obtaining metals include obtaining the metals by non-metallurgical processes, and obtaining metal compounds by metallurgical processes, (as far as specifically indicated in the relevant groups). Thus, for example, group C22B 11/00 covers the production of silver by reduction of ammoniacal silver oxide in solution, and group C22B 17/00 includes the production of cadmium oxide by a metallurgical process. Furthermore, although compounds of arsenic and antimony are classified in C01G, production of the elements themselves is included in C22B, as well as the production of their compounds by metallurgical processes.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

<table>
<thead>
<tr>
<th>IPC Group</th>
<th>Covered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>C22B 3/26 - C22B 3/40</td>
<td>C22B 3/0005</td>
</tr>
<tr>
<td>C22B 9/187 - C22B 9/193</td>
<td>C22B 9/18</td>
</tr>
<tr>
<td>C22B 9/21</td>
<td>C22B 9/20</td>
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<td>C22B 15/0032</td>
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<td>C22B 15/04</td>
<td>C22B 15/0036</td>
</tr>
<tr>
<td>C22B 15/06</td>
<td>C22B 15/0041, C22B 15/0043</td>
</tr>
<tr>
<td>C22B 15/14</td>
<td>C22B 15/006</td>
</tr>
</tbody>
</table>

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C22C ALLOYS (flints C06C 15/00; treatment of alloys C21D, C22F)

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:

   • “alloys” includes also:
     a. metallic composite materials containing a substantial proportion of fibres or other somewhat larger particles;
     b. ceramic compositions containing free metal bonded to carbides, diamond, oxides, borides, nitrides or silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides, other than as macroscopic reinforcing agents;

   • “based on” requires at least 50% by weight of the specified constituent or of the specified group of constituents.

2. In the absence of an indication to the contrary, in groups C22C 5/00 - C22C 32/00 an alloy is classified in the last appropriate place.

3. In this subclass it is desirable to classify the individual aspects of combinations of processes or materials for powder metallurgy using Combination Sets with symbols chosen from groups C22C 1/00 - C22C 43/00 or from groups B22F 1/00 - B22F 9/00.
4. In this subclass the special database "ALLOYS" is used. This system includes patent documents classified in groups C22C 1/04 and C22C 5/00 - C22C 49/14 and provides information on the composition of the alloys, their uses and characteristics.

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

   - C22C 101/00, C22C 101/20 covered by C04B 35/62227
   - C22C 101/02 covered by C04B 35/62231
   - C22C 101/04 covered by C04B 35/62236
   - C22C 101/06 covered by C04B 35/62245
   - C22C 101/08 covered by C04B 35/62272
   - C22C 101/10 covered by D01F 9/12
   - C22C 101/12 covered by C04B 35/62277
   - C22C 101/14 covered by C04B 35/62281
   - C22C 101/16 covered by C04B 35/62286
   - C22C 101/18 covered by C04B 35/62295
   - C22C 101/22 covered by C04B 35/6229
   - C22C 111/00-C22C 111/02 covered by C22C 47/00, C22C 49/00
   - C22C 121/00-C22C 121/02 covered by C22C 47/00 - C22C 47/068, C22C 49/00

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C22F  
CHANGING THE PHYSICAL STRUCTURE OF NON-FERROUS METALS AND NON-FERROUS ALLOYS (surface treatment of metallic material involving at least one process provided for in class C23 and at least one process covered by this subclass, C23F 17/00)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C23  
COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL; CHEMICAL SURFACE TREATMENT; DIFFUSION TREATMENT OF METALLIC MATERIAL; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL; INHIBITING CORROSION OF METALLIC MATERIAL OR INCrustATION IN GENERAL

NOTES

1. In this class, the following expression is used with the meaning indicated:
   • "metallic material" covers:
     a. metals;
     b. alloys
2. Attention is drawn to the Note following the title of subclass C22C. {
   • C22C 29/00 concerns alloys containing at least 50 % by weight of one or more of borides, carbides, nitrides, oxides or silicides and binding metal;
   • C22C 32/00 concerns non-ferrous alloys containing at least 5 % by weight but less than 50 % by weight of borides, carbides, nitrides, oxides or silicides of refractory metals, whether added as such or formed in situ. }
C23C COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL; SURFACE TREATMENT OF METALLIC MATERIAL BY DIFFUSION INTO THE SURFACE, BY CHEMICAL CONVERSION OR SUBSTITUTION; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL (making metal-coated products by extrusion B21C 23/22; covering with metal by connecting pre-existing layers to articles, see the relevant places, e.g. B21D 39/00, B23K; metallising of glass C03C; metallising mortars, concrete, artificial stone, ceramics or natural stone C04B 41/00; enamelling of, or applying a vitreous layer to, metals C23D; treating metal surfaces or coating of metals by electrolysis or electrophoresis C25D; single-crystal film growth C30B; by metallising textiles D06M 11/83; decorating textiles by locally metallising D06Q 1/04)

NOTE
In this subclass, an operation is considered as pre-treatment or after-treatment when it is specially adapted for, but quite distinct from, the coating process concerned and constitutes an independent operation. If an operation results in the formation of a permanent sub- or upper layer, it is not considered as pre-treatment or after-treatment and is classified as a multi-coating process.

WARNING
The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
C23C 14/36 - C23C 14/44 covered by C23C 14/34 - C23C 14/358

C23D ENAMELLING OF, OR APPLYING A VITREOUS LAYER TO, METALS (chemical composition of the enamels C03C)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C23F NON-MECHANICAL REMOVAL OF METALLIC MATERIAL FROM SURFACE (working metal by laser beams B23K 26/00; desurfacing by applying flames B23K 7/00; working of metal by electro-erosion B23H; producing decorative effects by removing surface material, e.g. by engraving, by etching, B44C 1/22; electrolytic etching or polishing C25F; INHIBITING CORROSION OF METALLIC MATERIAL OR INCrustATION IN GENERAL; MULTI-STEP PROCESSES FOR SURFACE TREATMENT OF METALLIC MATERIAL INVOLVING AT LEAST ONE PROCESS PROVIDED FOR IN CLASS C23 AND AT LEAST ONE PROCESS COVERED BY SUBCLASS C21D OR C22F OR CLASS C25

NOTES
1. protective layers or coating compositions or methods of applying them; these are classified in the appropriate places, e.g. B05, B44, C09D, C23C.
2. mechanical devices or constructional features of particular articles for inhibiting incrustation; these are classified in the appropriate places, e.g. in pipes or pipe fittings F16L 58/00.
3. articles characterised by being made of materials selected for their properties of resistance to corrosion or incrustation; these are classified in the appropriate places, e.g. turbine blades F01D 5/28.

WARNINGS
1. The following IPC group is not in the CPC scheme. The subject matter for this IPC group is classified in the following CPC groups:
C23F 1/24 covered by C09K 13/00, H01L 21/00
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
C23G CLEANING OR DEGREASING OF METALLIC MATERIAL BY CHEMICAL METHODS OTHER THAN ELECTROLYSIS (polishing compositions C09G; detergents in general C11D)

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C25 ELECTROLYTIC OR ELECTROPHORETIC PROCESSES; APPARATUS THEREFOR

NOTES
1. Electrolytic or electrophoretic processes or apparatus or operational features are classified:
   i. in the groups for the compounds or articles produced, and
   ii. in the groups which cover the apparatus or operational features.
2. The electrolytic or electrophoretic purification of materials is classified according to the nature of the liquid in the relevant places, e.g. A01K 63/00, C02F 1/46, C25B 15/08, C25D 21/16, C25F 7/02.

C25B ELECTROLYTIC OR ELECTROPHORETIC PROCESSES FOR THE PRODUCTION OF COMPOUNDS OR NON-METALS; APPARATUS THEREFOR (anodic or cathodic protection C23F 13/00; single-crystal growth C30B)

NOTES
1. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. Compounds of particular interest are also classified in the relevant classes, e.g. C01, C07.

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   C25B 11/06 covered by C25B 11/0442
   C25B 11/08 covered by C25B 11/0473
   C25B 11/10 covered by C25B 11/0442
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C25C PROCESSES FOR THE ELECTROLYTIC PRODUCTION, RECOVERY OR REFINING OF METALS; APPARATUS THEREFOR

C25D PROCESSES FOR THE ELECTROLYTIC OR ELECTROPHORETIC PRODUCTION OF COATINGS; ELECTROFORMING (decorating textiles by metallising D06Q 1/04; manufacturing printed circuits by metal deposition H05K 3/18); APPARATUS THEREFOR

WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
   C25D 2/00 covered by B23K 28/006
   C25D 5/24 covered by C25D 5/34
   C25D 5/26 covered by C25D 5/36
   C25D 5/28 covered by C25D 5/38
   C25D 5/32 covered by C25D 5/46
   C25D 19/00 covered by C25D 17/00
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C25F PROCESSES FOR THE ELECTROLYTIC REMOVAL OF MATERIALS FROM OBJECTS; APPARATUS THEREFOR

NOTE
In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.
C30  CRYSTAL GROWTH

C30B  SINGLE-CRYSTAL-GROWTH (by using ultra-high pressure, e.g. for the formation of diamonds B01J 3/06); UNIDIRECTIONAL SOLIDIFICATION OF EUTECTIC MATERIAL OR UNIDIRECTIONAL DEMIXING OF EUTECTOID MATERIAL; REFINING BY ZONE-MELTING OF MATERIAL (zone-refining of metals or alloys C22B); PRODUCTION OF A HOMOGENEOUS POLYCRYSTALLINE MATERIAL WITH DEFINED STRUCTURE (casting of metals, casting of other substances by the same processes or devices B22D; working of plastics B29; modifying the physical structure of metals or alloys C21D, C22F); SINGLE CRYSTALS OR HOMOGENEOUS POLYCRYSTALLINE MATERIAL WITH DEFINED STRUCTURE; AFTER-TREATMENT OF SINGLE CRYSTALS OR A HOMOGENEOUS POLYCRYSTALLINE MATERIAL WITH DEFINED STRUCTURE (for producing semiconductor devices or parts thereof H01L); APPARATUS THEREFOR

NOTES
1. In this subclass, the following expressions are used with the meaning indicated:
   • “single-crystal” includes also twin crystals and a predominantly single crystal product;
   • “homogeneous polycrystalline material” means a material with crystal particles, all of which have the same chemical composition;
   • “defined structure” means the structure of a material with grains which are oriented in a preferential way or have larger dimensions than normally obtained.

2. In this subclass:
   • the preparation of single crystals or a homogeneous polycrystalline material with defined structure of particular materials or shapes is classified in the group for the process as well as in group C30B 29/00;
   • an apparatus specially adapted for a specific process is classified in the appropriate group for the process. Apparatus to be used in more than one kind of process is classified in group C30B 35/00.

3. After the notation of C30B and separated therefrom by a + sign, notations concerning the particular composition or shape of the material may be added. These notations are selected from C30B 29/00.
   Example: A crystal-growth process by zone-melting directly related to Al₂O₃ crystal material is classified in C30B 13/00 + C30B 29/20

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

COMBINATORIAL TECHNOLOGY

C40  COMBINATORIAL TECHNOLOGY

C40B  COMBINATORIAL CHEMISTRY; LIBRARIES, e.g. CHEMICAL LIBRARIES, IN SILICO LIBRARIES

NOTES
1. In this subclass, the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place.

2. When classifying in this subclass, subject matter of interest is also classified in other appropriate places:
   • library members are also classified in the appropriate places elsewhere in the IPC, (e.g. in section C) according to established procedure relating to "Markush"-type formulae (see paragraph 101 of the Guide);
   • methods or apparatus covered by this subclass are also classified for their biological, chemical, physical or other features in the appropriate places in the IPC, if such features are of interest, e.g.
     A01N  Biocides
     A61K  Preparations for medical, dental or toilet purposes
     A61P  Specific therapeutic activity of chemical compounds or medicinal preparations
     B01D  Separation
     B01J  Chemical or physical processes, e.g. catalysis; Apparatus therefor
     B01L  Chemical or physical laboratory apparatus
     B29  Shaped plastics
     C01, C07, C08  Inorganic, organic or organic macromolecular compounds; Methods of preparation or separation thereof
Biochemistry, microbiology, enzymology including microorganisms or enzymes, preparing them, using them to synthesis compounds or compositions; Measuring or testing processes involving microorganisms or enzymes; Mutation or genetic engineering

Metal alloys

Chemical or physical analysis

Physical measurements methods; Apparatus thereof

Photomechanical methods

Electrical digital data processing

Data processing

Image data processing

Displaying; Advertising

3. {C12N 15/1034-C12N 15/1093 always take precedence over C40B}