

EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1596

DATE: JANUARY 1, 2024

PROJECT MP12066

The following classification changes will be effected by this Notice of Changes:

<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
SCHEME:		
Notes Modified:	B01J	20/00 - 38/00
DEFINITIONS:		
Definitions Modified:	B01J	Subclass
	B01J	31/00

No other subclasses/groups are impacted by this Notice of Changes.

This Notice of Changes includes the following *[Check the ones included]:*

1. CLASSIFICATION SCHEME CHANGES

- A. New, Modified or Deleted Group(s)
- B. New, Modified or Deleted Warning(s)
- C. New, Modified or Deleted Note(s)
- D. New, Modified or Deleted Guidance Heading(s)

2. DEFINITIONS

- A. New or Modified Definitions (Full definition template)
- B. Modified or Deleted Definitions (Definitions Quick Fix)

3. REVISION CONCORDANCE LIST (RCL)

4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

5. CHANGES TO THE CROSS-REFERENCE LIST (CRL)

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1. CLASSIFICATION SCHEME CHANGES

C. New, Modified or Deleted Note(s)**SUBCLASS B01J - CHEMICAL OR PHYSICAL PROCESSES, e.g. CATALYSIS OR COLLOID CHEMISTRY; THEIR RELEVANT APPARATUS**

<u>Type*</u>	<u>Location</u>	<u>Old Note</u>	<u>New/Modified Note</u>
M	B01J 20/00 - B01J 38/00	<ol style="list-style-type: none"> In groups B01J 20/00 - B01J 31/00, metal salts having an anion composed of metal and oxygen only, e.g. molybdates, are considered as chemically bound mixtures of the component metal oxides. Attention is drawn to the definitions of groups of chemical elements following the title of section C. In group B01J 20/00 and in each set of groups B01J 21/00 - B01J 31/00 and {B01J 33/00} - B01J 38/00, 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. Pure compounds or elements, or their recovery from solid sorbent compositions, filter aid compositions, or catalysts, are classified in the appropriate subclass for chemical compounds or elements. However, when it is explicitly stated that the pure compound or element, in a particular form, is especially useful as a solid sorbent, filter aid, or catalyst, it is further classified in group B01J 20/00 or B01J 35/00. {In groups B01J 21/00 - B01J 38/00, the following term is used with the meaning indicated: 	<ol style="list-style-type: none"> In groups B01J 20/00 - B01J 31/00, metal salts having an anion composed of metal and oxygen only, e.g. molybdates, are considered as chemically bound mixtures of the component metal oxides. Attention is drawn to the definitions of groups of chemical elements following the title of section C. In groups B01J 20/00 - B01J 31/00, 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. Pure compounds or elements, or their recovery from solid sorbent compositions, filter aid compositions, or catalysts, are classified in the appropriate subclass for chemical compounds or elements. However, when it is explicitly stated that the pure compound or element, in a particular form, is especially useful as a solid sorbent, filter aid, or catalyst, it is further classified in group B01J 20/00 or B01J 35/00. {In groups B01J 21/00 - B01J 38/00, the following term is used with the meaning indicated: <ul style="list-style-type: none"> "catalyst" covers also a carrier-forming part of the catalyst.} {Classification of the: <ul style="list-style-type: none"> forms or physical properties; preparation or activation; regeneration or reactivation of catalysts according to more than one of main groups B01J 21/00 - B01J 31/00 is made in the following general groups:

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		<ul style="list-style-type: none"> • "catalyst" covers also a carrier-forming part of the catalyst.} <p>6. {Classification of the:</p> <ul style="list-style-type: none"> • forms or physical properties; • preparation or activation; • regeneration or reactivation of catalysts according to more than one of main groups B01J 21/00 - B01J 31/00 is made in the following general groups: <ul style="list-style-type: none"> • B01J 35/00 for such forms or physical properties; • B01J 37/00 for such preparation or activation; • B01J 38/00 for such regeneration or reactivation.} 	<ul style="list-style-type: none"> • B01J 35/00 for such forms or physical properties; • B01J 37/00 for such preparation or activation; • B01J 38/00 for such regeneration or reactivation.}
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*N = new note, M = modified note, D = deleted note

NOTE: The "Location" column only requires the symbol PRIOR to the location of the note. No further directions such as "before" or "after" are required.

2. A. DEFINITIONS (modified)

B01J

Definition statement

Replace: The existing Definition statement text with the following revised text:

Granulation processes or devices, e.g. by dividing liquid material into drops, in drums, in fluidised beds, by expressing the material through sieves, making particulate materials hydrophobic.

Chemical or physical processes or apparatus therefor concerning:

- chemical or physical change of matter by the use of pressure;
- feed or outlet regulating devices;
- calcining, fusing;
- apparatus for generating gases;
- solidifying liquids;
- direct application of electric or wave energy;
- production of inert gas mixtures;
- stationary, nozzle-type reactors.

Chemical processes involving a gas, e.g. gas passing through fixed beds or fluidised beds, reacting liquid with gaseous media other than in presence of solid particles, reacting gaseous media with gaseous media, reacting gaseous media with non-particulate solids.

Chemical processes involving a liquid, e.g. liquids passing through fixed beds or fluidised beds, reacting liquid with gaseous media, reacting liquid with liquids, reacting liquids with non-particulate solids.

Production of colloidal materials or their solutions, e.g. making microcapsules by physical drying, spraying, coacervation, polymerisation.

Sorbent or filter aid compositions comprising inorganic or organic material, sorbents specially adapted for chromatography and processes for preparing or regenerating thereof.

Catalysts:

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- catalysts containing elements or inorganic compounds, e.g. magnesium, silica, copper, noble metals, sulfides, halides, carbides;
- Raney catalysts, e.g. Raney nickel;
- catalysts comprising molecular sieves, e.g. silicalites, crystalline zeolites, clays, phosphates;
- catalysts comprising metal hydrides, organic compounds, coordination complexes;
- catalysts characterised by their form or physical properties;
- preparation processes, protection, activation, e.g. impregnation, coating, reducing;
- regeneration or reactivation of catalysts.

Ion exchange processes, e.g. cation, anion, amphoteric ion-exchange; regeneration of ion-exchangers and apparatus therefor.

Relationships with other classification places

Replace: The existing Relationships section text with the following revised text:

Polymerization (C08F, C08G): Apparatus used for polymerization processes should be classified in B01J since the polymer subclasses usually cover aspects of process and not of the apparatus used.

Reforming / hydrogen production (C01B): Apparatus used for reforming reactions (production of hydrogen for fuel cell applications) should be classified in B01J (mainly B01J 8/00 since very often a catalytic bed is used for catalytic reforming). C01B covers mainly the process aspects of the reforming and B01J the aspects relating to the types of apparatus used.

Water treatment (C02F): if the claims of a patent document classified in C02F do not specify which kind of fluid is treated, the document should be classified in B01J 3/00-B01J 12/00, B01J 14/00-B01J 19/00, especially regarding apparatus features (UV radiation means, baffles...).

Separation, e.g. distillation, also combined with chemical reaction, is classified in B01D.

Electrocatalysts used in processes or means for the direct conversion of chemical energy into electrical energy are classified in H01M.

Electrocatalysts used in electrolytic or electrophoretic processes for the production of compounds or non-metals and apparatus therefor are classified in C25B.

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The uses of the catalysts are further classified in B01D, C01B, C01C, C10J, C07B, C07C, C07D, C10G, C10K, C11B and C11C, as appropriate.

References

Application-oriented references

Replace: Only the text of the below two table rows so that they appear as follows.

Compounds per se, see the relevant classes, e.g. extraction of metal compounds from ores or concentrates by wet processes	C01, C07, C08, C22B 3/00
Compounds per se, see the relevant classes	C01, C07, C08

Informative references

Delete: The extra space in front of the second parenthesis so that the table row reads as follows:

Fluid catalytic cracking (FCC), Fischer-Tropsch process	C10G
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Insert: Semicolons in the below two table rows as shown:

High pressure vessels in general; Presses	F16J 13/00, B30B
Combustion of solid and fluent fuels; Internal combustion engines	F23, F02M 27/02

Special rules of classification

Replace: The existing Special rules text with the following revised text:

In group B01J 20/00 and in each set of groups B01J 21/00 - B01J 31/00 and B01J 39/00 - B01J 49/00, in the absence of an indication to the contrary, classification is made in the last appropriate place.

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Pure compounds or elements, or their recovery from solid sorbent compositions, filter aid compositions or catalysts, are classified in the appropriate subclass for chemical compounds or elements. However, when it is explicitly stated that the pure compound or element, in a particular form, is especially useful as a solid sorbent, filter aid or catalyst, it is further classified in groups B01J 20/00, B01J 21/00 - B01J 31/00 or B01J 35/00.

Metal catalysts or metal oxide catalysts activated or conditioned by halogens, sulfur or phosphorous, or compounds thereof are classified in the appropriate groups for metal catalysts or metal oxide catalysts.

When classifying in groups B01J 33/00 - B01J 38/00, any part of a catalyst that is not identified by this classification, and which itself is determined to be novel and non-obvious, must also be classified in groups B01J 21/00 - B01J 31/00. Such a part of a catalyst can be either a single substance or a composition in itself.

Any part of a catalyst which is not identified by the classification according to the point above, and which is considered to represent information of interest for search, may also be classified. This can, for example, be the case when it is considered of interest to enable searching of catalysts using a combination of classification symbols. Such non-obligatory classification should be given as "additional information".

In groups B01J 39/00 - B01J 49/00, ion-exchange covers all processes whereby ions are exchanged between the solid exchanger and the liquid to be treated and wherein the exchanger is not soluble in the liquid to be treated. Ion-exchange processes also cover ion-exchange in combination with complex or chelate forming reactions.

The most important aspect of B01J 3/00 - B01J 12/00 and B01J 14/00 - B01J 19/00 (except B01J 19/0046) is the fact that they cover general chemical and/or physical processes or apparatus, used in chemistry and/or physico-chemistry, mainly on industrial scale (except microreactors B01J 19/0093). It focuses on the devices, thus reactors (technical characteristics thereof, as well as equipment in cooperation therewith). In this context, devices for specific applications are normally (unless some agreements are provided between technical fields) to be classified in these more specific application fields, especially where these fields foresee classes for devices (for example devices for combustion, pyrolysis, gasification, manufacturing of semi-conductors etc.) and not in B01J 3/00 - B01J 19/00. Consequently, processes or apparatus for specific applications should be at a first stage classified in the relevant specific classes for these processes or apparatus. If specific aspects of these processes or apparatus could be generalized and could then be of interest for search purposes, B01J classes can also be used at a second stage for classification of these processes or apparatus.

Thus, specific technical fields should not be mixed with B01J, unless agreements exist between fields (e.g. hydrogen production).

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Whole documents should be classified, not only the claims of a patent, but also the content of the description and of the drawings.

Orthogonal indexing codes (B01J 2203/00, B01J 2208/00 and B01J 2219/00) are used to classify additional information not covered by the main trunk. In some cases, orthogonal indexing codes are mainly used as subdivisions of a specific group (for example the microreactors or the plate-type reactors), whereas in other cases the orthogonal indexing codes are used for several groups (typical example are the orthogonal indexing codes relating to heat exchange aspects).

A material is classified as catalyst when:

- the application states that it is useful as catalyst (or catalyst support), and
- when details regarding its composition, properties, preparation or regeneration are disclosed.

Aspects of the catalyst to be classified:

- Composition of the catalyst (B01J 21/00, B01J 23/00, B01J 25/00, B01J 27/00, B01J 29/00);
- if applicable: protection of catalysts (B01J 33/00);
- physical-chemical properties of the catalyst (B01J 35/00);
- preparation of the catalyst (B01J 37/00);
- regeneration of the catalyst (B01J 38/00; B01J 21/20, subgroups of B01J 23/90, B01J 25/04, subgroups of B01J 27/28, B01J 29/90).

Catalysts comprising organic compounds, metal hydrides, organometallic compounds and coordination complexes are classified in B01J 31/00.

Pure compounds or elements are classified in the appropriate subclass for chemical compounds or elements.

Molecular sieves per se are classified in C01B.

However, when it is explicitly stated or claimed that the pure compound, element, zeolite, etc., in a particular form, is especially useful as a catalyst, it is additionally classified in groups B01J 21/00 - B01J 29/90 or B01J 33/00 - B01J 35/00.

Which parts of the application/patent to classify for catalysts:

Each specifically disclosed embodiment, in particular each example, giving details regarding composition, properties, preparation or regeneration of the catalyst (or catalyst support) is classified, even if the application/patent does not claim a catalyst per

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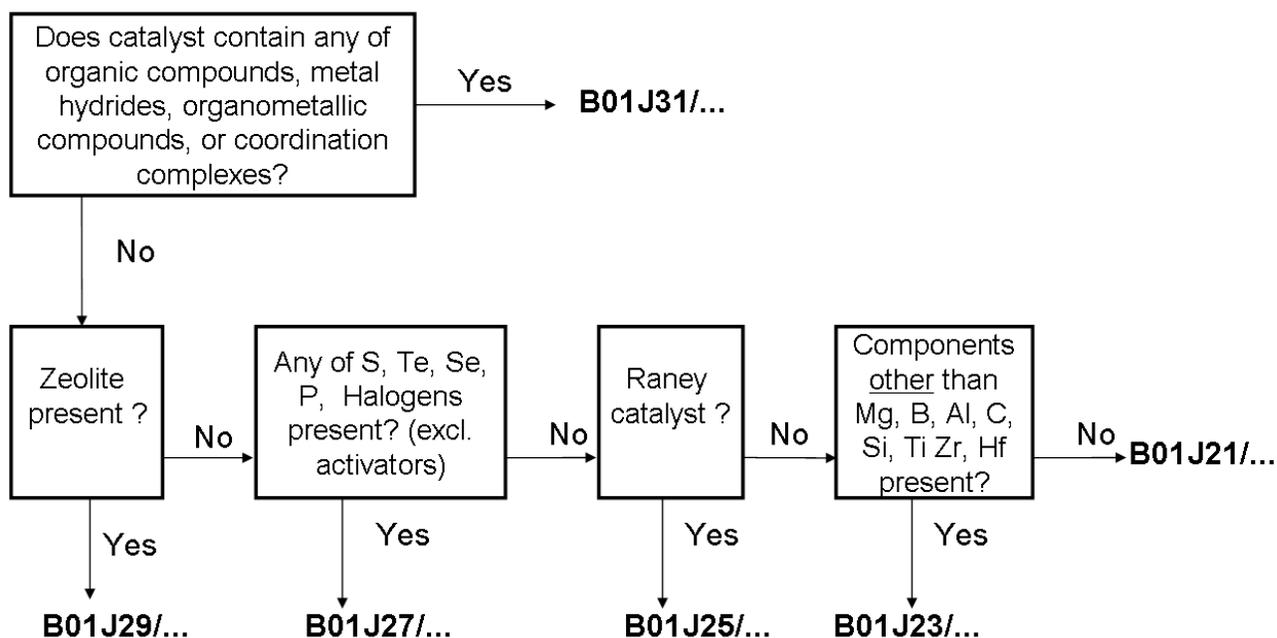
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se. In case of claims relating to a catalyst, if classification of the examples only does not suitably reflect the subject matter of the claims, additional, general groups are given to cover the scope of the catalyst claims.

"Last place rule":

In each set of groups B01J 21/00 - B01J 33/00, in the absence of an indication to the contrary, classification is made in the last appropriate place ("last place rule").

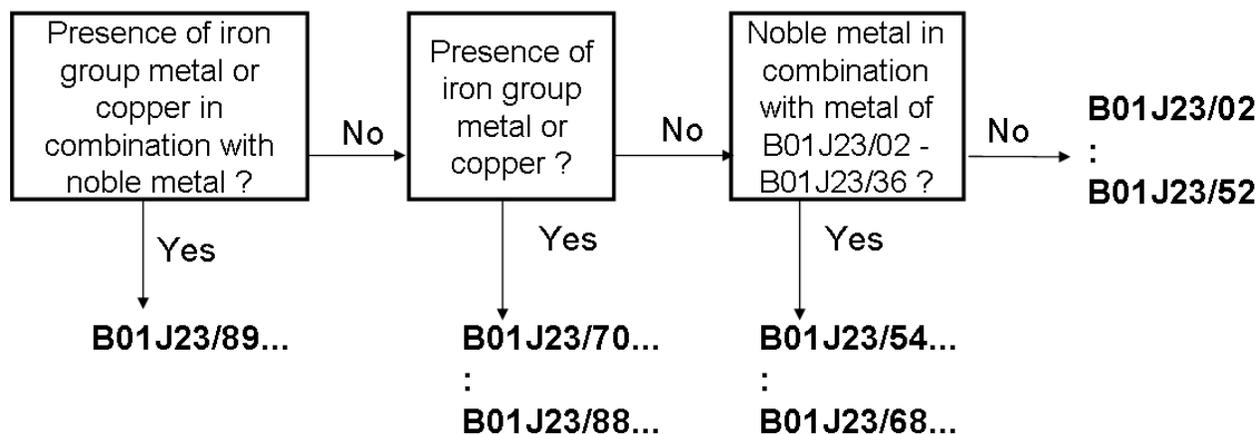
How to use the "last place rule" for classifying the composition of the catalyst:



The preceding image includes references to B01J 31/00, B01J 29/00, B01J 27/00, B01J 25/00, B01J 23/00.

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Last place rule within B01J23/...

The preceding image includes references to B01J 23/02, B01J 23/52, B01J 23/89, B01J 23/70, B01J 23/88, B01J 23/54, B01J 23/68.

Example: MoVSbOx

Antimony B01J 23/18

Vanadium B01J 23/22

Molybdenum B01J 23/28

==> classified in the last place, namely B01J 23/28

Example: MoVSbFeOx

Iron B01J 23/745

Iron combined with Vanadium B01J 23/8472

Iron combined with Antimony B01J 23/8435

Iron combined with Molybdenum B01J 23/881

Iron combined with Molybdenum, further containing Antimony B01J 23/8876

Iron combined with Molybdenum, further containing Vanadium B01J 23/8877

==> classified in the last place, namely B01J 23/8877

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In addition to the appropriate class according to the "last place rule", mixed oxides are classified in B01J 23/002, spinels are classified in B01J 23/005 or B01J 21/005 and mixed salts (e.g. hydrotalcite) are classified in B01J 23/007.

In addition, mixed oxides (including spinels, etc.) containing three or more elements other than oxygen, are indexed using a combination class based on B01J 23/002 (see comments on B01J 23/002). This only applies to the specific mixed oxides of the working examples.

Catalysts composed of separately prepared, distinguishable parts having different compositions are classified in B01J 35/19. The appropriate group for the catalyst composition as a whole is given. In addition, each part is classified as a separate catalyst. Exception: Mixtures of molecular sieves are classified in B01J 29/005 or B01J 29/80 and receive additional symbols chosen from groups B01J 29/03 - B01J 29/046 to identify the individual constituents of these mixtures.

Example: Admixture of zeolite ZSM-5 and Pt/Al₂O₃; assign B01J 35/19 B01J 29/44, B01J 29/40, B01J 23/42.

Example: Zeolite ZSM-5 shaped with Al₂O₃ as matrix, and then impregnated with Pt B01J 29/44; also assign B01J 2229/20.

Example: Zeolite ZSM-5 mixed with Pt-impregnated Zeolite Y; assign B01J 29/80, B01J 29/40, B01J 29/126; also assign B01J 2229/18.

How to classify supported catalysts:

The carrier is normally not classified, unless the inventive idea is linked to the nature of the support. In this case, the support per se is also classified, usually in B01J 21/00 if appropriate. A symbol is given as additional information.

Metal catalysts or metal oxide catalysts activated or conditioned by halogens, sulfur or phosphorus, or compounds thereof are classified in the appropriate groups for metal or metal oxide catalysts (B01J 23/00) and in the groups relevant for activation/conditioning (B01J 37/00).

Heteropolyacids are classified in B01J 27/188 and subgroups.

If metals are introduced into the framework of the molecular sieve already in the synthesis stage, B01J 29/86 - B01J 29/89 and B01J 29/046 - B01J 29/048 take precedence.

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Glossary of termsReplace: The Glossary of terms table with the following revised table:

catalyst	any substance that increases the rate of a reaction without itself being consumed. Catalysts are commonly used in their pure form or in combination with suitable carriers. It covers also a carrier forming part of the catalyst
chromatography	a process in which a fluid is caused to flow along a linear path comprising a sorbent, with which the fluid competes in affinity for a constituent of the fluid. The constituent is sorbed from the moving fluid by the relatively immobile sorbent and re-dissolved by a later passing portion of the fluid until an equilibrium of the sorbing-dissolving step is set up causing the constituent to concentrate in a specific volume of the sorbent and to move along the path of the fluid at a rate slower than such fluid
fluidised particle	finely divided solid particle lifted and agitated by a stream of fluid
fluidised-bed	fluidised-solid contacting technique in which finely divided particles are lifted and agitated by a rising stream of fluid
molecular sieve	material (e.g. zeolitic, mesoporous) having cavities and channels which by their size allow some molecules to pass through, but prevent others
solid particle	particle whether catalysts, reactant or inert in solid, semi-solid or pasty state
sorbent	a material which separates a constituent from a fluid mixture containing such constituent by sorption. The action in most instances is that of selective retention (i.e. the sorbent removes only the part of the fluid mixture for which it has the greatest affinity)
zeolites	crystalline aluminosilicates with base-exchange and molecular sieve properties, having three-dimensional, microporous lattice framework structure of tetrahedral oxide units; compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron

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B01J 31/00

Relationships with other classification places

Replace: The entire Relationships text with the following revised text:

A material is classified as catalyst when the application states that it is useful as catalyst (or catalyst support) and when details regarding its composition, properties, preparation or regeneration are disclosed.

Double metal cyanide [DMC] catalysts are classified in B01J 27/26.

Compounds per se are classified in subclasses C07C - C07F. This compound classification is also (additionally) applied in cases where multiple possible uses from distinct chemical fields are disclosed in the application, e.g. as catalysts, sorbents or medicinal agents.

Electrocatalysts used in processes or means for the direct conversion of chemical energy into electrical energy are classified in H01M.

Electrocatalysts used in electrolytic or electrophoretic processes for the production of compounds or non-metals and apparatus therefor are classified in C25B.

In contrast to apparatuses used for polymerisation processes classified in C08F and C08G, the relevant catalysts should not be classified in B01J, in particular not in B01J 31/00, since these, as well as further polymerisation process features are covered in the polymer subclasses of C08. Indexing using Indexing Codes B01J 31/00 may however be made to provide non-obligatory further information of potential interest for search purposes.

Multiple classification

The intended use of the catalysts of this group is preferably classified as well, e.g. in a group of C07B - C07D.

Separately claimed ligands of metal complexes should be classified in a group of C07C - C07F.

Any part of a catalyst which is not identified by the classification according to the point above, and which is considered to represent information of interest for search, may also be classified. This can, for example, be the case when it is considered of interest to enable searching of catalysts using a combination of classification symbols. Such

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non-obligatory classification should be given indexing codes as "additional information".

References

Delete: The entire Limiting references section.

Special rules of classification

Replace: The Special rules section text with the following revised text:

The wording in the application should also be considered. Thus, in absence of exact identification of substances by name, formula or registry number, if reference is made exclusively to "complexes" and this designation appears correct on the basis of probability, the catalyst in question should be classified as coordination complex.

In this group, if two or more aspects are of equal importance, these are each classified, e.g. two components in a catalyst system such as:

- support and pendant or otherwise immobilised coordination complex;
- MOF and all linking ligands;
- coordination complex and essential additive; or
- coordination complex and further catalytically active metal components, e.g. nanoparticles.

However, if two components, even if separately added, are described as forming, or known to form, a coordination complex, only the latter is classified, e.g. phosphine and Group 8-10 metal such as rhodium. The groups [B01J 31/26](#) - [B01J 31/38](#) are not to be used for the central metals in coordination complexes but rather for separately added further inorganic ingredients.

Likewise, the catalyst (system) and its regeneration method (see groups [B01J 31/40](#)), if defined in sufficient detail, would both be classified.

The further catalyst groups of [B01J](#), i.e. [B01J 21/00](#) - [B01J 38/00](#) can be used to classify such further aspects of materials and processes to be used, if not provided in sufficient detail in [B01J 31/00](#), e.g. when a specially prepared inorganic support or a support with specific physical parameters or a special form is concerned. Further guidance in this respect is given in the classification rules for [B01J 21/00](#) - [B01J 29/00](#) and [B01J 33/00](#) - [B01J 38/00](#).

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Each specifically disclosed alternative is separately classified, i.e. specifically disclosed by way of worked examples, specific claims and/or explicit alternatives therein. This applies even if the application does not claim a catalyst per se.

In the case of compounds of this group, and in analogy to the guidance given in subclass [C07C](#) (cf. respective classification rules), this means either real examples of claimed compounds, i.e. those which are prepared or for which physical data, preparation or regeneration details are given, and compounds which are individually named or drawn in the claims.

Conversely long lists ("shopping lists") of prophetic compounds which fall within the scope of the claims but which have not actually been prepared and characterised or at least individually claimed are not classified. Neither are individual compounds generated only via Markush enumerations of generic formulae classified.

All examples are classified individually. Even if classification of the "fully identified" compounds would lead to the assignment of a large number of subgroups, no generalisation to the next hierarchically higher level is made. However, in case the claims relate to a catalyst and if classification of the examples only does not suitably reflect the subject-matter of the claims, additional, general classes are given to cover the scope of the catalyst claims.

When classifying in [B01J 31/00](#), additional information for the catalysts is provided as follows:

- the specifically disclosed intended uses are indexed in [B01J 2231/00](#);
- general aspects of the complexes of group [B01J 31/16](#), e.g. polynuclearity, ligand type, metal bonding mode(s) and the specifically disclosed central metal(s) therein, as well as additional information regarding any special solvents used for any catalyst system of this class are indexed in [B01J 2531/00](#);
- if expedient further compositional aspects of such complexes, e.g. non-coordinating substituents on the ligand described as essential and explicitly mentioned in the claims or the worked examples, are indexed in [B01J 2540/00](#); and
- conceptual articles, e.g. reviews, are separately indexed in [B01J 2231/005](#) and [B01J 2531/001](#).

Example:

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A metal-organic framework would be classified in group [B01J 31/1691](#), the principal ligands (e.g. dicarboxylate, bipyridine, pyrazine, dabco) would furthermore be classified with the appropriate groups from [B01J 31/00](#), e.g. [B01J 31/2239](#) for dicarboxylate linkers.

The orthogonal indexing codes [B01J 2531/0205](#) - [B01J 2531/0222](#), would then be used to define the respective catalyst (component) further according to the respective SBU comprising the metal, e.g.:

- tetrahedral $[Zn_4O]$ in MOF-5 and the IRMOF series => term is [B01J 2531/0216](#) since a bi- or polynuclear complex, without metal-carbon bonds, is involved;
- paddle-wheel $[Cu_2(O_2CR)_4]$, comprising a Cu-Cu bond, present in typical copper-based MOFs, e.g. $[Cu_2(1,4-bdc)_2](4,4'-bipy)$ => term is [B01J 2531/0219](#), since a bimetallic complex, without metal-carbon bonds, is involved.

Glossary of terms

Replace: The Glossary of terms table with the following revised table:

catalyst	covers also a carrier forming part of the catalyst, specific additives and co-catalysts
organic compound	a compound in which carbon is bonded to - a second carbon; - at least one atom of hydrogen or halogen; or - nitrogen by a single or double bond; except cyanic acid (HOCN), cyanogen (NCCN), cyanamide (H ₂ N ₂ CN), cyanogen halide (HalCN), hydrocyanic acid (HCN), isocyanic acid (HNCO), fulminic acid (HCNO) and metal carbides (MCCM)
organic ligand	a carbon-containing ligand bonded to a central metal in which said carbon is bonded to - a second carbon;- at least one atom of hydrogen or halogen; or - nitrogen by a single or double bond; except cyanic acid (HO-C≡N), cyanogen (N≡C-C≡N), cyanamide (H ₂ N-C≡N), cyanogen halide (Hal-C≡N), hydrocyanic acid (HC≡N), isocyanic acid (HN=C=O), fulminic acid (HC≡N-O), carbides (C≡C) and the respective anionic ligands derived by deprotonation (O-C≡N, N=C=N, C≡N, N=C=O, C≡N-O)

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organometallic compound	all organic compound wherein a metal or metalloid atom is bonded directly to a carbon fragment, the latter being formally anionic, no further neutral ligands being coordinated to the metal and the compound requiring no further cations for charge balance; e.g. $M(CR_3)_n$ with M = main group metal, n = valency of metal and R = H or hydrocarbyl
coordination complexes	all donor-acceptor compounds or complex ions comprising organic or inorganic, anionic or neutral Lewis basic ligands, attached to a Lewis acid central metal or metal ion through one or several complexing donor atoms with at least one lone-pair of electrons, e.g. N, O, S, P, to provide at least a sigma-bond; typically the maximum number of same or different ligands according to the coordination number, spatial requirements of the ligand and electronic configuration of the metal is bound in a predictable geometry; complexes of neutral, cationic or anionic hydrocarbon ligands with delocalised charge and/or bonding site, e.g. Pd-olefin complexes or metallocenes, are also included
organometallic complexes	all coordination complexes comprising a M-C bond, e.g. metal carbonyls; included are furthermore complexes which are not strictly organometallic per se, e.g. comprising only N, O, S and/or P coordinated ligands, but are described as involving, or known to involve, organometallic intermediates and/or transition states during use, e.g. Group 8-10 metal complexes for a variety of catalytic reactions or steps thereof, such as oxidative addition, e.g. of ArX, hydrogenation, carbonylation, epoxidation
organic complexes	all coordination complexes comprising organic ligands
polymer	a macromolecular substance (typically $M > 10000$ g/mol) comprising repeating units made up of one or several kinds of atoms or groups of atoms, which are identically connected to one another
oligomer	compound with more than two identical repeating units connected to one another and typically 500 less than M less than 10000 g/mol; grouped with the respective polymers

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ionic liquid	an organic salt in the liquid state at the reaction temperature employed, e.g. less than or equal to 100 °C or less than or equal to 20 °C ("room-temperature ionic liquid")
metal-organic framework	crystalline compounds consisting of metal ions or clusters coordinated to often rigid organic molecules as linkers to form one-, two-, or three-dimensional structures; see e.g. reviews: - O. Yaghi et al., Nature 423 (2003) 705-714 (XP2392829),- M.J. Rosseinsky, Micropor. Mesopor. Mat. 73 (2004) 15-30 (XP4522127); the linkers are often dicarboxylates, the metals often Zn, Cu, Fe or Al
carbenes(carbyne)	a metal coordination complex comprising a formally divalent (trivalent) ligand with a neutral carbon atom bonded to the metal via two (three) unshared electrons, i.e. a formal derivative of the hypothetical ligand CR ₂ (CR); the electrons may be paired or not
N-Heterocyclic carbene	asaturated or unsaturated heterocyclic compound comprising a neutral carbon atom with a lone electron pair (in the typical case of singlet or "nucleophilic" carbenes) adjacent to at least one nitrogen atom
bi- or polynuclear complex	a coordination complex comprising two or more same or different metal atoms, without M-M bonds; e.g. Cp(Lx)Zr-imidazole-Zr(Lx)Cp, [R ₂ PCp-Fe-CpPR ₂]Rh(L) _n , [(salen)Co(III)]SbF ₆ , Co(II)(salen)Fe(II)Cl ₂
bimetallic complex	a discrete coordination complex comprising one or more units of two metals, same or different, with metal-metal bonds but no all-metal (M) _n rings, e.g. Cr ₂ (OAc) ₄ , [(Mo ₂) ₄ (MeOPhNCNPhOMe) ₈ (Ph(COO) ₂) ₄], [Ph ₂ P-X-PPh ₂]Pt(Cl)SnCl ₃ , [Cp(CO) ₂ Mn=] ₂ Pb
metal cluster	a coordination complex with 3 to abt. 1000 same or different metal atoms and further comprising M-M bonds to provide (M) _n rings, i.e. size range from atomic to colloid dimensions; e.g. Rh _x (CO) _y , [R ₃ P=N=PR ₃] ⁺ [Ru ₃ Ir(CO) ₁₃], [Rh ₃ (DIPAMP) ₃ (μ ₃ -OMe) ₂]BF ₄ , Pt ₄ (OAc) ₈ , "Pd(OAc) ₂ " = Pd ₃ (OAc) ₆

DATE: JANUARY 1, 2024

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Synonyms and Keywords

Insert: The following preamble before the abbreviations table so they appear as follows:

In patent documents the following abbreviations are often used:

(RT)IL	(room-temperature) ionic liquid
MOF	metal-organic framework
Acac	acetylacetonate
NHC	N-heterocyclic carbene
Cp	cyclopentadienyl
Cp*	pentamethyl cyclopentadienyl

Replace: The synonyms preamble and text with the following revisions:

In patent documents the following words/expressions are often used as synonyms:

- phosphanes and phosphines
- N-heterocyclic carbene and any member of the family of 1,3-dihydrocarbylimidazoline-2-ylidenes or its saturated imidazolidine analogue.