

Guide to the International Patent Classification

Version 2018

INTERNATIONAL PATENT CLASSIFICATION (Version 2018)

GUIDE

I. FOREWORD

Objectives of the IPC; History of the IPC; Reform of the IPC; Assistance in the use of the Classification

1. The Strasbourg Agreement concerning the International Patent Classification (of 1971), which entered into force on October 7, 1975, provides for a common classification for patents for invention including published patent applications, inventors' certificates, utility models and utility certificates (hereinafter referred to as "patent documents"). Under Article 1 of the Agreement, the Special (IPC) Union was established. The International Patent Classification is hereinafter referred to as "the Classification" or "the IPC".
2. The Classification is established in the English and French languages, both texts being equally authentic. Pursuant to Article 3(2) of the Strasbourg Agreement, official texts of the Classification may be established in other languages.
3. The Internet version of the Classification, available on the WIPO IPC website (<http://www.wipo.int/classifications/ipc/>) represents the official publication of the IPC. It contains the complete text of the classification in English and French of the edition/version in force as well as previous editions/versions.
4. In accordance with Article 4(5) of the Strasbourg Agreement, it has been determined that the abbreviation "Int.Cl." of the words "International Patent Classification" may precede the classification symbols on published patent documents classified according to the Classification. More details on the presentation of these symbols are given in Section XII, below.
5. *[Deleted]*

OBJECTIVES OF THE IPC

6. The Classification, being a means for obtaining an internationally uniform classification of patent documents, has as its primary purpose the establishment of an effective search tool for the retrieval of patent documents by intellectual property offices and other users, in order to establish the novelty and evaluate the inventive step or non-obviousness (including the assessment of technical advance and useful results or utility) of technical disclosures in patent applications.
7. The Classification, furthermore, has the important purposes of serving as:
 - (a) an instrument for the orderly arrangement of patent documents in order to facilitate access to the technological and legal information contained therein;
 - (b) a basis for selective dissemination of information to all users of patent information;
 - (c) a basis for investigating the state of the art in given fields of technology;
 - (d) a basis for the preparation of industrial property statistics which in turn permit the assessment of technological development in various areas.

HISTORY OF THE IPC

8. The text of the first edition of the Classification was established pursuant to the provisions of the European Convention on the International Classification of Patents for Invention of 1954. Following the signing of the Strasbourg Agreement, the International (European) Classification of Patents for Invention, which had been published on September 1, 1968, was as of March 24, 1971, considered and referred to as the first edition of the Classification.

9. The Classification has been periodically revised in order to improve the system and to take account of technical development.

10. The first edition of the Classification was in force from September 1, 1968 to June 30, 1974,

- the second from July 1, 1974 to December 31, 1979,
- the third from January 1, 1980 to December 31, 1984,
- the fourth from January 1, 1985 to December 31, 1989,
- the fifth from January 1, 1990 to December 31, 1994,
- the sixth from January 1, 1995 to December 31, 1999, and
- the seventh from January 1, 2000 to December 31, 2005.

10bis. Following the reform of the IPC (see paragraphs 11 to 13, below), for the editions that were in force from January 1, 2006, to December 31, 2010, the Classification was divided into core and advanced levels. Each edition of the core level was indicated by the year of entry into force of that edition. IPC-2006 was in force from January 1, 2006, to December 31, 2008, and IPC-2009 entered into force on January 1, 2009. Each new version of the advanced level of the IPC was indicated by the year and the month of the entry into force of that version, for example, IPC-2008.01. From January 1, 2011, onwards, the division of the Classification into core and advanced levels was discontinued and each new version of the IPC is indicated by the year and the month of the entry into force of that version, for example, IPC-2011.01.

REFORM OF THE IPC

11. The Classification was designed, and developed for many years, mainly as a paper-based information tool. Changes to the structure of the Classification and to methods of its revision and application were needed in order to ensure its efficient and effective use in the electronic environment.

12. For this reason, member States of the IPC Union decided, in 1999, to launch a reform of the Classification and to introduce a transitional revision period during which, in parallel with revision of the Classification, the changes necessitated by the reform had to be elaborated. The transitional revision period started in 1999 and in 2005 the basic period of reform was completed.

13. The following major changes were introduced in the Classification as a result of its reform:

- (a) the Classification was divided into a core and an advanced level, in order to better satisfy the needs of different categories of users;
- (b) different revision methods were introduced, respectively, for the core and the advanced level, namely three-year revision cycles for the core level and continuous revision for the advanced level;
- (c) when the Classification is revised, patent documents are reclassified according to the amendments to the core and advanced levels;

(d) additional data illustrating classification entries or explaining them in more detail, such as Definitions, structural chemical formulae and graphic illustrations, informative references, were introduced in the electronic layer of the Classification;

(e) general principles of classification and classification rules were reconsidered and revised when appropriate.

14. However, in view of the complications to maintain two independent levels with different revision procedures and publication cycles, the IPC Union decided, in 2009, to discontinue the publication of separate levels of the IPC. In order to satisfy the needs of the users of the core level, it was decided that these users could classify the patent documents they publish using main groups (see paragraph 22, below) of the Classification.

ASSISTANCE IN THE USE OF THE CLASSIFICATION

15. The Guide attempts to describe in simple terms and by means of examples how the Classification should be used for the purpose of classifying or retrieving patent documents. Further assistance in the use of the Classification is provided on the WIPO IPC website (<http://www.wipo.int/classifications/ipc/>) by:

(a) the supplementary information in the IPC which includes Definitions, chemical formulae and graphic illustrations (see paragraphs 44 to 51, below);

(b) the Catchword Index to the IPC, which has been established in English and French as well as in other languages;

(c) the Revision Concordance List which gives information on how subject matter has been transferred between different places in the Classification as a result of its revision.

(d) *[Deleted]*

16. *[Deleted]*

17. Printed versions of the scheme of the IPC may be produced using the PDF files available on the WIPO IPC website.

18. Communications relating to the Classification should be addressed to:

World Intellectual Property Organization (WIPO)
34, chemin des Colombettes
CH-1211 Geneva 20 (Switzerland)
E-mail: ipc.mail@wipo.int

II. LAYOUT OF CLASSIFICATION SYMBOLS

Section; Class; Subclass; Group; Complete classification symbol

SECTION

19. The Classification represents the whole body of knowledge which may be regarded as proper to the field of patents for invention, divided into eight sections. Sections are the highest level of hierarchy of the Classification.

(a) **Section Symbol** – Each section is designated by one of the capital letters A through H.

(b) **Section Title** – The section title is to be considered as a very broad indication of the contents of the section. The eight sections are entitled as follows:

- A HUMAN NECESSITIES
- B PERFORMING OPERATIONS; TRANSPORTING
- C CHEMISTRY; METALLURGY
- D TEXTILES; PAPER
- E FIXED CONSTRUCTIONS
- F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS;
BLASTING
- G PHYSICS
- H ELECTRICITY

(c) *[Deleted]*

(d) **Subsection** – Within sections, informative headings may form subsections, which are titles without classification symbols.

Example: Section A (HUMAN NECESSITIES) contains the following subsections:

- AGRICULTURE
- FOODSTUFFS; TOBACCO
- PERSONAL OR DOMESTIC ARTICLES
- HEALTH; LIFE SAVINGS; AMUSEMENT

CLASS

20. Each section is subdivided into classes which are the second hierarchical level of the Classification.

(a) **Class Symbol** – Each class symbol consists of the section symbol followed by a two-digit number.

Example: H01

(b) **Class Title** – The class title gives an indication of the content of the class.

Example: H01 BASIC ELECTRIC ELEMENTS

(c) **Class Index** – Some classes have an index which is merely an informative summary giving a broad survey of the content of the class.

SUBCLASS

21. Each class comprises one or more subclasses which are the third hierarchical level of the Classification.

(a) **Subclass Symbol** – Each subclass symbol consists of the class symbol followed by a capital letter.

Example: H01S

(b) **Subclass Title** – The subclass title indicates as precisely as possible the content of the subclass.

Example: H01S DEVICES USING STIMULATED EMISSION

(c) **Subclass Index** – Most subclasses have an index which is merely an informative summary giving a broad survey of the content of the subclass.

(d) **Guidance Heading** – Where a large part of a subclass relates to a common subject matter a guidance heading indicating that subject matter may be provided at the beginning of that part.

GROUP

22. Each subclass is broken down into subdivisions referred to as “groups”, which are either main groups (i.e. the fourth hierarchical level of the Classification) or subgroups (i.e. lower hierarchical levels dependent upon the main group level of the Classification).

(a) **Group Symbol** – Each group symbol consists of the subclass symbol followed by two numbers separated by an oblique stroke.

(b) **Main Group Symbol** – Each main group symbol consists of the subclass symbol followed by a one- to three-digit number, the oblique stroke and the number 00.

Example: H01S 3/00

(c) **Main Group Title** – The main group title precisely defines a field of subject matter within the scope of its subclass considered to be useful for search purposes. Main group symbols and titles are presented in bold in the Classification.

Example: H01S 3/00 Lasers

(d) **Subgroup Symbol** – Subgroups form subdivisions under the main groups. Each subgroup symbol consists of the subclass symbol followed by the one- to three-digit number of its main group, the oblique stroke and a number of at least two digits other than 00.

Example: H01S 3/02

Subgroups are ordered in the scheme as if their numbers were decimals of the number before the oblique stroke. For example, 3/036 is to be found after 3/03 and before 3/04, and 3/0971 is to be found after 3/097 and before 3/098.

(e) **Subgroup Title** – The subgroup title precisely defines a field of subject matter within the scope of its main group considered to be useful for search purposes. The title is preceded by one or more dots indicating the hierarchical position of that subgroup, i.e., indicating that each subgroup forms a subdivision of the nearest group above it having one dot less (see paragraphs 25 to 28, below). The subgroup title is often a complete expression, in which case it begins with a capital letter. A subgroup title begins with a lower case letter if it reads as a continuation of the title of the next higher, less indented group from which it depends. In all cases, the subgroup title must be read as being dependent upon, and restricted by, the titles of the groups under which it is indented.

Examples: H01S 3/00 Lasers
 H01S 3/14 • characterised by the material used as the active medium

The title of 3/14 is to be read as: Lasers characterised by the material used as the active medium.

H01S 3/05 • Construction or shape of optical resonators

The title of 3/05 is a complete expression, but owing to its hierarchical position this group is restricted to the construction or shape of optical resonators of lasers.

COMPLETE CLASSIFICATION SYMBOL

23. A complete classification symbol comprises the combined symbols representing the section, class, subclass and main group or subgroup.

Example:

| | | | | |
|---------------------------------|-------------------------------|----------------------------------|-------|------------------------------------|
| A | 01 | B | 33/00 | Main group – 4 th level |
| Section – 1 st level | | | or | |
| | Class – 2 nd level | | 33/08 | Subgroup – lower level |
| | | Subclass – 3 rd level | | |
| | | | Group | |

III. HIERARCHICAL STRUCTURE OF THE CLASSIFICATION

Principle of hierarchy; The option of classifying in main groups only

24. The IPC is a hierarchical classification system. The contents of lower hierarchical levels are subdivisions of the contents of the higher hierarchical levels to which the lower levels are subordinated.

PRINCIPLE OF HIERARCHY

25. The Classification separates the whole body of technical knowledge using the hierarchical levels, i.e., section, class, subclass, group and subgroup, in descending order of hierarchy.

26. The hierarchy among subgroups is determined solely by the number of dots preceding their titles, i.e. their level of indentation, and not by the numbering of the subgroups.

Example: G01N 33/483 • • Physical analysis of biological material
 33/487 • • • of liquid biological material
 33/49 • • • • blood
 33/50 • • Chemical analysis of biological material, e.g. blood

This example shows that three-digit, three-dot subgroup 33/487 is hierarchically superior to the two-digit, four-dot subgroup 33/49, and the three-digit, two-dot subgroup 33/483 is of the same hierarchical level as the two-digit, two-dot subgroup 33/50.

27. The dots preceding a group title are also used in place of the titles of its hierarchically superior (less indented) groups, in order to avoid repetition.

Example: H01S 3/00 Lasers
 3/09 • Processes or apparatus for excitation, e.g. pumping
 3/091 • • by optical pumping
 3/094 • • • by coherent light

Without the use of hierarchical levels, subgroup H01S 3/094 would require a title such as: "Processes or apparatus for excitation of lasers using optical pumping by coherent light".

28. The hierarchical structure relating to the six-dot subgroup H01F 1/053 is shown in the following example:

| | | |
|---------------------|-----------|---|
| Section: | H | ELECTRICITY |
| Class: | H01 | BASIC ELECTRIC ELEMENTS |
| Subclass: | H01F | MAGNETS |
| Main group: | H01F 1/00 | Magnets or magnetic bodies characterised by the magnetic materials therefor |
| One-dot subgroup: | 1/01 | • of inorganic materials |
| Two-dot subgroup: | 1/03 | • • characterised by their coercivity |
| Three-dot subgroup: | 1/032 | • • • of hard-magnetic materials |
| Four-dot subgroup: | 1/04 | • • • • Metals or alloys |
| Five-dot subgroup: | 1/047 | • • • • • Alloys characterised by their composition |
| Six-dot subgroup: | 1/053 | • • • • • • containing rare earth metals |

Group H01F 1/053 actually concerns "magnets of inorganic materials characterised by their coercivity, comprising hard magnetic alloys specifically containing rare earth metals".

29. *[Deleted]*

THE OPTION OF CLASSIFYING IN MAIN GROUPS ONLY

30. Industrial property offices that do not have sufficient expertise for classifying to a detailed level have the option to classify in main groups only.

31. *[Deleted]*

32. *[Deleted]*

33. *[Deleted]*

IV. PRESENTATION OF CLASSIFICATION SCHEMES

Order of groups; Guidance headings; Presentation of titles; References; Notes; Interpretation of classification symbols cited in titles, references and notes

34. In order to facilitate use of the Classification, various elements and indications are provided in its text in addition to the titles of the hierarchically related classification entries.

Hence a scope-limitation reference fulfils both of the following requirements:

- (i) excludes specified subject matter from the scope of this classification place, when this subject matter would otherwise fulfil all the requirements of the classification place and its definition, i.e. would otherwise be covered by that place; and
- (ii) indicates the place(s) where this subject matter is classified.

Example: A47B 25/00 Card tables; Tables for other games (billiard tables
A63D 15/00)

Indeed billiard tables “fit” *a priori* under tables for games other than cards, and yet they are classified in A63D 15/00 instead.

In the Definitions, scope-limitation references are listed in tabular form under the heading “Limiting references”.

(b) **Precedence** – A reference stating that another place “takes precedence” is used when subject matter is classifiable in two places, or when different aspects of the subject matter to classify are covered by different places, and it is desired that such subject matter should be classified in only one of those places (see, for example, group A01D 43/00). Such a precedence reference occurs most frequently at subgroup level; in some cases, where several groups are similarly affected, it may be replaced by a note at a higher level (see, for example, Note (2) following the title of subclass A61M).

A precedence reference can act either as a form of scope-limitation reference, or as a classification rule for combination-type subject matter, depending on the relationship between the affected places:

- (i) A precedence reference to a place which is a subset of the place where the reference stands has the same function as a scope-limitation reference.
- (ii) A precedence reference to a place which has partially overlapping scope with the place where the reference stands also has the same function as a scope-limitation reference.
- (iii) A precedence reference to a place which has no overlapping scope with the place where the reference stands serves as a classification rule for combination-type subject matter.

Example (hypothetic):

10/00 Mechanical means (20/00, 30/00 take precedence)
20/00 Hydraulic means
30/00 Chemical means

– The precedence reference from 10/00 to 20/00 has the same function as a scope-limitation reference saying “(hydraulic means 20/00)”. Since hydraulic means are a type of mechanical means it excludes a subset of the matter covered by 10/00 and places it in a different place.

- The precedence reference from 10/00 to 30/00 does not exclude chemical means per se, since chemical means per se are not covered by 10/00. Its function is to exclude subject matter that would otherwise be classified in both 10/00 and 30/00, i.e. combinations of mechanical means and chemical means. To this extent, the precedence reference is establishing a rule for classification in these places.

In the Definitions, precedence references are listed in tabular form under the heading “Limiting references”, using the full description of the excluded subject matter in question, regardless of which of the three cases above applies.

Non-limiting references

(c) **Application-oriented** – References in function-oriented places which point to places where their subject matter is covered if it is specially adapted, used for a particular purpose or incorporated in a larger system (see paragraphs 85 to 87, 89 and 90).

Example: When considering the subject matter of lasers, i.e. devices using stimulated emission, which are covered by subclass H01S, the following are application-oriented references:

| | |
|--|-----------------------|
| eye surgery using laser | A61F 9/008 |
| laser printers | B41J 2/44, B41J 2/455 |
| laser heads for recording or reproducing | G11B 7/125 |

In the Definitions, application-oriented references are listed in tabular form under the heading “Application-oriented references”.

(d) **Out of a residual place** – References appearing in residual places which point to places which provide for the subject matter under consideration.

Example: When considering the subject matter of light sources, the subclass F21K is residual to the whole of the IPC, and the following are examples of references to other places which provide for the subject matter under consideration:

| | |
|--|--------------------------------------|
| candles | C11C 5/00 |
| electric incandescent lamps | H01K |
| semiconductor devices adapted for light emission | H01L 33/00, H01L 51/50-H01L 51/56 |

In the Definitions, references out of residual places are listed in tabular form under the heading “References out of a residual place”.

(e) **Informative** – References indicating the location of subject matter that could be of interest for searching, but which subject matter is not within the scope of the classification place where the reference occurs.

Hence an informative reference fulfils both of the following requirements:

- (i) the subject matter “does not fit” in the place under consideration, but
- (ii) that subject matter is still interesting for searching purposes.

It is instructive to compare the two conditions above with the two conditions (i) and (ii) relating to a scope-limitation reference instead.

As an application-oriented reference usually points from a function-oriented place to an application-oriented place, so an informative reference usually points from an application-oriented place to a function-oriented place.

In the Definitions, informative references are listed in tabular form under the heading "Informative references".

Limiting vs. non-limiting references

The set of references as defined in subparagraphs (c), (d) and (e), above, are referred to as non-limiting references, as opposed to the limiting references as defined in subparagraphs (a) and (b), above.

Limiting references are included in the classification schemes and in the Definitions, when available. To maintain the readability of schemes while increasing the amount of useful related information provided, non-limiting references are progressively being removed from schemes and transferred to the Definitions (see also paragraph 48, below).

Use and Interpretation of References

40. Some points of detail concerning the use and interpretation of references:

(a) A reference is usually placed at the end of the title to which it belongs. If the title consists of two or more parts, the reference is placed after the last part to which it relates. Exceptionally, a reference does not relate to all parts preceding it, but in such cases this is evident from the context.

Example: A47C CHAIRS (seats specially adapted for vehicles B60N 2/00);
SOFAS; BEDS (upholstery in general B68G)

(b) A reference following the title of a subclass or group relates to all the hierarchically inferior places.

(c) *[Deleted]*

(d) *[Deleted]*

(e) Where a group is quoted, it is usually the most relevant group but not necessarily the only relevant group. In particular, groups hierarchically related to a group quoted should also be borne in mind.

(f) Where two or more items of subject matter are referred to the same place, they are separated by a comma, the classification symbols of that place being given only at the end of that reference.

Example: A01B 77/00 Machines for lifting and treating soil (biocides, pest repellants or attractants, plant growth regulators A01N 25/00-A01N 65/00; --)

(g) References relating to different items of subject matter referred to different places are separated by a semicolon and are to be read independently.

Example: A47J 31/00 Apparatus for making beverages (household machines or implements for straining foodstuffs A47J 19/00; preparation of non-alcoholic beverages, e.g. by adding ingredients to fruit or vegetable juices, A23L 2/00; coffee or tea pots A47G 19/14; tea infusers A47G 19/16; brewing of beer C12C; preparation of wine or other alcoholic beverages C12G)

An exception is where a substantial part of their wording is the same; in this case, the common wording is given once and the different symbols are separated by a comma.

Example: A01L 11/00 Farriers' tools or appliances (making horseshoes by rolling B21H 7/12, by forging B21K 15/02)

NOTES

41. Notes define or explain specific words, phrases or the scope of places, or indicate how subject matter is classified. Notes may be associated with sections, subsections, classes, subclasses or groups.

Examples: F42 This class covers also means for practice or training which may have aspects of simulation, although simulators are generally covered by class G09.

B22F "Metallic powder" covers powders containing a substantial proportion of non-metallic material.

B01J 31/00 In this group, the presence of water is disregarded for classification purposes.

Notes apply only to the places concerned, and their subdivisions, and override any general guidance in case of conflict. For example, Note (1) following the title of subclass C08F overrides the Note following the title of section C. Any information that is found in notes that are associated with the section, subsection, or class level of the Classification is also provided within subclass Definitions (see paragraphs 45 to 47, below) that have their scope impacted by this information.

INTERPRETATION OF CLASSIFICATION SYMBOLS CITED IN TITLES, REFERENCES AND NOTES

41bis. Being a hierarchically arranged system, most places in the IPC have subdivisions. When a symbol or contiguous range of symbols is cited in a title, reference or note, it is to be understood that the citation comprises not just the symbols explicitly mentioned but their full range of hierarchically inferior subdivisions too. For this reason, the IPC does not use expressions like "... class and its subclasses ...", "... subclass and its main groups ..." or "... group and its subgroups ...". When, for instance, a group is cited, its full set of dependent subgroups is comprised in the citation also. Similarly, citation of a subclass also comprises its main groups, and their subgroups, and citation of a class comprises all its subclasses and their full contents.

41ter. Accordingly, when any particular contiguous interval of groups is indicated in a title, note or reference, the end of the interval is identified by the hierarchically highest symbol that covers the last intended group of the interval without incorporating any groups which are not to be considered part of the citation. Where a title, reference or note requires the citation of places which are not contiguous, the title, reference or note will cite each contiguous block separately, and will not include any citation of a place which is not intended to be part of the title, reference or note.

Examples:

The note of subclass B23D, "This subclass covers machines for shearing sheet metal or other stock material except metal foils workable in a manner analogous to paper, which is covered by class B26.", refers implicitly to all subclasses of B26, and all the groups thereof.

The title of B23D 29/00, "Hand-held metal-shearing or metal-cutting devices (with nibbling action B23D 27/02; hand-operated devices for metal-cutting otherwise than by shearing B26B)", refers implicitly to B23D 27/02 and its two subgroups, B23D 27/04 and B23D 27/06, as well as to all groups of subclass B26B.

The title of B23D 31/00, "Shearing machines or shearing devices covered by none or more than one of the groups B23D 15/00-B23D 29/00; Combinations of shearing machines", refers implicitly to the main groups in the interval B23D 15/00-B23D 29/00 and all the groups thereof, so that the actual interval starts with B23D 15/00 and ends with B23D 29/02.

V. USER INFORMATION

Indication of changes with respect to previous editions/versions; Supplementary information in the IPC

INDICATION OF CHANGES WITH RESPECT TO PREVIOUS EDITIONS/VERSIONS

42. In order to assist the user, the text of the Classification is presented in such a way as to give some indication of the kind of changes it has undergone with respect to previous editions/versions. The following indications are used in the Classification:

- (a) Text in italics means that the entry in question, in relation to the previous edition/version, either
 - (i) is new, or
 - (ii) its "file scope" (see paragraph 74bis, below) has been changed, or
 - (iii) has been deleted (see under (d) below).

In cases (i) or (ii), above, the entry in italics is followed by the version indicator in square brackets (see under (b) below).

- (b) The version indicator gives the edition/version where the corresponding entry was new or where its "file scope" was modified, for example, [4] or [2008.01].

(c) One and the same entry may be followed by two or more version indicators in square brackets. In order to allow a more convenient presentation, only the last version indicator is displayed while the others are displayed if the user so wishes (for example, by moving the cursor on the said version indicator).

(d) The symbols of groups that have been deleted appear with an indication in italics of where the subject matter concerned is transferred to, or where this subject matter is covered, in the current edition/version.

The symbols of groups which have been deleted in the previous editions/versions do not appear in the current edition/version.

43. *[Deleted]*

SUPPLEMENTARY INFORMATION IN THE IPC

44. In addition to the Classification scheme, various data illustrating IPC entries or explaining them more in detail, which are intended to enhance understanding and ease of use of the IPC, are accessible via its Internet publication.

Classification Definitions

45. Although the scope of classification places can be determined from classification titles with associated references and notes, which are present in the scheme of the Classification, it is recommended to use Definitions for clarifying the exact boundaries of the subject matter appropriate for the classification place. Definitions provide supplementary information in respect of classification entries and serve for their clarification, but do not change the scope of classification entries.

46. Definitions are prepared following a structured format, the most important part of which is the definition statement giving a more detailed explanation of the scope of the classification place. In the definition statement, relevant words and phrases are used which may be alternative to those used in the title and which can be found in the patent documents classified in the classification place. Definitions also contain other parts, such as explanation of limiting and informative references associated with the title, interpretation of special classifying rules affecting the classification place and definitions of terms used in the classification place.

47. Definitions are provided only for a limited number of subclasses and groups. In the course of the further development of the IPC, Definitions will be elaborated for more subclasses, where needed, and for main groups and subgroups, where appropriate.

Non-limiting References

48. Non-limiting references indicating the location of subject matter that could be of interest for searching are progressively being introduced into the Definitions. They do not limit the scope of classification places with which they are associated and are intended only to facilitate the patent search.

Chemical Formulae and Graphic Illustrations

49. In the areas of the IPC relating to general and applied chemistry, chemical structural formulae that provide a visual representation of the content of the classification place are of great value. They are introduced in the scheme of the Classification with a limited number of classification entries when they are necessary for defining their scope or for interpreting the scope of their subordinated entries (see, for example, main group C07D 499/00).

50. Many additional chemical structural formulae are introduced in the Definitions. They serve for illustrating purposes, generally by way of examples, and for facilitating understanding of the content of the chemical areas of the Classification. The chemical formulae are available for viewing through hyperlinks provided in the relevant classification entries.

51. Other explanatory graphic illustrations have also been introduced in the Definitions (see, for example, graphic illustrations under main group F23B 50/00).

52. *[Deleted]*

VI. TERMINOLOGY

Standard expressions; Glossary

STANDARD EXPRESSIONS

53. It has been possible to standardise a limited number of wordings in the IPC. The explanations of standard expressions used in the text of the Classification follow below.

“Covered” or “Provided for”

54. When subject matter is stated to be “covered” by/in a classification place, it means the subject matter has characteristics enabling it to be classified in that place (see, for example, group A41F 18/00). The expression “provided for” has the same meaning as “covered” (see, for example, group B60Q 11/00).

Expressions Used to Indicate Residual Subject Matter

55. The expression “not otherwise provided for”, or similar expressions occurring in a group title, means “not provided for in any other group in the same subclass or in any other subclass” (see, for example, group B65D 51/00). This applies similarly where this expression appears in the title of a class or subclass. However, the use of this expression in a main group title does not expand the scope of the subclass as specified in paragraph 69, below.

56. Groups worded “... not provided for in groups...” cover subject matter that is not provided for in the stated groups. Groups worded “Other...” only cover subject matter that is not provided for in other related groups, for example at the same hierarchical level within a subclass or group (see, for example, A41F 13/00, B05C 21/00, respectively).

57. Many subclass schemes include a residual main group, which provides for the subject matter within the scope of the subclass that is not covered by any of the other main groups of the subclass. Such residual main groups are usually located at the end of subclasses.

Expressions Used to Indicate Combination Subject Matter

58. In a number of subclasses, there are main groups designating subject matter “... covered by more than one of main groups...” or with similar wording. Such groups only provide for subject matter which consists of a combination of characteristics not covered as a whole by a single one of the groups specified, for example, C05B 21/00. Additionally, in a number of subclasses, there are main groups designating subject matter “... not covered by any single one of main groups ...” or with similar wording. This type of group may provide for both:

- subject matter which consists of combinations of characteristics not covered as a whole by a single one of the specified groups, and
- subject matter not covered by any of the groups in the specified range.

“i.e.”, “e.g.”

59. The expression “i.e.” has the sense of “equals” and the two phrases joined by “i.e.” are to be considered equivalent, one of the phrases constituting a definition of the other.

Example: A01D 41/00 Combines, i.e. harvesters or mowers combined with threshing devices

60. The expression “e.g.” does not limit the sense of the phrase which precedes it, but simply explains it by giving one or more examples. This expression is used for the following purposes:

(a) To provide a typical illustration of the subject matter covered by the preceding wording.

Example: A42C 5/00 Fittings or trimmings for hats, e.g. hat-bands

(b) To draw attention to the fact that what is mentioned after “e.g.” is definitely included within and covered by the preceding wording although this might not be readily apparent from the wording.

Example: B62B 7/00 Carriages for children; Perambulators, e.g. dolls' perambulators

(c) To indicate matter which is covered by a group but for which no dependent subgroup has been provided.

Example: G02B 6/122 • • • Basic optical elements, e.g. light-guiding paths
6/124 • • • Geodesic lenses or integrated gratings
6/125 • • • Bends, branchings or intersections

“A and B”, “A or B”, “Either A or B, but not Both”

61. The expression:

- “A and B” requires the presence of both A and B in the same example or embodiment;
- “A or B” implies the presence of A or the presence of B, or the presence of A and B in the same example or embodiment;
- “either A or B, but not both” implies the presence of A or the presence of B but not the presence of both A and B in the same example or embodiment.

“In General”, “Per se”, “Specially Adapted for”

62. The expression “in general” is used when indicating things that are considered for their characteristics, disregarding any specific application, or that are not specially adapted for any particular use or purpose, as defined in paragraph 85(a), below.

63. The expression “per se” concerns only an item of subject matter itself as opposed to a combination of which that item is a part.

Examples: B22F 1/00 Special treatment of metallic powder; Metallic powders
per se

H04N 21/80 . Generation or processing of content or additional data by content creator independently of the distribution process;
Content per se

64. The expression “specially adapted for” is used when indicating “things” that have been modified or particularly constructed for the given use or purpose, as defined in paragraph 85(b), below.

Examples: A47D FURNITURE SPECIALLY ADAPTED FOR CHILDREN
A01K 63/02 • Receptacles specially adapted for transporting live fish

“Or the Like”

65. The expression “or the like” is sometimes used to emphasise that the classification place in question is not limited to the specific subject matter as specified by the wording but that it also covers similar subject matter with essentially the same characteristics.

Example: A01D 3/00 Non-abrasive sharpening devices for scythes, sickles, or the like

GLOSSARY

66. A two-part Glossary of terms and expressions is included at the end of the Guide. Its first part includes classification terms and expressions relating to principles and rules of the Classification which are often used in this Guide. The second part of the Glossary includes technical terms and expressions used in the Classification itself.

VII. SCOPE OF PLACES; FILE SCOPE OF GROUPS

Subclasses; Main groups; Subgroups; File Scope of groups

67. The scope of any classification place must always be interpreted within the scope of all its hierarchically superior places.

68. The titles of sections, subsections and classes are only broadly indicative of their content and do not define with precision the subject matter falling under the general indication of the title. In general, the section or subsection titles very loosely indicate the broad nature of the scope of the subject matter to be found within the section or subsection, and the class title gives an overall indication of the subject matter covered by its subclasses. By contrast, it is the intention in the Classification that the titles of subclasses, taking into consideration any references, definitions or notes associated therewith, define as precisely as possible the scope of the subject matter covered thereby. The titles of main groups and subgroups, again subject to any references, definitions or notes associated therewith, precisely define the subject matter covered thereby (see the example cited in paragraph 28, above).

68bis. Under certain circumstances, a place can cover more than its explicitly stated scope:

(a) Details or components that are specially adapted for, or used only with, the explicitly stated subject matter of the place and not provided for elsewhere (see paragraph 99, below).

(b) Combinations of the explicitly stated subject matter of the place with other subject matter (see paragraphs 145, 150 and 154, below).

(c) Subject matter of a category of invention not covered by the place and not covered elsewhere, but related to the explicitly stated subject matter of the place. For example, if there is no group for the production of a certain product, the group for the product also covers production thereof (see paragraphs 92 to 98, below).

SUBCLASSES

69. The scope of a subclass is defined by the following, taken together:

(a) The subclass title which describes, as precisely as is possible in a small number of words, the main characteristic of a portion of the whole body of knowledge covered by the Classification, this portion being the field of the subclass to which all its groups relate.

(b) Any limiting references which follow the subclass title or its class title. These references indicate certain parts of the field described by the title which are covered by other subclasses and are therefore excluded. These parts may constitute a substantial part of the field described by the title and, thus, the limiting references are in some respects as important as the title itself. For example, in subclass A47D – FURNITURE SPECIALLY ADAPTED FOR CHILDREN – a considerable part, namely school benches or desks, of the subject matter covered by the title is excluded in view of a reference to particular groups of subclass A47B, thus considerably altering the scope of subclass A47D.

(c) Any limiting references which appear in groups of a subclass and which refer subject matter to another class or subclass also restrict the scope of the subclass in question. For example, in subclass B43K – IMPLEMENTS FOR WRITING OR DRAWING – writing points for indicating or recording apparatus are referred out of group 1/00 to group 15/16 of subclass G01D, thereby reducing the scope of the subject matter covered by the title of subclass B43K.

(d) Any notes appearing under the subclass title or its class, subsection or section title. Such notes may define terms or expressions used in the title, or elsewhere, or clarify the relation between the subclass and other places.

Examples: (i) The Notes following the title of the subsection “ENGINES OR PUMPS”, embracing classes F01 to F04, which notes define the terms or expressions used throughout the subsection.

(ii) Note (1) following the title of subclass F01B, which defines its scope in relation to subclasses F01C to F01P.

(iii) The Note following the title of section C which defines groups of elements.

The titles of subclasses sometimes do not embrace the titles of all main groups under them. However, the scope of a subclass should always be understood to include all subject matter specifically stated in the titles of its main groups.

70. A more detailed explanation of the scope of a subclass is provided by its definition, where it is available. In particular, the exact boundaries of any subject matter added to the scope of the subclass by its main group titles are specified.

MAIN GROUPS

71. The scope of a main group is to be interpreted only within the scope of its subclass (as indicated above). Subject to this, the scope of a main group is determined by its title as modified by any relevant references or notes associated with the main group. For example, a group for “bearings” in a subclass whose title is limited to a particular apparatus must be read as covering only features of bearings peculiar to that apparatus, for example, the arrangement of bearings in the apparatus. A more detailed explanation of the scope of a main group is provided by its definition, where it is available.

71bis. Attention is drawn to the fact that guidance headings are intended to be only informative and, as a rule, do not define nor modify the scope of the groups covered by them.

SUBGROUPS

72. The scope of a subgroup is likewise to be interpreted only within the scope of its subclass, main group and of any subgroup under which it is indented. Subject to this, the scope of a subgroup is determined by its title as modified by any relevant references or notes associated therewith.

Example: B64C AEROPLANES; HELICOPTERS (air-cushion vehicles B60V)
5/00 Stabilising surfaces (attaching stabilising surfaces to fuselage B64C 1/26)
5/06 • Fins (specially for wings B64C 5/08)
5/08 • mounted on, or supported by, wings
5/10 • adjustable
5/12 • • for retraction against or within fuselage or nacelle

(a) Main group 5/00 must be read within the scope of the subclass title, i.e., as “stabilising surfaces of aeroplanes or helicopters”. Moreover, the reference following the title of subclass B64C (air-cushion vehicles B60V) indicates that all subject matter concerning air-cushion vehicles is classified in subclass B60V, so that, in relation to main group 5/00 and all its subgroups, stabilising surfaces of air-cushion vehicles are classified in subclass B60V. Furthermore, the reference in main group 5/00 (attaching stabilising surfaces to fuselage 1/26) indicates that all subject matter concerned with attaching stabilising surfaces to fuselages is classified in subgroup 1/26.

(b) Subgroup 5/06, which is indented under main group 5/00, must be read as “aeroplane or helicopter stabilising surfaces in the form of fins”. Moreover, the reference following the title of subgroup 5/06 (specially for wings 5/08) indicates that fins designed specially for wings are classified in subgroup 5/08.

(c) Similarly, subgroup 5/08, which is of the same one-dot indentation under main group 5/00 as subgroup 5/06, must be read as “aeroplane or helicopter stabilising surfaces mounted on, or supported by, wings”, and subgroup 5/10 as “adjustable stabilising surfaces of aeroplanes or helicopters”.

(d) Subgroup 5/12 is indented under subgroup 5/10 and must be read within the scope thereof, i.e., as “adjustable stabilising surfaces of aeroplanes or helicopters for retraction against or within fuselage or nacelle”.

73. A subgroup covers only a particular part of the subject matter covered by the group under which it is indented. Therefore, a group may have only one subgroup or many. Each subgroup is devised to cover a portion of the subject matter that can serve as a self-contained field of search. A group is thus used for classifying subject matter which falls within its scope but is not covered by a subgroup.

74. The scope of any subgroup in comparison with its hierarchically higher group is determined by the presence of one or more essential characteristics, specified in the title of the subgroup. Two cases may arise:

(a) The essential characteristics are not expressed in the title of the hierarchically higher group.

Example: H01F 5/00 Coils
 H01F 5/02 • wound on non-magnetic supports

(b) The essential characteristics are already expressed in the title of the hierarchically higher group.

Example: A63C 5/00 Skis or snowboards
 A63C 5/03 • Mono skis; Snowboards

FILE SCOPE OF GROUPS

74bis. As subject matter that belongs to a subgroup should not be classified in its parent group, there is a difference between the complete scope of a parent group (i.e. including its subgroups) and the subject matter that should actually be classified in it. The subject matter that should actually be classified in a group is called the file scope. For a group that has no subgroups, the scope and the file scope are identical. When a group gets new subgroups, its scope remains unchanged, but the file scope is reduced. The file scope of a group can be understood as the residual subject matter classified in the group itself, but not in its subgroups.

VIII. PRINCIPLES OF THE CLASSIFICATION

Invention information; Additional information; Categories of subject matter; Places in the Classification for technical subjects of inventions; Function-oriented, application-oriented and residual places; Classification of technical subjects of inventions

75. The primary purpose of the Classification is to facilitate the retrieval of technical subject matter. It is therefore devised, and has to be used, in such a way that one and the same technical subject is classified in, and thus can be retrieved from, one and the same place within the Classification; this place being the one most relevant to be searched for that subject.

76. Two types of information may be found in patent documents. These are "invention information" and "additional information". The meaning of these expressions is explained in paragraphs 77 to 80, below. The rules of selection of classification symbols are the same for both types of information (see also chapter XI, below). Although in the Guide reference is often made only to inventions or technical subjects of inventions, it is to be understood that the remarks made in the Guide apply equally to technical subjects which are covered by the additional information.

INVENTION INFORMATION

77. Invention information is technical information in the total disclosure of a patent document (for example, description, drawings, claims) that represents an addition to the state of the art. The invention information is determined in the context of the state of the art, using guidance provided by the claims of the patent document, with due regard given to the description and the drawings.

78. “Addition to the state of the art” means all novel and unobvious subject matter specifically disclosed in a patent document, which subject matter does not represent part of the prior art, i.e., the difference between the subject matter in a patent document and the collection of all technical subject matter that has already been placed within public knowledge.

ADDITIONAL INFORMATION

79. Additional information is non-trivial technical information which does not in itself represent an addition to the state of the art but might constitute useful information for the searcher.

80. The additional information complements the invention information by identifying, for example, the constituents of a composition or mixture, or elements or components of a process or structure, or use or applications of classified technical subjects.

CATEGORIES OF SUBJECT MATTER

81. Technical subject matter may represent processes, products, apparatus or materials (or the way these are used or applied). These terms, usually referred to as categories of subject matter, should be interpreted in their widest sense, as indicated in the following examples:

- (a) Examples of processes are: polymerisation, fermentation, separation, shaping, conveying, treating of textiles, transfer and transformation of energy, building, preparation of foodstuffs, testing, methods of operating machines and ways in which they work, processing and transmitting of information.
- (b) Examples of products are: chemical compounds, compositions, fabrics, articles of manufacture.
- (c) Examples of apparatus are: installations used in chemical or physical processes, tools, implements, machines, devices for performing operations.
- (d) Examples of material are: ingredients of mixtures.

82. It should be noted that an apparatus can be regarded as a product, since it is produced by a process. The term “product”, however, is rather used to denote the result of a process regardless of the subsequent function of the product, for example, the end-product of a chemical or manufacturing process, whereas the term “apparatus” is associated with an intended use or purpose, for example, apparatus for generating gases, apparatus for cutting. Materials in themselves may constitute products.

PLACES IN THE CLASSIFICATION FOR TECHNICAL SUBJECTS OF INVENTIONS

83. The Classification is designed to ensure that any technical subject with which an invention is essentially concerned can be classified, as far as possible, as a whole and not by separate classification of constituent parts.

84. However, constituent parts of a technical subject of invention may also constitute invention information if they themselves represent an addition to the state of the art, i.e. they represent novel and unobvious subject matter.

FUNCTION-ORIENTED, APPLICATION-ORIENTED AND RESIDUAL PLACES

85. The technical subjects of inventions dealt with in patent documents concern either the intrinsic nature or function of a thing or the way a thing is used or applied. The term “thing” is used in this context to mean any technical matter, tangible or not, for example, process, product or apparatus. The above is reflected in the design of the Classification. It provides places for classifying:

(a) a thing “in general”, i.e., characterised by its intrinsic nature or function; the thing being either independent of a particular field of use or technically not affected if statements about the field of use are disregarded, i.e., it is not specially adapted for use in the field.

Examples: (1) F16K has provision for valves characterised by constructional or functional aspects that do not depend on the nature of the particular fluid (for example, oil) passing therethrough or of any system of which the valve may form part.

(2) C07 has provision for organic chemical compounds characterised by their chemical structure but not by their application.

(3) B01D has provision for filters in general.

(b) A thing “specially adapted for” a particular use or purpose, i.e., modified or particularly constructed for the given use or purpose.

Example: A61F 2/24 is the place for a mechanical valve specially adapted for insertion into a human heart.

(c) The particular use or application of a thing.

Example: Filters specially adapted for particular purposes, or in combination with other apparatus, are classified in application-oriented places, for example, A24D 3/00, A47J 31/06.

(d) The incorporation of a thing into a larger system.

Example: B60G has provision for the incorporation of a leaf spring into the suspension of a vehicle wheel.

86. Places of category (a), above, are referred to as “function-oriented places”. Places of the above categories (b) to (d) are referred to as “application-oriented places”.

87. Places, for example, subclasses, are not always exclusively function-oriented or application-oriented in relation to other places in the Classification.

Example: Although F16K (valves, etc.) and F16N (lubricating) are both function-oriented subclasses, F16N includes application-oriented places for certain valves specially adapted for lubrication systems (for example, F16N 23/00—special adaptations of check valves), while, conversely, F16K includes application-oriented places for lubricating features of gate valves or sliding valves (see, for example, F16K 3/36—features relating to lubrication).

Furthermore, the expressions “function-oriented place” and “application-oriented place” cannot always be regarded as absolute. Thus, a given place may be more function-oriented than another place but less function-oriented than yet a further place.

Example: F02F 3/00 concerns pistons for combustion engines in general and is therefore more function-oriented than F02B 55/00, which is specifically directed to rotary type pistons in combustion engines, but is less function-oriented than F16J, which relates to pistons in general.

87bis. There are also places in the IPC which should be considered for classification if and only if no other place of the IPC provides for the subject matter under consideration. Such places are referred to as “residual places”.

Expressions in the titles like:

- “not otherwise provided for”,
- “not provided for in ...”,
- “not covered by ...”

clearly designate residual places.

The residual nature of the place can be relative to other subgroups, other main groups of the same subclass, other subclasses or even to the whole of the IPC. Main groups 99/00, throughout the whole of the IPC, are special residual places.

Examples: F21S 15/00 Non-electric lighting devices or systems employing light sources not covered by main groups F21S 11/00, F21S 13/00 or F21S 19/00

G06Q 99/00 Subject matter not provided for in other groups of this subclass

A99Z SUBJECT MATTER NOT OTHERWISE PROVIDED FOR IN THIS SECTION

F21K LIGHT SOURCES NOT OTHERWISE PROVIDED FOR

CLASSIFICATION OF TECHNICAL SUBJECTS OF INVENTIONS

General Observations

88. It is of great importance to identify accurately the technical subject(s) with which each invention is essentially concerned. Therefore, consideration should be given to the thing involved as set out in paragraphs 81 to 85, above, in order to determine the appropriate place in the Classification.

Example: If a patent document discloses pistons, consideration must be given to whether the technical subject of the invention is a piston itself, or whether the technical subject is different, for example, the special adaptation of a piston for use in a particular apparatus, or the arrangement of pistons in a larger system, for example, in an internal-combustion engine.

89. Often, the invention information relates only to a particular field of use, and the application-oriented places are intended to cover completely the classification of such matter. The function-oriented places embrace a wider concept in which the constructional or functional characteristics of a subject are applicable to more than one field of use, or in which the application to a particular field of use is not considered invention information.

Example: Main group C09D 5/00 covers a variety of application-oriented coating compositions (for example, C09D 5/16 covers anti-fouling paints), whereas groups C09D 101/00 to 201/00 cover function-oriented aspects of coating compositions, namely the polymer the composition is based on.

90. When it is unclear whether to classify a technical subject in a function-oriented place or in an application-oriented place, the following should be observed:

(a) If a particular application is mentioned, but not specifically disclosed or fully identified, classification is made in the function-oriented place, if available. This is likely to be the case when several applications are broadly stated.

(b) If the essential technical characteristics of the subject relate both to the intrinsic nature or function of a thing and to its particular use, or its special adaptation to or incorporation into a larger system, classification is made in both the function-oriented place and the application-oriented place, if available.

(c) If guidance indicated in subparagraphs (a) and (b), above, cannot be used, classification is made in both the function-oriented place and the relevant application-oriented places.

91. When classifying a larger system (combination) as a whole, attention should be given to parts or details whenever they are novel and unobvious. Classification of both the system and these parts and details is necessary.

Example: When a document is concerned with the incorporation of a given thing, for example, a leaf spring, into a larger system, for example, a vehicle wheel suspension, it is therefore concerned with the larger system and should be classified in the place for this system (B60G). If the document is also concerned with the thing itself, i.e., the leaf spring as such, and it is novel and unobvious, it is also necessary to classify the document in the place for the thing itself (F16F).

Categories of Subject Matter not explicitly provided for in Classification Titles

92. It is apparent from paragraphs 81 and 82, above, that the technical subject of an invention may be expressed as different categories of subject matter. If for one of these categories, no distinct place has been identified by the titles of the Classification for a particular technical subject, the most appropriate place existing for the other categories is used for classifying (see paragraphs 93 to 99, below, for specific situations). In these situations, even though the titles of those places do not directly indicate that this category of subject matter is appropriate there, this may be indicated by other means such as references, notes, definitions, or the provision for

similar subject matter in other groups of their scheme. Definitions, where present, should provide specific information about the appropriate classification places for related categories of subject matter not specified in classification titles.

Periodic Table of Chemical Elements

92bis. In all sections of the IPC, in the absence of an indication to the contrary, the Periodic System of chemical elements referred to is the one with eight groups as represented in the table below. For example, group C07F 3/00 "Compounds containing elements of Groups 2 or 12 of the Periodic System" refers to the elements of columns IIa and IIb.

| Period | 1 IA | 2 IIA | 3 IIIB | 4 IVB | 5 VB | 6 VIB | 7 VIIB | 8 VIII | 9 VIII | 10 VIII | 11 IB | 12 IIB | 13 IIIA | 14 IVA | 15 VA | 16 VIA | 17 VIIA | 18 VIIIA |
|--------|---------|----------|-------------|----------|---------|----------|-----------|-----------|-----------|------------|----------|-----------|------------|-----------|----------|-----------|------------|-------------|
| 1 | H | | | | | | | | | | | | | | | | | He |
| 2 | Li | Be | | | | | | | | | | | B | C | N | O | F | Ne |
| 3 | Na | Mg | | | | | | | | | | | Al | Si | P | S | Cl | Ar |
| 4 | K | Ca | Sc | Ti | V | Cr | Mn | Fe | Co | Ni | Cu | Zn | Ga | Ge | As | Se | Br | Kr |
| 5 | Rb | Sr | Y | Zr | Nb | Mo | Tc | Ru | Rh | Pd | Ag | Cd | In | Sn | Sb | Te | I | Xe |
| 6 | Cs | Ba | Lanthanides | Hf | Ta | W | Re | Os | Ir | Pt | Au | Hg | Tl | Pb | Bi | Po | At | Rn |
| 7 | Fr | Ra | Actinides | Rf | Db | Sg | Bh | Hs | Mt | Ds | Rg | Cn | | Fl | | Lv | | |

| | | | | | | | | | | | | | | | |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Lanthanides | La | Ce | Pr | Nd | Pm | Sm | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb | Lu |
| Actinides | Ac | Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Md | No | Lr |

Chemical Compounds

93. When the subject of the invention concerns a chemical compound *per se* (organic, inorganic or macromolecular), it is classified in section C according to its chemical structure. When it also concerns a specific field of use, it is also classified in the place provided for that field of use, if such field of use constitutes an essential technical characteristic of the subject. However, when the chemical compound is known and the subject of the invention concerns only the application of the compound, it is classified in the place covering the field of use as invention information while the chemical structure may also be classified in the place for the chemical compound *per se* as additional information.

Chemical Mixtures or Compositions

94. When the subject of the invention concerns a chemical mixture or composition *per se*, it is classified in a place according to its chemical composition if such a place exists, for example, C03C (glass), C04B (cements, ceramics), C08L (compositions of organic macromolecular compounds), C22C (alloys). If such a place does not exist, it is classified according to its use or application. If the use or application also constitutes an essential technical characteristic of the subject of the invention, a mixture or composition is classified according to both its chemical composition and its use or application. However, when the chemical mixture or composition is known and the subject of the invention concerns only its use, it is classified in the place covering the field of use as invention information while the mixture or composition may also be classified in the place for the chemical mixture or composition *per se* as additional information.

Preparation or Treatment of Compounds

95. When the subject of the invention concerns a process of preparation or treatment of a chemical compound, it is classified in the place for the process of preparation or treatment of the compound concerned. If such a place does not exist, it is classified in the place for the compound. When the compound resulting from the preparation process is also novel, the

compound is also classified according to its chemical structure. Subjects of invention concerned with general processes for the preparation or treatment of classes of compounds are classified in the groups for the processes employed, when such groups exist.

Apparatus or Processes

96. When the subject of the invention concerns an apparatus, it is classified in the place for the apparatus if such a place exists. When such a place does not exist, the apparatus is classified in the place for the process performed by that apparatus. When the subject of the invention concerns a process for making or treatment of products, it is classified in the place for the process performed. When such a place does not exist, the making or treatment of products is classified in the place for the apparatus performing the process. If no place exists for the manufacture of a product, the manufacturing apparatus or process is classified in the place covering the product.

Articles of Manufacture

97. When the subject of the invention concerns an article, it is classified in the place for the article. If no place exists for the article itself, it is classified in the appropriate function-oriented place (i.e., according to the function performed by the article) or, if this is not possible, according to the field of use.

Example: When the article to be classified is a glue-dispenser specially adapted for binding books, it is classified in group B42C 9/00, which covers "Applying glue or adhesive peculiar to bookbinding". Since there is no specific place for glue-dispensers for bookbinding, they are classified in the place for their function, i.e., "applying glue".

Multistep Processes, Industrial Plants

98. When the subject of the invention concerns a multistep process or an industrial plant that consists, respectively, of a combination of process steps or apparatus, it is classified as a whole, i.e., in a place provided for such combination, for example, subclass B09B. If no such place exists, it is classified in the place for the product obtained by the process or plant. When the subject of the invention concerns also an element of the combination, for example, an individual step of the process or machine of the plant, the element is also separately classified.

Details, Constructional Parts

99. When the subject of the invention concerns constructional or functional details or parts of subject matter, for example, of apparatus, the following rules apply:

- (a) Details or parts only applicable to, or specially adapted for, one kind of subject matter are classified in the details places of this kind of subject matter, if such places exist.
- (b) If such places do not exist, these details or parts are classified in the place for the subject matter in question.
- (c) Details or parts applicable to more than one of different kinds of subject matter are classified in the details places of more general nature, if such places exist.

(d) If such places of more general nature do not exist, these details or parts are classified according to all of the kinds of subject matter to which they explicitly apply.

Example: In subclass A45B, groups 11/00 to 23/00 cover the various kinds of umbrellas, while group 25/00 covers details of umbrellas applicable to more than one kind of umbrella.

General Chemical Formulae

100. Large sets of related chemical compounds are often expressed or claimed using general formulae. The general formulae are presented in the form of a chemical compound genus with at least one component of the formula being a variable selected from a specific collection of alternatives (for example, "Markush"-type compound claims). The use of general formulae causes classification problems when an enormous number of compounds are within their scope and are separately classifiable in a large number of classification places. When this situation occurs, only the individual chemical compounds most useful for searches are classified. If chemical compounds are specified using a general chemical formula, the following classifying procedure is applied:

Step 1: Classification should be given to all "fully identified" compounds that are novel and unobvious if they are:

- (i) specifically claimed as such or in a composition,
- (ii) products of a claimed process, or
- (iii) derivatives of either of these.

A compound is considered to be "fully identified" where:

- (a) the structure is given by exact chemical name or formula, or can be deduced from its preparation from specified reactants, not more than one of which is selected from a list of alternatives, and
- (b) the compound is characterised by a physical property (for example, its melting point), or its preparation is described in a worked example giving practical details.

Compounds identified only by an empirical formula are not considered to be "fully identified".

Step 2: If no "fully identified" compounds are disclosed, e.g. in the situation of compounds derived from computer-generated models and which have not undergone actual experiments, classification should only be given to compounds with exact chemical name or developed chemical formula. Classification should be limited to a single or a very small number of groups.

Step 3: When only the general Markush formula is disclosed, classification is made in the most specific group(s) that cover(s) all or most of the potential embodiments. Classification should be limited to a single or a very small number of groups.

Step 4: In addition to the above obligatory classification, non-obligatory classification may be made when other compounds within the scope of the general formula, or compounds derived directly from computer-generated models, are of interest.

When classification of all the “fully identified” compounds into their most specific classification places would lead to a high number of classification symbols (for example, more than twenty), the classifier may reduce the number of symbols. This may only be done when classification of the “fully identified” compounds would lead to the assigning of a large number of subgroups under a single group at the next hierarchically higher level. Classification of these compounds may then be made in the higher group only. Otherwise, classification of the compounds is made in all of the more specific subgroups.

Combinatorial Libraries

101. Collections composed of many chemical compounds, biological entities or other substances may be presented in the form of “libraries”. A library usually includes an enormous number of members that, if separately classifiable in a large number of classification places, would unnecessarily burden the search system. Therefore, only the individual members which are considered “fully identified”, in the same manner as the compounds of general formulae, are obligatorily classified into the groups that most specifically provide for them, for example, compounds in section C. The library as a whole is classified in an appropriate group in subclass C40B. In addition to the above obligatory classifications, non-obligatory classifications are made when other members of the libraries are of interest.

IX. MULTIPLE CLASSIFICATION; HYBRID SYSTEMS

Multi-aspect classification of technical subjects; Hybrid systems; Indexing schemes; Application of indexing codes

102. The primary purpose of the Classification is to facilitate search. Depending on the content of a patent document, the information disclosed therein may require more than one classification symbol to be applied.

103. Multiple classification of documents is needed, for example, when different categories of subject matter, i.e., processes, products, apparatus or materials, for which special places are provided in the Classification, constitute invention information. Another example of multiple classification may represent classifying in function-oriented places and application places when essential technical characteristics of the subject of the invention are concerned with both types of places.

104. Multiple classification or classification in combination with indexing (see paragraphs 108 to 112, below) is also recommended, but is not obligatory, for indicating additional information in a patent document when it is of interest for search.

MULTI-ASPECT CLASSIFICATION OF TECHNICAL SUBJECTS

105. Multi-aspect classification represents a special type of multiple classification. Multi-aspect classification is applied to subject matter which, by its nature, is characterised by several aspects, for example, by its intrinsic structure and its particular use or property. Classifying of such subject matter according to only one aspect would lead to incomplete search information. The classification symbols allotted should not be restricted to the place or places in the Classification which cover only one aspect of a technical subject identified. Due regard should also be given to further places in the Classification where other non-trivial aspects of that technical subject may need to be classified.

106. Places in the IPC where multi-aspect classification is especially desirable are indicated by a note. Depending on the nature of the subject matter concerned, such a note prescribes obligatory classification of the subject matter according to the indicated aspects or contains a recommendation for multi-aspect classification if it is desirable for increasing the efficiency of the patent search.

107. *[Deleted]*

HYBRID SYSTEMS; INDEXING SCHEMES

108. In specific areas of the Classification, hybrid systems have been introduced in order to improve the effectiveness of the Classification.

109. Each hybrid system consists of a classification scheme and an associated complementary indexing scheme. The indexing scheme specifies aspects that are not covered by the classification places. When classifying within a hybrid system, all classification symbols appropriate to the technical subjects are first assigned. Then any appropriate indexing codes from indexing schemes associated with one or more of these classification symbols may be added, if they identify elements of information which are useful for search purposes.

110. Indexing codes have a format similar to classification symbols. Within subclasses having classification schemes, indexing schemes are placed after the classification scheme and their numbering starts, as a rule, with the number 101/00. Some subclasses are used only for indexing purposes, in association with classification symbols from one or more classification subclasses; this is indicated in their titles. Indexing subclasses usually employ the same numbering system used in the indexing schemes of classification subclasses (see subclasses F21W and F21Y), but sometimes their numbering systems may include numbers (for example, 1/00) similar to those normally associated with standard classification symbols (see subclasses C10N, C12R, B29K, B29L).

111. Indexing codes can only be applied in association with classification symbols. Each place in the Classification where indexing codes may be used is indicated by a note. Similarly, a note, title or heading before each indexing scheme indicates with which classification symbols those indexing codes are associated.

112. Whenever possible, the layout of the indexing schemes is hierarchical, facilitating their presentation. The numbering of some of the schemes is such that truncation of the indexing codes is feasible when carrying out database searching.

Example (part of the indexing scheme in subclass C04B):

| | |
|--------|--|
| 103/00 | Function or property of the active ingredients |
| 103/10 | • Accelerators |
| 103/12 | • • Set accelerators |
| 103/14 | • • Hardening accelerators |
| 103/20 | • Retarders |
| 103/22 | • • Set retarders |
| 103/24 | • • Hardening retarders |
| 103/30 | • Water reducers, plasticisers, air-entrainers |

APPLICATION OF INDEXING CODES

113. Indexing codes may be applied when it is desirable for search purposes to identify elements of information about a technical subject of the invention already classified as such.

114. In an indexing scheme, the hierarchically higher group is only to be used in a residual manner, i.e., to record a specific feature not provided for in any of its subdivisions. When indexing two or more elements of information about a technical subject which are useful for search purposes, for each such element the hierarchically lowest indexing group which provides for this element should be applied. Indexing of residual matter in main groups of indexing schemes should be limited to cases where this is of use for searching. Indexing should not be made in main groups of very wide or general scope, which are mainly used as informative headings.

Example: A welding process for attaching flanges is described as being applicable to the manufacture of railway rails, structural beams and rail vehicle wheels. In this case, B23K 101/26 and 101/28 should be applied for rails and beams, respectively. Although rail vehicle wheels are broadly covered by B23K 101/00, this code should not be applied as it is too general and would give no information of use for searching. See the following excerpt of the indexing scheme referred to:

| | |
|--------|--|
| 101/00 | Articles made by soldering, welding or cutting |
| 101/02 | • Honeycomb structures |
| 101/04 | • Tubular or hollow articles |
| 101/06 | • • Tubes |
| 101/08 | • • • finned or ribbed |
| 101/10 | • • Pipe-lines |
| 101/12 | • • Vessels |
| 101/14 | • • Heat exchangers |
| 101/16 | • Bands or sheets of indefinite length |
| 101/18 | • Sheet panels |
| 101/20 | • Tools |
| 101/22 | • Nets, wire fabrics or the like |
| 101/24 | • Frameworks |
| 101/26 | • Railway- or like rails |
| 101/28 | • Beams |

X. OBLIGATORY CLASSIFICATION; NON-OBLIGATORY CLASSIFICATION AND INDEXING

General approach: obligatory classification, non-obligatory classification, non-obligatory indexing; Classification procedure for patent documents at different publication levels

GENERAL APPROACH

115. As indicated in paragraphs 77 to 80, above, patent documents comprise in principle invention information and may comprise additional information, i.e., non-trivial technical information which is not in itself an addition to the state of the art but might constitute useful information for the searcher.

116. The invention information is only represented by classification symbols.

117. The additional information is represented by classification symbols, by indexing codes or by both. Classification symbols from any place in the Classification, together with any indexing codes associated with those symbols, may be used for indicating additional information.

Obligatory Classification

118. According to Article 4(3) of the Strasbourg Agreement Concerning the International Patent Classification, in classifying a patent document, the competent authorities of the countries of the Special Union shall indicate “the complete symbols of the Classification applied to the invention to which the patent document relates”. This means that it is an obligation on the part of the said authorities to allot the classification symbols which represent the invention information.

Non-obligatory Classification; Non-obligatory Indexing

119. It is desirable that any additional information be classified or indexed, since it could be useful for search purposes. In specific classification places, recommendations can be present in order to assist the classifier in the use of non-obligatory classification or non-obligatory indexing. However, such recommendations do not affect the discretionary nature of this classification or indexing.

CLASSIFICATION PROCEDURE FOR PATENT DOCUMENTS AT DIFFERENT PUBLICATION LEVELS

120. All invention information in a patent document as described in paragraph 77, above, should be classified. Depending on the stage of the examination procedure in which a document is classified, the precise invention information may not have been fully determined. Paragraphs 121 to 130, below, outline procedures for determining the best approximation of this invention information for the purpose of classifying principal types of patent documents (granted patents, searched published applications, unsearched published applications).

Classification of patents granted after search and examination

121. All subject matter covered by the claims of a patent document must be classified as invention information along with any novel and unobvious constituents or components (subcombinations) of the claimed subject matter. Classification should be based on the subject matter of each claim as a whole and on each inventive embodiment within a claim.

122. Any unclaimed subject matter in the disclosure that is novel and unobvious must also be classified as invention information.

123. It is desirable to classify or index any additional information complementing the invention information, mentioned in the claims or in the unclaimed disclosure, if it is useful for search purposes.

Classification of searched but unexamined patent documents, for example, patent applications

124. All claimed subject matter that appears to be novel and unobvious in view of the search results must be classified as invention information along with any novel and unobvious constituents or components (subcombinations) of the claimed subject matter.

125. Any unclaimed subject matter in the disclosure that appears to be novel and unobvious in view of the search results must be classified as invention information.

126. It is desirable to classify or index any additional information complementing the invention information, mentioned in the claims or in the unclaimed disclosure, if it is useful for search purposes.

Classification of unsearched patent documents

127. All claimed subject matter that is potentially novel and unobvious in the opinion of the classifier who is an expert in the art must be classified as invention information along with any potentially novel and unobvious constituents or components (subcombinations) of the claimed subject matter.

128. Any unclaimed subject matter in the disclosure that is potentially novel and unobvious in the opinion of the classifier who is an expert in the art must be classified as invention information.

129. For classifiers who are not experts in the relevant technical field, all the claims must be used for determining the subject matter to be classified.

130. It is desirable to classify or index any additional information complementing the invention information, mentioned in the claims or in the unclaimed disclosure, if it is useful for search purposes.

General observations

131. Patent documents should not be classified as a single entity, but all different inventive things, claimed or disclosed within the patent document, should be identified and separately classified. Such different inventive things are represented, for example, by different claims, alternative variants or different categories of subject matter (for example, a product and a method of its production).

131bis. If two or more inventive things in a document *separately* are covered by the same group, the classification symbol of that group is allotted only once. If an inventive thing is appropriate for invention information classification in a certain group and another thing in the same patent document is appropriate for additional information classification in the same group, only the invention information classification is allotted.

132. Unclaimed subject matter representing invention information does not need to be classified when fully identified in the classification of a related published application of the same patent office, for example, in the parent of a published divisional application.

133. Where a classifier determines that no invention information is present within a patent document, at least one classification symbol must still be assigned to the patent document as an invention information symbol. In these circumstances, the classification should be based on that portion of the total disclosure that the classifier determines as most useful for search purposes.

134. To minimise potentially unnecessary classification symbols, the classification of a previously published application may be reviewed when the application is granted, searched, evaluated or abandoned, in order to confirm or alter its classification. However, it should be noted that some intellectual property offices classify an application only once, and the classification is not reconsidered when a patent is granted.

XI. RULES FOR SELECTING CLASSIFICATION PLACES

Common rule; Priority rules; Special rules

135. Before deciding where to classify a patent document, it is necessary to correctly determine the invention and additional information contained in the document, as described in paragraphs 77 to 101, above. Once determined, this information must be classified as completely as possible. The information to be classified is determined in the same manner for all the general classification rules. The presence or absence of classification places for certain features should not lead to a modification of the concept of information to be classified (see also chapter X, above).

Selecting a subclass

136. Since the IPC is a hierarchical classification system, a systematic approach using its hierarchical structure can be used and followed step by step for determining the appropriate subclass for classification of the subject of the invention. The relevant section can first be identified, then the appropriate subsection and class, and, under the selected class, the subclass which most satisfactorily covers the subject in question can be identified. When following this approach, it should be remembered that titles of sections, subsections and classes only give a broad indication of their scope.

137. Alternative methods of determining the relevant subclass can often be more efficient. These alternative methods may consist in:

- (a) using an alphabetical Catchword Index to the IPC;
- (b) text searching in the IPC itself or in the Catchword Index;
- (c) reviewing the classification symbols of patent documents most related to the subject in question, for example by statistical analysis of documents found during a text search using relevant technical terms. However, care must be taken when using the classifications of other documents for determining relevant subclasses, since the classification of documents can be based on different parts of their disclosures.

Although these alternative methods may lead to determination of a more specific place than a subclass, the relevance of that place must always be verified by checking its scope in the light of its hierarchically superior places and the classification rules in that particular area of the IPC.

138. After identification of a subclass using the methods described above, it is necessary to check whether its scope (see Chapter VII "SCOPE OF PLACES", above) is wide enough to cover the technical subject to be classified. For this purpose, the references and notes appearing after the subclass title and its definition, if available, should be consulted.

Selecting a group

139. After selection of the appropriate subclass, the procedure using the hierarchical structure of the IPC should be followed for determining the relevant main group and subgroup in the identified subclass. Before applying this procedure, it is necessary to check which of the three general classification rules, described below (the common rule, the first place priority rule and the last place priority rule), is used in the selected subclass and whether any special classification rules are applied. In some subclasses, different general classification rules are

used in different parts. For example, if only one main group in a scheme uses the last place priority rule and the other main groups use the common rule, the main group is selected using the common rule and a subgroup is selected according to the rule applied within the relevant main group.

140. While the paragraphs below indicate the differences between the general classification rules, it is important to remember that the general rules share the following essential features:

- (a) many technical subjects are completely covered by only one group in the subclass scheme; in this situation, the subject is classified in that group regardless of the general classification rule used in the subclass;
- (b) if two or more subjects of the invention are disclosed in the patent document, the general rule used in the subclass is separately applied for classifying each subject;
- (c) if a subcombination of the subject of the invention is novel and non-obvious itself, it is separately classified according to the general rule used in the subclass.

It is only in situations where the technical subject is covered by two or more of groups of the subclass (i.e., some groups have potentially overlapping scope or groups are only available for subcombinations of the subject and not for the subject itself) that the general classification rule used in the subclass is important for determining a relevant group or groups.

COMMON RULE

141. The common rule is the “default” classification rule in the IPC and it is applied in all areas of the IPC where priority classification rules or special classification rules are not specified. It is based on the principle of devising the Classification in such a way that one and the same technical subject can be classified in one and the same place in the Classification (see paragraph 75, above). This principle assumes that classification places in the IPC are mutually exclusive. When this is not the case, the principles of paragraph 144(b), below, should be applied.

142. As opposed to the first and last place priority rules described in paragraphs 146 to 154, below, no general priority rules apply in the common rule areas of the IPC. Classification should be made in all appropriate places (see, for example, paragraphs 88 to 91, above). However, the following principles of priority can be applied to limit unnecessary multiple classification and to select groups that most adequately represent the technical subject to be classified:

- (a) Groups for more complex matter take priority over groups for less complex matter. For example, groups for combinations take priority over groups for subcombinations and groups for “whole things” take priority over groups for “details”
- (b) Groups for more specialised subject matter take priority over groups for less specialised subject matter. For example, groups for unique types of matter or groups for matter with means for solving particular problems take priority over more general groups.

143. When classifying subject matter characterised by several aspects or when assigning additional classification symbols representing useful information for searching, principles of multiple classification apply (see paragraphs 102 to 106, above).

144. After selection of the appropriate subclass, the following procedure is applied for identifying a detailed classification place at each hierarchical level, starting at main group level:

- (a) Determining, by reviewing all of the groups, if only one of them provides for the technical subject to be classified. If this is the case, step (c) should be applied for this group.
- (b) If it is determined that two or more groups provide for the technical subject to be classified, then the principles described in paragraph 142, above, should be used as guidance.
- (i) If these principles indicate a priority between the groups, the group given priority must be selected. Other groups with a lower priority may also be selected for classification if they are considered to be useful for search purposes, for example, for performing Boolean searching. Step (c) should then be applied separately for each selected group.
- (ii) If priority between the groups cannot be determined by these principles, then step (c) should be applied separately for each group.
- (c) Repeat step (a) and, if necessary, step (b) at each subsequent hierarchical level until none of the subgroups at the next hierarchical level provides for the technical subject.

145. If no specific place for a combination is provided in an area of classification where the common rule applies, it is classified according to its subcombinations, following the principles described in paragraph 142, above. Subcombinations not selected for classification according to these principles should be considered for classification as additional information.

PRIORITY RULES

146. In certain areas of the Classification, priority classification rules are applied. The purpose of these rules is to improve consistency of classifying. As opposed to the common rule, the priority rules give general priority rules between all groups in the given area. In order to enable this, the schemes have been specially adapted for the particular rule. Even though general priority rules apply, multiple classification is possible in these areas, for example, when it is necessary to classify different aspects of subject matter or when the subject matter contains additional information which is desirable to be classified. The areas where priority classification rules are applied are clearly marked by a note appearing before the first place of the area covered by such classification rules or at a hierarchically higher place.

First Place Priority Rule

147. In some parts of the Classification, the first place priority rule is used. Where this rule applies, it is set out in a note of the type: "In this subclass / main group(s) / group(s), the first 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 first appropriate place." For example, see the relevant notes in G03F 1/00 or H04W. According to this rule, a technical subject of the invention is classified by successively, at each indentation level, locating the first group covering any portion of the technical subject, until a subgroup is selected for classification at the deepest appropriate indentation level. When several particular technical subjects are disclosed in a patent document, the first place priority rule is separately applied to each of them.

148. Classification schemes where the first place priority rule has been introduced contain a standardised sequence of groups. This standardised sequence follows the principle of proceeding from more complex or specialised subject matter at the top of the scheme to less complex or less specialised subject matter located lower in the scheme.

149. After selection of the appropriate subclass for the subject of the invention, the following procedure is applied for identifying a detailed classification place:

- (a) determining the first main group in the subclass which provides at least in part for the subject of the invention;
- (b) determining, under this main group, the first one-dot subgroup which provides at least in part for this subject of the invention;
- (c) repeating the procedure of the previous step through successive indentation levels of subgroups until the first subgroup at the deepest subgroup level (i.e., with a maximum number of dots) which provides for the subject of the invention is determined.

150. If the matter to be classified relates to a combination of things covered in an area where the first place priority rule applies and no specific place for the combination is provided, the combination is classified in the first group that provides for at least one of its subcombinations. Any other subcombinations which are determined to be novel and non-obvious must also be separately classified following the first place priority rule procedure. Subcombinations which are considered to represent information of interest for search may be classified as additional information.

Last Place Priority Rule

151. In some parts of the Classification the last place priority rule is used. Where this rule applies, it is set up in a note of the type: "In this subclass / main group(s) / group(s), 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." For example, see the relevant notes in A61K, C08G, C10M. According to this rule, a technical subject of the invention is classified by successively locating at each indentation level the last group covering any portion of the technical subject until a subgroup is selected for classification at the deepest appropriate indentation level. When several particular technical subjects are disclosed in a patent document, the last place priority rule is separately applied to each of them.

152. In classification schemes where the last place priority rule has been introduced, a sequence of groups is not formally standardised. However, the sequence of groups frequently follows the principle of proceeding from less complex or more general subject matter at the top of the scheme to progressively more complex or specialised subject matter located lower in the scheme.

153. After selection of the appropriate subclass, the following procedure is applied for identifying a detailed classification place:

- (a) determining the last main group in the subclass which provides at least in part for the subject of the invention;
- (b) determining, under this main group, the last one-dot subgroup which provides at least in part for this subject of the invention;
- (c) repeating the procedure of the previous step through successive indentation levels of subgroups until the last subgroup at the deepest subgroup level (i.e., with a maximum number of dots) which provides for the subject of the invention is determined.

154. If the matter to be classified relates to a combination of things covered in an area where the last place priority rule applies and no specific place for the combination is provided, the combination is classified in the last group that provides for at least one of its subcombinations.

Any other subcombinations which are determined to be novel and non-obvious must also be classified following the last place priority rule procedure. Subcombinations which are considered to represent information of interest for search may be classified as additional information.

SPECIAL RULES

155. In a limited number of places in the Classification, special classification rules are used. In these places, these rules override the general classification rules. Wherever special rules are used, they are clearly specified in notes at the places concerned, for example, C04B 38/00, C08L, G05D. For example, Note 2(b) following the title of subclass C08L (“Compositions of macromolecular compounds”) specifies that, in this subclass, 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.

XII. PRESENTATION OF CLASSIFICATION SYMBOLS AND INDEXING CODES ON PATENT DOCUMENTS

156. The order of classification symbols and indexing codes is as follows:

- (a) Classification symbols representing invention information, of which that symbol which most adequately represents the invention should be listed first.
- (b) Classification symbols representing additional information.
- (c) Indexing codes.

157. Classification symbols and indexing codes are presented in tabular form in one or more columns, with only one symbol or code on each line of a column. The order specified in paragraph 156, above, should be followed the first column downwards, then the second column downwards, and so on.

158. The version indicator of the IPC has to be placed in round brackets after the abbreviation “Int.Cl.”, if the document is classified, at least partly, in main groups only. Most offices classify a given document in either the full IPC or main groups only (see Examples (a) and (b) in paragraph 161, below). When classifying in the full IPC, the version indicator of each IPC symbol (see paragraph 42(b), above), is placed in round brackets after the symbol. It should however be noted that all version indicators earlier than (2006.01) should be replaced by (2006.01).

158bis. For previous editions, up to the seventh edition of the IPC, the Classification edition was generally indicated by means of a superscript Arabic numeral, printed immediately after the abbreviation. Thus, for a document classified in accordance with the fifth edition, the abbreviation was: Int.Cl.⁵, etc. However, when it was in accordance with the first edition, no superscript Arabic numeral was shown, the indication being merely Int.Cl.

159. When classifying in main groups only, IPC symbols are printed or displayed in regular font style (i.e., non-italics), and when classifying in the full IPC, IPC symbols are printed or displayed in italics.

160. The invention information symbols are printed or displayed in bold font style and the additional information symbols are printed or displayed in regular font style (i.e., non-bold).

161. Sample representations of IPC classification symbols and indicators are given below for the same document when classified in the full IPC, in main groups only or both in the full IPC and in main groups.

- (a) When classified in the full IPC:

Int.Cl.

B28B 5/00 (2006.01)

H04H 20/12 (2008.01)

H01H 33/65 (2009.01)

Where:

B28B 5/00 indicates invention information (bold font style) classified in the full IPC (italics font style);

H04H 20/12 indicates invention information (bold font style) classified in the full IPC (italics font style);

H01H 33/65 indicates additional information (regular font style, i.e., non-bold) classified in the full IPC (italics font style).

- (b) When classified in main groups only:

Int. Cl. (2011.01)

B28B 5/00

H04H 20/00

H01H 33/00

Where:

B28B 5/00 indicates invention information (bold font style) classified in main groups only (regular font style, i.e., non-italics);

H04H 20/00 indicates invention information (bold font style) classified in main groups only (regular font style, i.e., non-italics);

H01H 33/00 indicates additional information (regular font style, i.e., non-bold) classified in main groups only (regular font style, i.e., non-italics).

- (c) When invention information is classified in the full IPC and additional information in main groups only:

Int. Cl. (2011.01)

B28B 5/00 (2006.01)

H04H 20/12 (2008.01)

H01H 33/00

Where:

B28B 5/00 indicates invention information (bold font style) classified in the full IPC (italics font style);

H04H 20/12 indicates invention information (bold font style) classified in the full IPC (italics font style);

H01H 33/00 indicates additional information (regular font style, i.e., non-bold) classified in main groups only (regular font style, i.e., non-italics).

XIII. SPECIAL CLASSIFICATION PLACES FOR SUBJECT MATTER NOT ADEQUATELY COVERED IN THE IPC

162. Normally, invention information disclosed in patent documents is adequately covered by one or more classification places. Nevertheless, due to the development of technology, it is inevitable that existing classification places may not adequately provide for all newly disclosed subject matter. Because it is necessary for this subject matter to be classified, special classification places have been created with titles that do not contain technical limitations. These classification places gather these new types of subject matter until technically defined classification places covering such subject matter can be created.

163. When the invention information in a patent document is not adequately covered by any of the subclasses of the most appropriate section, the invention information is classified in the special residual main group of that section. Each special residual main group is designated by "99Z 99/00" preceded by its section symbol. All of the special residual classes, subclasses and main groups have the same title.

For example (Section A):

A99Z 99/00 Subject matter not otherwise provided for in this section

Each of the special residual subclasses has the following standard note:

"This subclass covers subject matter that (a) is not provided for, but is most closely related to, the subject matter covered by the subclasses of this section, and (b) is not explicitly covered by any subclass of another section."

164. Whenever invention information is covered by a subclass, but is not covered by any of its groups with specific titles, the invention information is classified in a residual main group of that subclass. To facilitate locating these main groups, such residual main groups, where they are necessary, are placed at the end of the subclass scheme and designated by the standard group symbol 99/00 whenever possible. Before classifying in a residual main group, classification in another subclass or in other main groups of the same subclass should be thoroughly considered. Due respect should be given to the scope of such places as explained in paragraphs 92 to 99, above, which describe some situations where subject matter is classified in places whose titles do not explicitly provide for it. Combinations of subject matter covered by two or more different main groups should not be classified in a residual main group, unless indicated otherwise. The normal procedures for classification of combination-type subject matter are described in paragraphs 145, 150 and 154, above.

165. If for specific invention information no residual main group exists in the appropriate subclass, classification is made in the special residual main group of the appropriate section (see paragraph 163, above).

XIV. USE OF THE IPC FOR SEARCH PURPOSES

Different kinds of search; Preparing for a search; Defining a field of search

DIFFERENT KINDS OF SEARCH

166. Nearly all published patent documents are provided with IPC symbols. The IPC may be used for various kinds of search in paper documentation or in electronic databases, such as:

- (a) **Novelty Search** – The object of a “Novelty Search” is to determine the novelty or lack of novelty of the invention claimed in a patent application. The aim of the search is to discover relevant prior art in order to establish whether an invention has or has not already been disclosed at a date earlier than the reference date for the search.
- (b) **Patentability or Validity Search** – A “Patentability or Validity Search” is made to locate documents relevant to the determination not only of novelty but also of other criteria of patentability, for example, the presence or absence of an inventive step (i.e., that the alleged invention is or is not obvious) or the achievement of useful results or technical progress. This type of search should cover all technical fields which may contain material pertinent to the invention. Novelty and patentability searches are mainly carried out by industrial property offices with respect to their patent examination procedures.
- (c) **Infringement Search** – The object of an “Infringement Search” is to locate patents and published patent applications which might be infringed by a given industrial activity. In this type of search the aim is to determine whether an existing patent gives exclusive rights covering that industrial activity or any part of it.
- (d) **Informative Search** – An “Informative Search” is made to familiarise the inquirer with the state of the art in a particular field of technology. It is also often referred to as a “state-of-the-art search”. This kind of search provides background information for research and development activities and allows to identify which patent publications already exist in the given field. Further reasons for this kind of search could be the need to determine alternative technologies which may replace a technology applied or to evaluate a specific technology which is being offered for licence or which is being considered for acquisition.

PREPARING FOR A SEARCH

167. Before making a search, it is essential to establish clearly the technical subject of the search. For certain types of search, for example, a “Patentability Search”, it may be necessary to search for more than one technical subject. Having formulated a clear statement of the technical subject to be searched, the searcher has to identify the proper place for this subject in the IPC. Consideration of the technical subject in question will allow to identify a word or words (technical terms) which cover broadly or specifically the field of technology with which this subject is clearly concerned.

DEFINING A FIELD OF SEARCH

168. Having identified technical terms relating to the technical subject, it is advisable to approach the system by using the Catchword Index to the IPC or the term searching of the electronic publication, enabling to search for technical terms in the text of the IPC itself or in the Catchword Index to the IPC. The Catchword Index may indicate to the searcher a precise group of the IPC, but often there can only be an indication of the main group or possibly the subclass of the IPC. The Introduction to the Catchword Index includes a suggested mode of use. It should be noted that the Catchword Index in no sense replaces any part of the IPC and must not be read as modifying the effect of anything in the latter.

169. If the use of the Catchword Index or term search in the electronic publication does not lead to a pertinent field of search, the searcher should scan the eight sections of the IPC, selecting possible subsections and classes by title. Then it would be necessary to turn to the selected class and subclass titles thereunder and note those subclasses which appear to include the subject in question. The subclass which most satisfactorily covers the subject should be selected.

170. An alternative method of determining an appropriate subclass could be text searching by identified technical terms in databases containing full texts or abstracts of patent documents, followed by a statistical analysis of classification symbols assigned to retrieved documents. Subclasses which most often appear in classification symbols of the documents should be considered for inclusion in the field of search.

171. After selection of the appropriate subclass, it is necessary to check the references and notes appearing in the selected subclass title for a more precise indication of the subclass contents and for identifying borderlines between related subclasses, which in turn may indicate that the location of the desired subject is elsewhere. If a definition is available for the selected subclass, it should be studied in detail because Definitions give the most precise indication of the scope of subclasses.

172. At the next step, all main groups in the subclass should be scanned to locate the most appropriate main group, in the light of its title and any existing notes and references. For a quick navigation in the subclass, the subclass index appearing at the beginning of the subclass may be used.

173. Having determined the appropriate main group, the searcher should scan its one-dot subgroups and identify the group which seems most appropriate to the subject in question. If this one-dot group has subordinate groups with two or more dots, the group to be selected for search is the most appropriate group which is most indented (i.e., has most dots).

174. If the chosen group includes a precedence reference to another group, for example, if the chosen group is in the form "7/16 (7/12 takes precedence)", it may be necessary to search the group taking precedence as well as the chosen group, i.e., in the example the group 7/12 as well as 7/16, since documents including in addition to the subject of group 7/16 that of group 7/12 will be classified in the latter. If, on the other hand, the subject in question includes that of group 7/12 as well as that of group 7/16, it is not generally necessary to search group 7/16.

Example: C08F 2/04 Polymerisation in solution (C08F 2/32 takes precedence)
 C08F 2/32 Polymerisation in water-in-oil emulsions

Polymerisation characterised by taking place in a particular solvent may be found in either of these places, and therefore it should be necessary to search in both these places; however, if the polymerisation in question cannot take place in a water-in-oil emulsion it should not be necessary to search C08F 2/32.

175. If the chosen group is in a subclass, or a part thereof, governed by an overall precedence rule, for example, a last place priority rule, special attention should be given to the scope of groups taking precedence or priority, in order to identify other groups possibly covering aspects of the technical subject to be searched.

176. After completing the search in the chosen group, the searcher can consider hierarchically higher groups (i.e., having fewer dots) under which it is indented, since a wider subject which includes the subject in question may be classified there.

177. In the areas of the IPC, where multiple classification or indexing is applied, it is recommended to use for searching first a combination of classification symbols or classification symbols and indexing codes associated therewith so as to make a search query more specific. For obtaining complete search results, the search query could be broadened afterwards by using the most pertinent classification symbols alone.

178. Failure to retrieve pertinent documents may indicate that the proper place in the IPC has not been located. In such a case, the technical subject in question should be expressed differently and the procedure of defining the field of search should be reconsidered.

XV. MASTER CLASSIFICATION DATABASE

179. The Master Classification Database (MCD) is a database storing all bibliographic data elements (such as IPC symbols, applicant and inventor names, titles, abstracts and priorities for family information) of patent documents at their various publication levels. The database stores in principle all collections as far as made available for inclusion in the MCD. The database also contains family information.

180. During the reform of the IPC this database was established for the storage of the IPC symbols allotted to patent documents as well as for the management of the updating of these symbols after each revision of the IPC. The documents included in the MCD are classified according to the current version in force of the IPC. This means that patent searches can be conducted using only the current version of the Classification and eliminates the need to rely on superseded IPC editions. During revision of the schemes, the work distribution for offices participating in the reclassification of relevant files is done using the database. The principles of the operation of the MCD are explained in the “Concept of Operations (CONOPS)”.

181. The MCD is a management database to which public access is not possible. Copies of the database can be provided for updating the content of other databases; indirect access is therefore possible via databases incorporating MCD data via the Internet sites of WIPO and other intellectual property offices and via commercial hosts.

182. *[Deleted]*

XVI. GLOSSARY

Classification terms and expressions; Technical terms and expressions used in the Classification

CLASSIFICATION TERMS AND EXPRESSIONS

183. This part of the glossary presents a list of terms or expressions relating to principles and rules of the Classification, as requiring some explanation of their meaning and use.

| | | |
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| addition to the state of the art | = | the difference between the subject matter in question and the state of the art. |
| aspect | | distinguishing perspective from which technical information, particularly invention information, may be viewed and according to which the information may be classified (for example, “Categories of subject matter” are possible “aspects” of an invention). |
| basic subject matter of a classification place | = | the subject matter explicitly stated as covered by the title and definition of a classification place, i.e., the subject matter itself as opposed to a combination of which it is a part. |
| borderline (line) | = | a clearly stated boundary between classification places |

- categories of subject matter = the principal divisions of invention information:
- methods of using a product or performing a non-manufacturing process or activity;
 - products, for example, articles of manufacture;
 - processes of making a product;
 - apparatus; and
 - materials from which a product is made.
- These categories are determined contextually. As examples, (1) a product of a process of manufacture can itself be a material from which a different product is made; (2) a process of making a product can simultaneously be a method of using a material to make the product.
- combination = a technical “thing” as a whole that consists of two or more steps or components put together for a purpose. For example:
- a three-step manufacturing process is a combination of three steps that together produce a product;
 - a five-component chemical composition is a combination of the five components that may have a property that each component alone will not have; and
 - a wheelchair is a combination of a chair and a wheel assembly designed to transport a person in a sitting position.
- The terms combination and subcombination, however, are relative terms. Thus, the first example might be a subcombination of a larger combination with a fourth step. In the third example, the wheel assembly is itself a combination of a tyre, spokes, and rim as well as a subcombination of the wheelchair.
- embodiment = a specific, disclosed example of how an inventive concept, that is more generally stated elsewhere in the disclosure, can be put into practice. See Genus.
- file scope of a group = the subject matter which falls within the scope of a group and is not specified in any subgroup indented thereunder. For a group that has no subgroups, the scope and the file scope are identical. When a group gets new subgroups, its scope remains unchanged, but the file scope is reduced. The file scope of a group can be understood as the residual subject matter classified in the group itself, but not in its subgroups.

genus = a grouping of embodiments within a category of subject matter which share a common limitation.

A subgenus (i.e., species) is a subgrouping within a genus.

An ultimate species is the most specific embodiment within a genus, i.e., an embodiment with no explicit variables. This expression is primarily used in the chemical arts.

Example:

Considering “inorganic compounds” as a genus, “inorganic salts” or “sodium salts” would be a “subgenus” or “species”, and “sodium chloride” would be an “ultimate species”.

group branch (group array) = a segment of a subclass consisting of

- a particular main group or subgroup, and
- all the subgroups indented under it.

indentation/indent = a graphic representation of the hierarchical relationships of groups within classification schemes. Indentation indicates subdivision of part of the subject matter covered by a group into its subgroup(s). The dependent relationship of a subgroup to its “parent” group is shown in a classification scheme by positioning the subgroup title below, to the right of, and with one more dot preceding its title than its “parent” group.

Example:

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H01S 3/00 Lasers
      3/09 • Processes or apparatus for excitation, e.g.
           pumping
      3/091 • • by optical pumping
      3/094 • • • by coherent light
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In this example, the subgroup H01S 3/094 is successively dependent on subgroups H01S 3/091, H01S 3/09 and on main group H01S 3/00 under which it is indented. Without the use of hierarchical levels and indentation, subgroup H01S 3/094 would require a title such as: “Processes or apparatus for excitation of lasers using optical pumping by coherent light”.

invention information (in a patent document) = all novel and unobvious subject matter in its total disclosure (for example, description, drawings, claims) that represents an addition to the state of the art in the context of the state of the art (for example, a solution to a stated problem). “Invention information” should usually be determined using the claims of the patent document for guidance.

inventive thing = means any part of the invention information which is novel and unobvious in itself.

object = any tangible technical matter, for example, article of manufacture, apparatus, piece of material.

- obligatory classification = the classification necessary to completely represent the invention information of a patent document.
- parallel groups (coordinate groups) = groups that depend from the same immediate classification place (i.e., “parent” subclass or group) and are at the same hierarchical (indentation) level.
- Example: all main groups in the same subclass are parallel (coordinate).
- reference = a pointer to another place in the IPC, consisting of a phrase between round brackets describing a subject matter followed by the IPC place(s) where that subject matter is covered.
- Example:
A47B 25/00 Card tables; Tables for other games (billiard tables A63D 15/00)
- limiting reference = a reference of one of the two categories below:
– scope-limitation reference
– precedence reference
- scope-limitation reference = a reference which clearly excludes subject matter from the place where the reference appears, that subject matter being otherwise covered by that place – see also paragraph 39(a), above.
- precedence reference = a reference stating that another place “takes precedence”, which is used when subject matter is classifiable in two places, or when different aspects of the subject matter to classify are covered by different places, and it is desired that such subject matter should be classified in only one of those places – see also paragraph 39(b), above.
- non-limiting reference = a reference of one of the three categories below:
– application-oriented reference
– reference out of a residual place
– informative reference
- application-oriented reference = a reference (usually appearing in a function-oriented place) which points to a place where the subject matter under consideration is covered if it is specially adapted, used for a particular purpose or incorporated in a larger system – see also paragraph 39(c), above.
- reference out of a residual place = a reference appearing in a residual place, illustrating places which cover (provide for) the subject matter under consideration – see also paragraph 39(d), above.

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| informative reference | = | a reference indicating the location of subject matter that could be of interest for searching, but which subject matter is not within the scope of the classification place where the reference occurs – see also paragraph 39(e), above. |
| residual main group | = | a main group, within a subclass scheme, that is not defined by any technical features and that provides for the subject matter not covered by any of the other main groups of the subclass. |
| residual place | | a place which should be considered for classification if and only if no other place of the IPC covered (provided for) the subject matter under consideration — see also paragraph 87bis, above. |
| standardised sequence of groups | = | the arrangement of groups following the principle of proceeding from more complex to less complex subject matter and from specialised to non-specialised subject matter of the subclass. |
| subclass scheme | = | the ordered arrangement of groups within a subclass. |
| subcombination | = | a subset of the steps or components forming an entire “thing”. A subcombination may include one or more components or steps. Examples of subcombinations are: <ul style="list-style-type: none">– two consecutive steps of a three-step manufacturing process;– a composition consisting only of some of the components of a more complex composition; and– wheels for a wheelchair. A subcombination may itself consist of further subcombinations. |
| (technical) subjects of inventions | = | (technical) information that describes processes, products, apparatus or materials, which are novel and unobvious. |
| the state of the art | = | the collection of all technical subject matter that has already been placed within public knowledge. |
| thing | = | means any technical subject matter, tangible or not, such as: <ul style="list-style-type: none">– methods of using a product or performing a non-manufacturing operation;– products (articles of manufacture);– processes of making a product;– apparatus; and– materials from which a product is made. |

TECHNICAL TERMS AND EXPRESSIONS USED IN THE CLASSIFICATION

184. This part of the Glossary presents a list of technical terms or expressions selected from those used in the Classification, as requiring some explanation of their meaning and use, for example, because of a need for choice between alternative meanings or when the terms are used in a more precise or restricted manner than their common usage. The explanations given in the Glossary should not be regarded as rigid definitions. The meaning of a term or an expression should always be considered in the context of the technical matter dealt with.

185. Attention is drawn to the definitions of certain words and expressions which are set forth earlier in the Guide, for example, in paragraphs 53 to 65, above.

186. Any definitions given in the Classification override, for the places concerned, the explanations given in this Glossary.

187. The following abbreviations are used:

(A) adjective; (N) = noun; (V) = verb

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| adaptation | = | 1. modification to meet certain conditions; 2. a thing embodying such modification. |
| apparatus | = | a category of subject matter which is a machine or device, described in terms of its functional capabilities or structural features, that is used – to make a product, or – to carry out a non-manufacturing process or activity. |
| arrangement of | = | assemblage or relative disposition. This term may cover modification of one of the objects concerned, but only if such modification is not of interest apart from the arrangement. |
| arrangements for | = | any means of fulfilling a specified function, normally comprising a combination of things which may be modified, for example, F16D 23/02 "Arrangements for synchronisation". |
| aspect | = | distinguishing perspective from which technical information, particularly invention information, may be viewed and according to which the information may be classified (for example, "Categories of subject matter" are possible "aspects" of an invention). |
| characteristic (n) | = | distinguishing feature. |
| chemical composition | = | a product formed from two or more discrete chemical materials (for example, compounds or elements), which materials are not chemically bonded to each other. An alloy is usually a composition, but may in some instances (for example, intermetallics, etc.) be a compound. |
| chemical compound | = | a chemical compound is a substance formed of atoms attached to each other via chemical bonds. |

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| control; controlling (in contexts where a variable as defined below, for example a speed or a voltage, is affected) | = affect a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant or limiting its range of variation. Control does not need to be automatic and does not need to involve any measuring or testing. See also the meaning of “regulation”. |
| engine | = a machine for producing mechanical power, for example, for rotating or reciprocating a member, from pressure energy of a fluid. |
| essential | = a characteristic is essential for classification in a given group if its absence would necessitate its classification in a different group. |
| feature | = any attribute of a thing, for example, its shape, its purpose, its manner of use, any part or quality. |
| fluid (a) | = having the properties of a gas or liquid. |
| fluid (n) | = any gas or liquid. |
| gearing | = mechanical, hydraulic, electric, or other means for transmitting mechanical motion or force. |
| handling | = dealing with material or objects in any way without intentionally or essentially altering any property, even temporarily (for example, without deforming, heating, electrifying), for example, transporting, storing, positioning, dispensing, winding, loading. |
| laminate | = material of substantially uniform thickness composed of layers in more or less continuous contact and bonded together, for example, plywood, The layers may be discontinuous, but not gapped. |
| layered product | = material composed of strata (continuous, discontinuous, or with gaps) of any form (for example, honeycomb, corrugated) secured together in any way. Normally of substantially uniform thickness overall (i.e., ignoring local variations such as are produced by a corrugated face layer); may be in the form of an article, for example, a container. This term is of wider scope than “laminate”, covering material with voids between or in any layer. |
| manually | = by hand; by any other part of the human body unless a more restricted meaning is clearly understood. |
| material | = a category of subject matter that embraces any substance, intermediate product, or composition of matter which is acted upon to make a product. |
| measure | = enable a value, or its relation to a datum, to be determined (see also the definition in class G01). |

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| monitor (v) | = | maintain a continuous or periodical watch (human or instrumental) on, to enable action to be taken or initiated, or a signal to be given, if undesired conditions occur. |
| motor | = | an apparatus for producing mechanical motion from any other form of energy; the motion may be continuous or in separate strokes. This term covers "engine". |
| of interest | = | having features which are of importance in the stated context. |
| pertinent | = | of a nature which is important to the field in question, for example, in F02M 17/00 ("Carburettors having pertinent characteristics...") the characteristics must be peculiar to the purpose of supplying combustion engines, in accordance with the subclass title. |
| plant | = | a combination of machines, apparatus, etc. to produce a desired result, in which each machine, etc. performs a function that can be dealt with separately and is often studied individually, as opposed to "apparatus", in which only the overall function is normally of interest, though parts may also be of interest constructionally. For example, ore-treating plant comprising crusher, conveyer, screen and dust separator, or engine plant comprising two engines related in respect of steam supply or drive. |
| plastic (a) | = | more or less easily deformable, locally or as a whole, by force in any direction, to assume and retain any desired shape. |
| plastics (a) | = | of plastics. |
| plastics (n) | = | macromolecular compounds or compositions based on such compounds, for example, synthetic resins. |
| preparation | = | <ol style="list-style-type: none"> 1. the making of any kind of substance, material, compound or composition; 2. pretreatment of a semi-finished material or article for subsequent treatment, etc. 3. composition for a particular purpose, for example medicinal. |
| product | = | a category of subject matter that is an article or composition of matter resulting from a process and defined in terms of its structural features or its physical or chemical properties. |
| regulate; regulation | | maintain a variable automatically at a desired value or within a desired range of values. The desired value or range may be fixed, or manually varied, or may vary with time according to a predetermined "programme" or according to variation of another variable. Regulation is a form of "control". |

- stock = a piece (which may be of indefinite length) of solid material in a particular form resulting from some preliminary operation (a semi-finished product), for use in an operation in which it is divided up (before or after some shaping or other operation) in the production of articles.
- treatment = use of a process, or series of processes, to produce a desired effect on material or objects. A treatment may alter the nature of the material or the objects completely (for example, chemical treatment); otherwise its purpose is usually to alter some property (for example, by heating, coating, polishing, sterilising, magnetising), without altering overall form, though the term also covers changing shape. The effect may be temporary or permanent, and may apply to the whole of an object or only part of it.
- use (n) = 1. purpose for which, or field of art in which, a thing is employed;
2. fact that a thing is employed, or the manner in which it is employed.
- value = magnitude or numerical expression of a variable or of a measurable constant.
- variable (n) = a measurable quantity or property which may, but need not, change, for example, length, speed, voltage, colour. Since such a quantity or property may, for a given entity or in given circumstances, remain constant in value, means for measurement of a variable are in general the same as for measurement of a constant of the same nature, and reference to "a variable" must be interpreted accordingly (see Note to section G).
- working-up = treating substances to obtain them in desired final state or form, for example, colouring by incorporating pigments, granulating, producing sheets or articles.

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