



MINISTRY OF DEVELOPMENT, INDUSTRY, COMMERCE, AND SERVICES
NATIONAL INSTITUTE OF INDUSTRIAL PROPERTY

RESOLUTION No. 169, OF 15 JULY 2016

Subject: Establishes Guidelines for the Examination of
Patent Applications – Block II – Patentability

THE **PRESIDENT** and the **DIRECTOR OF PATENTS**, of the **NATIONAL INSTITUTE OF INDUSTRIAL PROPERTY**, in the exercise of the powers conferred upon them by Decree No. 8,686 of 4 March 2016,

RESOLVE

Art. 1 To establish the Examination Guidelines under the terms of the document “Guidelines for the Examination of Patent Applications – Block II – Patentability”, which is attached to this Resolution.

Art. 2 This Resolution revokes the Patent Examination Guidelines established by Resolution No. 64/2013.

Art. 3 This Resolution shall enter into force on the publication date in the Electronic Industrial Property Journal.

Luiz Otavio Pimentel
President

Júlio César Castelo Branco Reis Moreira
Director of Patents



MINISTRY OF DEVELOPMENT, INDUSTRY AND FOREIGN TRADE
NATIONAL INSTITUTE OF INDUSTRIAL PROPERTY

GUIDELINES FOR THE EXAMINATION OF PATENT APPLICATIONS



Patent Backlog Solution Project Presidential Resolution
No. 262 of 13 January 2011

PATENT DIRECTORATE
DIRPA – 26 April 2016

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Chapter I

Inventions

Introduction

1.1 An invention must be technical in nature and capable of being carried out in some field of technology. In accordance with Normative Instruction No. 030/2013, the invention must be part of a technical field, solve a technical problem, and have a technical effect. Thus, the application must demonstrate the technical nature of the problem to be solved, the proposed solution, and the effects achieved.

Basic Requirements

1.2 There are three basic requirements for the patentability of an invention:

- (i) industrial application;
- (ii) novelty; and
- (iii) inventive step.

These requirements must be verified in the order presented above. If the application does not meet one of the requirements, it is not necessary to examine the others. There may be cases in which the examiner deems it necessary to evaluate the other requirements in order to exhaust the examination of the invention as a whole.

Before assessing the three patentability requirements outlined above, the examiner must identify whether the claimed subject matter, considered as a whole, falls under Articles 10 and 18 of the IPL, following the guidelines presented in the items on subject matters that are not considered inventions and unpatentable inventions in these Guidelines.

Subject matter that is not considered an invention

Discoveries, Scientific Theories and Mathematical Methods – Item I of Article 10 of the IPL

Discoveries

1.3 If a new property of a product is found, that property is considered a mere discovery that is not considered an invention. A product that has that property, giving it a practical application, may be considered an invention. Example:

The discovery that a particular known material is suitable for withstanding mechanical shock is not considered an invention. However, a railway sleeper made from this material could be considered an invention.

1.4 Non-biological products or processes found in nature, such as natural minerals and chemical elements, are not considered inventions, as they are discoveries, even if isolated.

1.5 For questions involving biological products and processes found in nature, see the provisions of this Guideline regarding item IX of Article 10 of the IPL, as well as Resolution No. 144/2015.

Scientific Theories

1.6 These are a more generalised form of discovery, and the same principle presented in the discoveries section of these Guidelines applies.

Example:

The physical theory of semiconductivity is not considered an invention. However, new semiconductor devices and processes for manufacturing them may be considered inventions.

Mathematical Methods

1.7 A method that solves a problem unique to the field of mathematics (e.g., deductions, operations, solution of equations, etc.) is not considered an invention, since it does not solve a technical problem. However, methods that use mathematical concepts to solve a technical problem in a technical field are considered inventions, provided that they do not fall under other items of Art. 10.

Example 1:

A quick method of division would not be considered an invention, but a calculating machine built for this purpose may be considered an invention.

Example 2:

A method for developing electrical filters, although it refers to a mathematical equation, is considered an invention because it constitutes the solution to a technical problem.

Example 3:

A method for encrypting/decrypting electronic communications can be considered a method that solves a technical problem, even if it is essentially based on a mathematical method.

Purely Abstract Concepts – Section II of Article 10 of the IPL

1.8 Anything that exists only in the realm of ideas, without any practical implementation, constitutes an idea, a purely abstract concept and, therefore, is not considered an invention in accordance with the provisions of Article 10(II) of the IPL. As purely abstract concepts, these also lack sufficiency of disclosure. Methods that refer to a sequence of actions for solving a technical problem are not understood as pure abstractions.

Example:

Consider the idea of an invisible car. As an idea that cannot be realised by a person skilled in the art, it is a purely abstract concept and therefore not considered an invention. If the inventor describes a way of implementing such a vehicle, this realisation may be patentable.

Commercial, accounting, financial, educational, advertising, lottery and inspection schemes, plans, principles or methods – Item III of Article 10 of the IPL

1.9 The items listed in Section III of Article 10 of the IPL shall not be considered inventions, even when using technical means or having practical utility. The examiner must identify whether the claimed subject matter, considered as a whole, solves commercial, accounting, financial, educational, advertising, lottery and/or inspection problems, and not a technical problem.

Example:

Creations that fall under item III of Art. 10 of the IPL include: (i) market analysis, auctions, consortia, incentive programmes, methods under item III of Art. 10 involving points of sale (POS); funds transfer - through a banking network or ATM, which, among its functional steps, includes currency exchange and service fee calculations; banking methods, tax processing, insurance, asset analysis, financial analysis; auditing methods, investment planning, retirement plans, health plans, online shopping methods; online airline ticket sales methods, among others.

1.10 The fact that a method is applied to the financial area does not necessarily mean that it qualifies as a financial method. The subject matter claimed must be assessed as a whole and whether it solves a technical problem.

Example:

A method that identifies a banknote by its pattern of images, colours and text is considered an invention because it solves a technical problem, even though the method is specifically adapted to a banknote. In this case, the technical problem concerns the identification and counting of objects, which does not constitute a financial method.

1.11 Similarly, a method that provides a technical (non-financial) solution to a technical problem is considered an invention.

Example 1:

A method of operating a banking machine, characterised by the steps of reading the user's card, identifying and comparing a password with the information on the card, is considered an invention. The technical problem solved is user authentication.

Example 2:

A solution relating to communication protocols or encryption applied to bank accounts or data format conversion may also be considered an invention.

**Literary, Architectural, Artistic and Scientific Works or Any Aesthetic Creation – Item IV
of Article 10 of the IPL**

1.12 An aesthetic creation, by definition, relates to an object that presents other non-technical aspects, whose appreciation is essentially subjective, and thus is not considered an invention.

Example:

A painting or sculpture.

1.13 However, if the object also has technical features, it may be considered an invention.

Example:

A tyre tread.

1.14 The aesthetic effect is not taken into account in the assessment of an invention, neither in a product nor in a process claim.

Example:

A book claimed solely in terms of the artistic or aesthetic effect of its information content, layout or font would not be considered an invention, nor would a painting defined by the aesthetic effect of its subject matter or colour arrangement, or by its artistic style, such as impressionism.

1.15 However, if an aesthetic effect is achieved by a technical structure or other technical means, although the aesthetic creation itself is not considered an invention, the means for achieving it may be.

Example 1:

A fabric with an attractive appearance, obtained by means of a layered structure not previously used for this purpose, may be considered an invention.

Example 2:

A process for binding or gluing a book could be patentable, even if it also has an aesthetic effect, as could a painting defined by the type of fabric or the dyes or additives used.

1.16 A process for producing an aesthetic creation may also be considered an invention.

Example 1:

A diamond may have a particular aesthetic shape (not considered an invention) produced by a new technical process. In this case, the process may be considered an invention.

Example 2:

A process for cutting a diamond can be considered an invention, regardless of whether the resulting diamond shape has only aesthetic features, which are not considered an invention.

Example 3:

A new printing technique for a book resulting in a particular layout with an aesthetic effect may be considered an invention, together with the book obtained as a product of that process.

Computer program per se - Item V of Article 10 of the IPL

1.17 The computer program *per se*, as mentioned in Article 10(V) of the IPL, refers to the literal elements of the creation, such as the object code or source code, understood as an organised set of instructions written in natural or coded language.

As a set of instructions, code or structure, the computer program itself is subject to copyright and, therefore, is not considered an invention and is not subject to patent protection, as it is merely the authorial expression of a programmer for a technical solution.

1.18 It should be noted that a method considered an invention (not covered by Art. 10 of the IPL) may be implemented by a computer program. In this case, such method may be subject to patent protection, while the computer program itself (source code), through which it is implemented, is subject to copyright protection.

1.19 Even if the source code is amended, and such amendments may have technical effects, this code is not considered an invention, but rather subject to copyright. If programmer "A" uses programming concepts different from those of programmer "B" to implement the same method and independently arrives at a different program, such program would still be subject to copyright protection only.

1.20 The fact that a method is implemented by a computer program is irrelevant for its classification under Article 10 of the IPL.

Presentation of information - Section VI of Article 10 of the IPL

1.21 Any creation characterised solely by its informational content, such as music, text, images and data, is considered to be the presentation of information.

Example 1:

The presentation of information contained in a medicine leaflet is not considered an invention.

Example 2:

The assignment of different colours to different weights used in dumbbells is considered presentation of information.

Example 3:

The mere disclosure of information on panels affixed to the rear window of a vehicle, without any functionality, constitutes presentation of information. However, panels that deal with a specific film that preserves the driver's visibility are subject matter considered inventions.

1.22 In the case of graphical user interfaces used on computers, aspects that relate only to their informational content are not considered inventions, as they fall under item VI of Article 10 of the IPL.

Example:

The subject matter drafted in a claim defining a graphical interface that deals with the arrangement of icons on the screen, without any technical effect or functionality, is considered to be the presentation of information.

1.23 On the other hand, the method associated with the functional aspects of such interfaces may be considered an invention.

Example:

A claim directed to a graphical interface that associates personal notes with excerpts from a document using XML tags may constitute a technical solution considered an invention.

Rules of the Game - Item VII of Article 10 of the IPL

1.24 Game rules are not considered inventions because they constitute the solution to a problem that is not considered technical, for example, a method for solving crossword puzzles. The automation of a game rule, whether inventive or not, does not change the fact that it is a game rule.

1.25 In patent applications for games, any references to the rules of the game, which often appear mixed with technical descriptions of the application, must be removed from the set of claims. Board games could be patented if they presented some new arrangement or format, such as recesses or indentations that facilitate the fixing of the pieces, or feet to prevent the board from slipping or to adapt it for use in outdoor environments such as the beach, as well as arrangements that allow the board to be folded for storage in a smaller space, are eligible for protection.

Operating or surgical techniques and methods, as well as therapeutic or diagnostic methods, for application to the human or animal body - Item VIII of Article 10 of the IPL

Overview

1.26 According to item VIII of Article 10 of the IPL, therapeutic, surgical or diagnostic methods for application to the human or animal body are not considered inventions.

Therapeutic Method

1.27 Therapeutic methods are those aimed at curing and/or preventing a disease or dysfunction of the human or animal body, or alleviating symptoms of pain, suffering and discomfort, with the aim of restoring or maintaining normal health conditions. Methods characterised by the dosage and/or posology of a medicine for the treatment or prevention of a disease also fall within the scope of therapeutic methods.

1.28 Thus, therapy methods performed inside or outside the body are not considered inventions.

Example 1:

Method of treating ectoparasites such as lice, fleas, scabies and ticks.

Example 2:

Methods for treating the retina using a laser.

Example 3:

Method for treating a patient through extracorporeal dialysis or a filtration method, in which the filtered blood is returned to the body at the end of the process.

1.29 The following claim formats are considered therapeutic methods: the treatment of medical condition Y characterised by the administration of substance X; the use of substance X characterised by being for treating medical condition Y. "Substance X for use in a therapeutic method" or "Substance X for use in treating medical condition Y" are also considered therapeutic methods. However, claims in the format conventionally called the Swiss type "Use of a compound of formula X, characterised in that it is for preparing a medicament for treating disease Y" are not considered therapeutic methods.

1.30 Although both the prevention and cure of diseases are considered therapeutic methods, there must be a direct link between the treatment and the condition to be treated or prevented. In this sense, methods of hygiene are not considered therapeutic, although they may result in reducing the incidence of infection. Similarly, purely cosmetic methods are not considered therapeutic. However, if the cosmetic method is directly related to the prevention or cure of a disease, such a method will be classified as having an associated therapeutic character and therefore not considered an invention.

1.31 Treatment methods that do not have a therapeutic character:

Example 1:

Method for increasing wool production characterised by administering compound X to sheep;

Example 2:

Method for moisturising human skin characterised by applying composition Y to human skin for aesthetic purposes – in this case, there is no indication in the application or in the state of the art that the composition and moisturising method can also be used for the prevention/treatment of any skin disease.

1.32 However, there are some cases in which methods may have both therapeutic and non-therapeutic characteristics. If the non-therapeutic effect is inseparable from the therapeutic effect, or even if it is only a secondary consequence of the therapy, the subject matter is not considered an invention. Thus, methods for removing dental plaque or preventing its formation are considered therapeutic, since the inherent therapeutic effect of removing plaque cannot be separated from the purely cosmetic effect of improving the appearance of the teeth. Similarly, in the case of animal treatments where there is an increase in meat production or other industrial benefit as an inevitable consequence of the cure or prophylaxis of an animal pathology, it is not possible to dissociate the therapeutic effect.

1.33 On the other hand, methods of reducing body hair may be used for purely aesthetic reasons or in the treatment of hirsutism (i.e. the therapeutic character can be dissociated, using a negative limitation to exclude hirsutism), and may be eligible for protection.

Operative or surgical method

1.34 Any method that requires a surgical step or an invasive step on the human or animal body is considered a surgical method, falling under Article 10 (VIII) establishes as not being an invention.

1.35 By definition, surgical processes intended to cure diseases are called surgical methods or surgery. Surgery may be aimed at curing diseases or prophylaxis, such as when the appendix or tonsils are removed before the onset of any disease associated with them, as well as surgical methods that are not therapeutic in nature, such as cosmetic surgery. Similarly, methods that define the insertion or implantation of devices by surgical means are also not considered inventions.

1.36 In addition, invasive methods such as endoscopy, puncture, injection, excision, and catheterisation will also be considered surgical methods. Similarly, a method for embryo implantation, as well as *in vivo* artificial insemination, will be considered a surgical method, regardless of its purpose.

Diagnostic method

1.37 Diagnosis is the determination of the nature of a medical condition, usually through investigation of its history, etiology, and symptoms and the application of tests.

1.38 The diagnostic method involves a series of steps leading to the identification of a clinical condition, including stages of analysis and interpretation of the data obtained. When intended for application to the human or animal body, they are not considered inventions in accordance with the provisions of item VIII of Article 10 of the IPL.

1.39 A diagnostic method for application to the human or animal body falls under item VIII of Article 10 of the IPL when it meets the following criteria: (i) it has direct application to the human or animal body, such as in the case of determining allergic conditions by diagnostic examination applied to the body, or requires the presence or participation of the patient for its interpretation; and (ii) it allows the conclusion of the patient's clinical condition, or indicates several probable clinical conditions, based solely on the processing, analysis or interpretation of data, information and/or results of clinical examinations associated with the patient.

1.40 Some examples of claims for diagnostic methods that are not considered inventions are cited below.

Example 1:

Method for the automated diagnosis of a patient, characterised in that it comprises the steps of:

- (i) examining the patient to provide at least a first symptom element having a first relative degree of importance for the symptom;*
- (ii) examining the patient to provide at least one second symptom element having a second relative degree of importance for the symptom;*
- (i) applying the relative degrees of importance for the symptoms in order to obtain a diagnostic score for the conclusion of a medical condition.*

Example 2:

Method for diagnosing occlusive diseases in patients, characterised in that it comprises:

- (i) establishing separate basic data on size and angle measurements of facial harmony markings and values compiled from a group of faces;*
- (ii) accessing the patient's facial features, placing markings on the facial structures, and measuring the size and angle of the patient's face;*
- (iii) comparing the measured markings and angle measurements and values of the patients to the corresponding basic data.*

This method consists of compiling and establishing standard data on facial measurements, arranging and marking patients, and comparing the data to establish a diagnosis. It is therefore applied to the human body and requires the patient for interpretation.

1.41 Methods consisting of *in vitro* tests carried out on blood samples or other tissues removed from the body are therefore considered inventions, either because they are not applied to the human or animal body or because they do not provide a conclusion as to the clinical state of the patient. On the other hand, diagnostic methods may include *both in vivo and in vitro* steps. In such cases, if the claimed method includes technical steps carried out *in vivo* that are inseparable from the *in vitro* step, *the* method as a whole will be considered to be applied to the body and therefore not considered an invention. In addition, the treatment of tissues, cells or body fluids after they have been removed from the human or animal body, or methods applied to them, such as *in vitro* methods, are considered eligible for protection. This situation includes

methods for measuring enzymes and glucose in the blood, blood counts, serology tests, among others.

1.42 In addition, methods of obtaining information from the human or animal body are not considered diagnostic methods when the data collected represent merely an intermediate result that, by itself, is not sufficient for a diagnostic decision. Therefore, they are eligible for protection.

Example:

Methods for obtaining and/or processing X-ray images, magnetic resonance imaging, and processing physiological signals, such as electrocardiograms and electroencephalograms, to obtain patient data.

All or part of natural living beings and biological materials found in nature, or even if isolated from it, including the genome or germplasm of any natural living being and natural biological processes – Item IX of Article 10 of the IPL

1.43 All or part of natural living beings and biological materials found in nature – even if isolated from it, or produced synthetically that have natural counterparts, with no way to distinguish them from natural ones – are considered natural biological products and will not be considered inventions, as they fall under Art. 10 (IX) of the IPL.

1.44 For process claims, such as processes, methods, uses, applications, among others, the provisions of item IX of Article 10 of the IPL refer only to *natural biological processes*, providing that these are not considered inventions. When the claimed process involves *all or part of natural living beings and biological materials found in nature, including the genome or germplasm*, but does not consist of a *natural biological process*, there is no impediment to its patentability in accordance with the provisions of item IX of Article 10 of the IPL. Thus, a process that uses a natural product represents the result of human intervention and is considered an invention.

Example:

The classic process of obtaining plants or animals is not an invention. Similarly, processes that only involve steps that mimic events occurring in nature

are not considered inventions. In contrast, methods based on genetic engineering, where technical intervention is significant, are considered inventions.

Non-patentable inventions – Article 18 of the IPL

Anything contrary to morality, public decency, public safety, public order or public health – Section I of Article 18 of the IPL

1.45 Inventions may be considered unpatentable when it is necessary to prevent their exploitation in the territory in order to protect public order or morality, including to protect human, animal or plant life or health, or to prevent serious damage to the environment, provided that this determination is not made solely because exploitation is prohibited by law.

1.46 Any invention whose commercial exploitation would contravene the public order or morality is specifically excluded from patentability. This is intended to deny protection to inventions that are likely to cause public chaos or disorder, or that encourage criminal or other generally offensive behaviour, although this provision is invoked only in rare cases. A letter bomb is an example. The mere possibility of abuse of an invention is not sufficient to deny patent protection if the invention can be exploited in a manner that does not infringe public order and morality.

1.47 Special attention should be paid to applications in which the invention has both offensive and non-offensive uses.

Example 1:

In a process for opening safety deposit boxes, use by a criminal is considered offensive, but not for use by a locksmith in an emergency situation. In this case, there should be no objection.

Example 2:

A claim for a copying machine with improved reproduction accuracy does not fall under Article 18 of the IPL as contrary to public policy, even though it may be used for counterfeiting money.

1.48 Biotechnology is a technological field that generates inventions that may raise moral and public order issues. The patenting of such inventions is rejected in accordance with the provisions of Article 18(I) of the IPL. Non-exhaustive examples include:

- (i) human cloning processes;
- (ii) processes for modifying the human genome that result in the amendments of the genetic identity of human germ cells; and
- (iii) processes involving animals that cause them suffering without any substantial

medical benefit to humans or animals resulting from such processes.

Substances, materials, mixtures, elements or products of any kind, as well as the amendments of their physical and chemical properties and the respective processes of obtaining or making amendments to them, when resulting from the transformation of the atomic nucleus – Item I of Article 18 of the IPL

1.49 The methods of nuclear fission or fusion themselves, as well as their products, are not patentable according to Item II of Art. 18 of the IPL. However, processes or methods involving radioactive materials but not involving the transformation of the atomic nucleus may be patented.

Example 1:

A method for separating deuterium and tritium from a mass of hydrogen (which already contains these isotopes) would be patentable. The fact that a method is applied to nuclear engineering, for example in a reactor or particle accelerator, does not necessarily mean that it is in conflict with the aforementioned subsection.

Example 2:

A method of magnetic confinement can be used both for the production of Bose-Einstein condensates (not prohibited by the subsection) and for the production of substances by nuclear fusion (prohibited by the subsection). In this case, the examiner must identify the technical problem to be solved and verify whether the application in question claims, directly or indirectly, the fusion or fission process itself (prohibited by the subsection), or whether it is aimed at technologies associated with confinement, energy generation from the use of particles or heat emitted in the nuclear reaction, or containment materials (not prohibited by the subsection).

1.50 Furthermore, it should be noted that the provision in question does not prohibit the patenting of devices, machines, equipment or arrangements associated with nuclear technology. The aforementioned magnetic confinement can be achieved through an experimental arrangement

that may be patented. Similarly, other examples of these technologies include particle and electromagnetic radiation detection equipment, gas pumping, vacuum chambers and pumps, sensors, control systems, etc.

1.51 Other examples of matters that are prohibited under the provisions of item II of Article 18 of the IPL are cited below.

Example 1:

A method for enriching radioactive isotopes in which the excitation of nuclei is carried out by high-energy electrons and photons (in the form of X-rays) or even by a laser;

Example 2:

A method for producing radioactive isotopes using particle accelerators;

Example 3:

A method of nuclear fusion to produce light elements for use as fuel in a second nuclear reactor.

1.52 The following are examples of materials that are not prohibited under the provisions of item II of Article 18 of the IPL.

Example 1:

A method for the internal control of a reactor by means of an electrical device.

Example 2:

An automated depressurisation system in a nuclear reactor.

Example 3:

A shutdown system for a nuclear reactor.

Example 4:

A compact pressurised water reactor (PWR).

Example 5:

A reactor for producing controlled nuclear fusion.

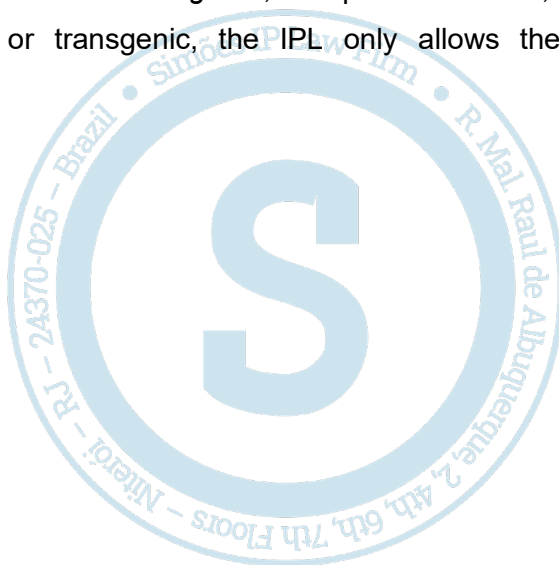
All or part of living beings, except for transgenic microorganisms that meet the three requirements for patentability – novelty, inventive step and industrial application – provided for in Article 8 and that are not mere discoveries – Item III of Article 18 of the IPL

1.53 With regard to transgenic microorganisms, the sole paragraph of Article 18 (III) of the IPL defines that "For the purposes of this law, transgenic microorganisms are organisms, except for all or part of plants or animals, which express, through direct human intervention in their genetic composition a feature normally unattainable by the species under natural conditions".

1.54 According to this definition, the term transgenic microorganism covers microorganisms that are obtained from any technique that results in a change in the genetic composition not achievable by the species under natural conditions through direct human intervention. This definition is not limited to microorganisms that have had exogenous genes and/or genes from other organisms inserted.

1.55 For the examination of claims relating to transgenic microorganisms, it must first be verified whether the term "microorganism" in the description of the application covers animal and plant cells, which are not eligible for protection, since all or part of plants and animals, even if transgenic, are not patentable.

1.56 The generic term "microorganism" is used for bacteria, archaea, fungi, unicellular algae that are not classified in *the Plantae kingdom*, and protozoa. Thus, among all or part of living beings, whether natural or transgenic, the IPL only allows the patenting of transgenic microorganisms.



Chapter II

Industrial application

2.1 Article 15 of the IPL states that an invention is considered susceptible to industrial application when it can be used or produced in any type of industry. The concept of industrial application must be analysed with due flexibility as to its meaning, being also applicable to agricultural and extractive industries and to all manufactured products, provided they are capable of repetition.

2.2 The term industry should be understood as any technical activity that is not individualised, i.e. personalised and/or specific to a single individual, without any repeatability features.

Example:

A method of throwing a basketball by an individual has no industrial application.

2.3 Considering that an industry does not exist in the sense of making or using something that has no known purpose, it is necessary that the claimed invention has a utility and that the specification identifies any practical way of exploiting it. Thus, purely abstract concepts or speculative indications do not satisfy the requirement of industrial application.

2.4 The concept of industrial application does not necessarily imply the use of a machine or the manufacture of an article.

Example:

The conversion of one form of energy into another exhibits industrial application.

2.5 An invention that has no industrial application is also one that is operable in a manner clearly contrary to established laws of physics.

Example:

Perpetual motion machine.

2.6 Test methods should generally be considered as inventions susceptible to industrial application and therefore patentable if the test is applicable for the improvement or control of a product, apparatus or process that is itself considered susceptible to industrial application, such as testing industrial products or some other phenomenon (e.g. to determine air or water pollution), is considered susceptible to industrial application.

Chapter III

State of the Art

Definition and General Concepts

3.1 According to the first paragraph of Article 11 of the IPL, the state of the art consists of everything made available to the public before the filing date of the patent application, by written or oral description, by use or any other means, in Brazil or abroad, except as provided in Articles 12 (grace period), 16 (Priority Data), and 17 (internal priority) of the IPL.

3.2 There are no geographical, language or media restrictions on the information made available to the public, nor is there any time limit on the documents or other sources of information.

Relevant date for searching prior art

3.3 The date to be used in prior art searches should be considered the relevant date, i.e., the filing date or priority date, if any. It should also be remembered that different claims or different alternatives claimed in a claim may have different relevant dates. The patentability requirements should be analysed for each claim, or part of a claim when it has several alternatives. The state of the art relating to a claim or part of a claim may include matter that may not be cited against another claim or part of a claim because the latter has an earlier relevant date. Of course, if all documents in the state of the art were available to the public before the date of the earliest priority document, the examiner should not be concerned with the association of priority dates for each claimed subject matter.

3.4 A written description, such as a document, should be considered to be made available to the public if, on the relevant date, it was possible for the public to learn of the content of the document, and if there were no confidentiality issues restricting the use or dissemination of such content.

Example:

German utility models are readily available to the public on their filing date, which precedes the official publication date.

3.5 The search report should not cite documents where there are doubts as to their availability and the precise publication date.

Sufficiency of Disclosure

3.6 A subject matter can only be considered accessible to the public and thus understood as part of the state of the art, in accordance with the provisions of paragraph 1 of Article 11 of the IPL, if the information made available is sufficient for a person skilled in the art to put the subject matter into practice, taking into account the general knowledge in the specific field of the subject matter available at the time.

3.7 Prior art cannot be a mere abstraction but must be feasible to implement.

Example:

A patent application claims a method for recovering shipwrecks, which consists of inserting floating bodies into the ship through a tube launched from a rescue vessel. Using this method, these elements are inserted until the buoyancy force is sufficient to lift the ship from the seabed and bring it to the surface. A 1949 Donald Duck comic book, "The Sunken Yacht, by Carl Barks," which describes a method for recovering shipwrecks using table tennis balls, cannot be used as prior art for this application, as the comic book does not provide sufficient information for the method described therein to be carried out.

Documents in a non-official language

3.8 It is INPI administrative practice to use foreign documents in searches carried out during patent examination. Therefore, there is no obstacle to the use of documents submitted in a language other than Portuguese.

3.9 If the Applicant submitted documents in a foreign language that the examiner does not understand, they should be asked to provide a simple translation of these documents into Portuguese or to submit the same document in another language the examiner has proficiency, and a statement by the interested party that the translation is faithful to the original document.

3.10 On the other hand, if the examiner submits a document in a foreign language other than English, they must attach to the original document a simple translation into English or

Portuguese of the document, in whole or in part, used in the opinion, which may be done using machine translation.

Prior art documents not yet published on the relevant date of the application under examination (Article 11(2) of the IPL)

3.11 The state of the art also includes the complete content of applications filed in Brazil whose filing date or priority date is earlier than the relevant date of the application in question, but which have been published, even if after that relevant date. Such documents are only used for the purpose of assessing novelty. By "complete content", what is meant is all disclosure, i.e., the Specification, drawings, claims and abstract, including:

- (i) any subject matter explicitly disclosed;
- (ii) any subject matter to which a valid reference to other documents is made, such as, if a document is cited in an application as originally filed, the content of that document is considered part of the prior art, provided that such reference has been made available to the public by the publication date of the application filed in Brazil, and used as prior art; and
- (iii) state of the art as explicitly described.

For applications filed via PCT, the publication referred to in the above paragraph is the international publication. For such applications, the filing in Brazil is considered from the notification of entry into the national phase of the international application.

Means of Disclosure

3.12 The means of disclosure of the state of the art include published documents, disclosure by use, and disclosure by other means.

Example:

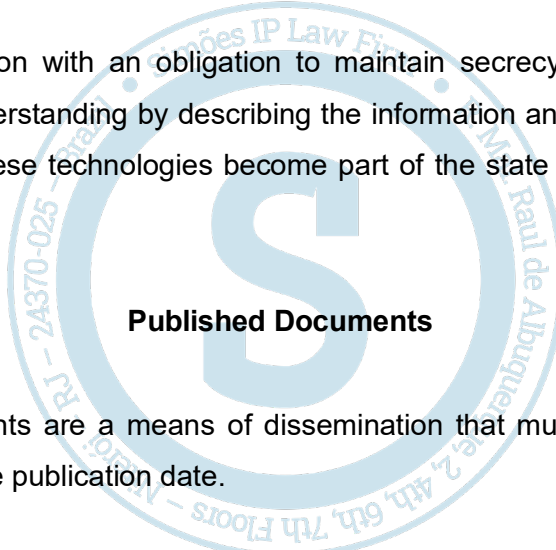
Oral disclosure.

3.13 It is important that such disclosures include the following elements: certainty as to their existence and date; sufficiency so that a person skilled in the art is able to properly understand the content of the matter disclosed; and publicity, i.e., that it is available or capable of being known by third parties (the general public).

3.14 The expression "accessible to the public" in accordance with the provisions of paragraph 1 of Article 11 of the IPL represents situations where the information can be accessed by anyone. It is not necessary for this information to be actually accessed, the possibility of access being sufficient.

3.15 It should be noted that technical information subject to secrecy is not part of the state of the art. Secrecy includes situations where the obligation to maintain secrecy arises from regulations or confidentiality agreements.

3.16 However, if a person with an obligation to maintain secrecy breaches the regulation, agreement or implicit understanding by describing the information and making the technologies available to the public, these technologies become part of the state of the art from the date of their availability.



Published Documents

3.17 Published documents are a means of dissemination that must indicate or present any other evidence proving the publication date.

3.18 Documents with the above definition may be printed or typed documents, such as patent documents, scientific and technical journals and books, proceedings of events such as conferences, symposiums, seminars and *workshops*, doctoral theses, master's dissertations, thesis, technical standards, specialised documents, textbooks, technical manuals, officially published technical procedures or reports, newspapers, product catalogues and advertising materials. They may also be audio or video materials obtained by electronic, optical, magnetic or photographic means, such as microfiche, films, negative films, videotapes, tapes, DVDs and CD-ROMs. They may also be documents on the internet or in the form of other *online* databases.

3.19 In the case of doctoral theses, master's dissertations and thesis, the relevant date to be considered for publication purposes shall be the date of defence, except in cases where such defence is conducted under conditions of confidentiality, in which case the relevant date shall be the publication date of the document.

3.20 The classification of a document as a description should not be affected by the place or language of publication, the manner of acquisition, or its age. The print run of the publication, or whether the applicant is aware of it, is also irrelevant.

3.21 Documents published with the words "Internal Materials" or "Restricted Publication" or other similar words, if they were in fact distributed within a restricted scope and needed to be kept confidential, are not considered published documents in the context of the IPL.

3.22 The publication date is considered to be the date of disclosure. When only the specific month or year is indicated as the publication date, the last day of the month or year should be considered as the date of disclosure. Normally, in original documents, dates are located on the title page, i.e., at the beginning of the document. In some cases, the publication date is only mentioned at the end of the publication. However, when there is no description that allows the publication date of the document to be identified, the INPI Library may be asked to search for it with the publishers.

3.23 Certainty regarding the date and sufficiency of disclosure of the prior art document can be proven, for example, through a duly dated invoice that specifies the product in an indisputable manner. Catalogues and factory drawings may be used with invoices for the purpose of characterising the document in terms of its sufficiency of disclosure, so that the body of evidence - invoice and catalogue/drawing - leaves no doubt that the object effectively corresponds to the one being challenged.

3.24 Any oral disclosure must be accompanied by evidence of its origin, its content by means of a record, and the date of disclosure, such as a transcript of a lecture.

3.25 Oral disclosure includes conversations, reports, lectures at symposiums, radio broadcasting, television broadcasting and cinematography, which may make technical information known to the public. For information obtained through conversations, reports or lectures at symposiums, the date of the action shall be considered the date of disclosure. For information disseminated through radio, television broadcasts or cinematography that can be received by the public, the date of transmission or screening shall be considered the date of disclosure.

Disclosure by Use

3.26 Disclosure by use means that through use, the technical solution is placed in a condition where it can be evaluated by the public.

3.27 Means of disclosure through use include producing, using, selling, importing, exchanging, presenting, demonstrating or exhibiting, which may make technical information available to the public. To the extent that technical information is placed in a condition through the above means such that the public can become aware of it, disclosure through use can be established, and it is irrelevant whether the public actually became aware of it. However, if, in the display or demonstration of a product, no explanation of its technical content is provided in such a way that the structure and function or composition of the product is not made known to a person skilled in the art, the display or demonstration does not constitute disclosure by use.

3.28 When disclosure by use refers to a product, it may be established even if the product or device used requires reverse engineering to understand its structure and function, provided that this does not involve undue effort. In addition, disclosure by use also includes disclosure at an exhibition stand or in a display case of informational materials or directly visible materials that are understandable to the public, such as posters, drawings, photographs, copies and samples.

3.29 The date on which the product or process is made available to the public shall be considered the date of disclosure by use.

3.30 In the case of a document (e.g. a newspaper article) that reproduces an oral disclosure, e.g. from a public lecture or information given from prior use at a public exhibition, the oral disclosure or prior use having been made available to the public before the filing date of the application, even if the document itself was published after that filing date, the examiner shall assume that the document faithfully represents the public lecture, show or exhibition and, therefore, consider such document as part of the state of the art.

Material found on the internet used as prior art

3.31 The term "internet" refers to the system of interconnected computer networks that offer information available to the public through telecommunications.

3.32 Content from the internet can only be accepted as prior art if the publication date can be proven.

3.33 Restricting access to a limited circle of people, such as by means of a password, or requiring payment for access - analogous to the purchase of a book or subscription to a newspaper - does not prevent an internet page from forming part of the state of the art. It is sufficient that the internet page is, in principle, available without any degree of confidentiality. Internet pages on which information is encoded in such a way that it cannot be read in general - excluding cases where a decoding tool is widely available, with or without payment of a fee - is a case where the information is considered not accessible to the public. If, before the filing date or priority date of the patent application, a document stored on the internet and accessible via a virtual address (1) can be found with the help of a public internet search tool using one or more keywords and (2) remains accessible at that address for a period of time sufficient for anyone, i.e. to someone who is under no obligation to keep the document secret, has direct and unambiguous access to the document, then the document is available to the public in accordance with the provisions of paragraph 1 of Article 11 of the IPL.

3.34 With regard to material disclosed in emails, this cannot be considered a document accessible to the public, as they are understood to be confidential documents.

3.35 Disclosures on the internet are part of the state of the art in accordance with the provisions of paragraph 1 of Article 11 of the IPL. Information disclosed on the internet or in *online* databases is considered to be available to the public from the date on which the information was publicly disclosed. Some information may only be available on the internet.

Example:

Online manuals and tutorials for software products or other products with a short life cycle.

Establishing a publication date

3.36 Technical information in electronic form without an indication of the publication date cannot be cited as prior art.

3.37 Establishing a publication date has two aspects: Whether a particular date is indicated correctly and whether the content in question was actually made available to the public from that date must be assessed separately.

3.38 The nature of the internet can make it difficult to establish the actual date on which information was made available to the public. Not all internet pages mention when they were published. Furthermore, internet pages are easily updated, but most do not provide records of previously presented material, nor do they display those that allow the public to establish precisely what was published and when.

3.39 When an internet document is cited against an application or patent, the same considerations should be made as for any other reference, including standard paper publications. In many cases, internet documents have an explicit publication date, which is accepted in principle. The burden of proving otherwise will lie on the applicant, and circumstantial evidence will be necessary to establish or confirm the publication date.

3.40 While the content dates of internet disclosures can be taken at first as valid, there are, of course, varying degrees of reliability. The more reliable the date of the disclosure source, the more difficult it will be for the applicant to challenge it.

3.41 Where an internet disclosure is relevant to the examination but does not give any explicit indication of the publication date in the disclosure text, or if the applicant questions whether a particular date is reliable, the examiner may seek further evidence to establish or confirm the publication date. Specifically, he may consider using the following information:

(i) Information relating to an internet page available from an internet archiving service, such as the *Internet Archive*, accessible via the so-called "*Wayback Machine*" - www.archive.org. The fact that *the Internet Archive* is incomplete does not diminish the credibility of the archived data. Legal disclaimers regarding the accuracy of the information provided, routinely used on web pages, should not be considered to reflect negatively on the accuracy of the information itself.

(ii) Date record related to the history of amendments applied to a file or web page, such as those available for *wiki* pages, such as Wikipedia, and in version control systems, such as those used for distributed software development;

(iii) Computer-generated date record as available from file directories or other repositories, or such as automatically added to the content, such as discussion groups, indexing dates assigned to the web page by search engines, such as from Google's *cache*. These dates will be later than the document's publication date, as search engines take some time to index a new web page;

(iv) Information about the replication of disclosures on multiple web pages - mirror pages - or in different versions.

3.42 It is also possible to consult the owner or author of the web page when attempting to establish the publication date with a sufficient degree of certainty.

3.43 The following sections deal with the reliability of various types of internet disclosures.

3.44 *Online* technical journals published by scientific publishers are particularly important for determining the state of the art. These publications are just as reliable as traditional paper journals, i.e. very reliable.

3.45 Note that the publication of a specific subject in a journal on the internet may precede the publication date of the corresponding paper version. In this case, the publication date of the document to be considered is the earliest one.

3.46 If the publication date of an *online* journal is vague, such as only the month and year are known, and the most pessimistic possibility - the last day of the month - is too late, the examiner may request the exact publication date. This request can be made directly through a contact form that the publisher may offer on the internet, or through the INPI library.

3.47 The information published on the following websites is considered reliable:

- (i) web pages of publishers that have issued well-established publications, such as web pages with electronic data of newspapers, magazines, which offer electronic publications of academic journals;
- (ii) websites of academic institutions, such as websites of academic societies and universities;
- (iii) websites of international organisations, such as standardisation bodies that publish information on measurement standards; and
- (iv) websites of public organisations, such as ministries and agencies that publish details of research activities, news of scientific discoveries, especially from research institutes.

Other Publications

3.48 The internet is also used to exchange and publish information in other formats, for example, internet discussion groups, *blogs*, discussion group email archives or Wikipedia pages. Documents obtained from such sources also constitute state of the art, provided that the publication date can be established with precision and the content is available to the public.

3.49 Date stamps generated by the provider of a particular service – commonly seen, for example, in *blogs*, discussion groups, or the version history available from Wikipedia pages – can be considered reliable publication dates.

Technical details and general observations

3.50 Internet pages are sometimes divided into frames, whose content is created from different sources. Each of these frames may have its own publication date, which can be verified. If the examiner uses such a document, they must ensure that they are using the correct publication date, i.e. that the publication date cited refers to the intended content.

3.51 Some internet addresses (*URLs*) are temporary, for example when they are designed to work only during a single session while the user is logged into the website. Long *URLs* with seemingly random numbers and letters are indicative of this. The presence of such a *URL* does not prevent disclosure from being used as prior art. For temporary *URLs*, the examiner should indicate how they arrived at that specific *URL* of the respective web page, i.e. which *links* were followed or which search terms were used.

3.52 When printing a web page, care should be taken to ensure that the complete *URL* is clearly legible. The same applies to the relevant publication date on a web page.

3.53 It should be borne in mind that publication dates may be presented in different formats, especially in the Brazilian/European format dd/mm/yyyy, the American format mm/dd/yyyy or the ISO format yyyy/mm/dd. Unless the format is explicitly indicated, it will be impossible to distinguish between the Brazilian and American formats for the 1st to 12th of each month.

3.54 The examiner must always indicate the date on which the internet page was accessed. When citing internet disclosure, they must present the data from the prior art document, such as how the publication date was obtained, as well as any other relevant information.

Example:

Where two or more related documents are cited, how they are related, and/or indicating that a particular link in the first document leads to a second document.

Example according to ABNT electronic format:

KRUG, C A.; ANTUNES FILHO, H.. Melhoramento do cafeeiro: III - Comparação entre progênies e híbridos da var. bourbon. **Bragantia**, Campinas, v. 10, n. 11, 1950. Available at <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0006-87051950001100004&lng=pt&nrm=iso>; accesses at 25 July 2012. <http://dx.doi.org/10.1590/S0006-87051950001100004>.

Cross-references between documents in the state of the art

3.55 If a "primary" document explicitly refers to another "secondary" document as providing more detailed information on certain features, the teaching of the latter should be considered as incorporated into the primary document, if the document was available to the public on the date of publication of the primary document. The relevant date for the purposes of examining novelty, however, is always the date of the primary document.

Errors in prior art documents

3.56 Errors may exist in prior art documents, such as a document describing a chemical compound with pentavalent carbon. Using general knowledge, a person skilled in the art may:

- (i) clearly see that the disclosure of a relevant prior art document contains errors, and
- (ii) identify what the only possible correction would be.

3.57 Thus, errors in disclosure do not affect its relevance as prior art, and the document can be considered to assess its relevance for patentability.

3.58 The grace period establishes an exception to the state of the art. Disclosures made by the inventor of the invention patent application, by the INPI without the inventor's consent, or by third parties based on information obtained directly or indirectly from the inventor, will not be considered as prior art, provided that they occur within 12 (twelve) months prior to the filing date of the application or its claimed priority, in accordance with Article 12 of the IPL.

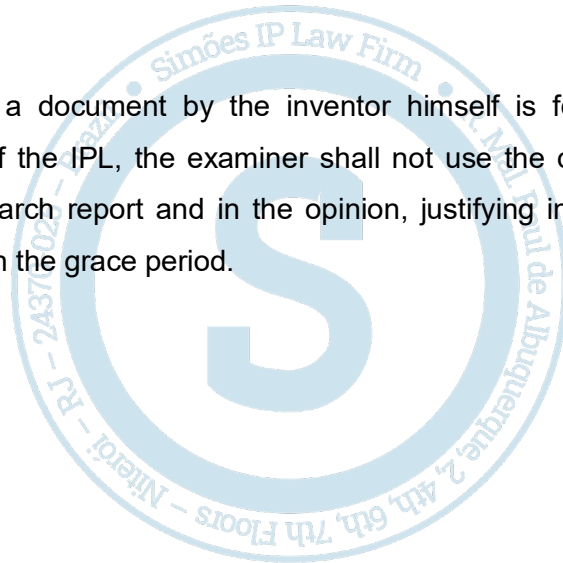
3.59 Disclosures accepted for the grace period are non-patent documents.

Example:

Publication of scientific articles and oral communications, provided that they are recorded, such as a transcript.

3.60 The publication of a patent application by the inventor prior to the application under consideration, filed in any country, cannot be considered as disclosure falling within the grace period.

3.61 Therefore, once a document by the inventor himself is found that falls within the provisions of Article 12 of the IPL, the examiner shall not use the document as prior art, but shall mention it in the search report and in the opinion, justifying in the latter its non-use for objections, as it falls within the grace period.



Chapter IV

Novelty

Concept

4.1 According to Article 8 of the IPL, any invention for which a patent right can be granted must possess novelty, inventive step and industrial application. Thus, novelty is one of the patentability requirements that must be met for an invention to be granted a patent right.

4.2 According to Article 11 of the IPL, an invention is considered new when it is not included in the state of the art.

Steps for assessing novelty

4.3 To assess novelty, the examiner must apply the following steps:

- (i) identify the elements contained in the claim;
- (ii) determine whether a document under examination forms part of the state of the art - Chapter III of these Guidelines;
- (iii) determine and indicate whether all the elements of the claim have been explicitly or implicitly combined in the document, for a person skilled in the art, in such a way as to anticipate the claim.

Technical details and general observations

4.4 The novelty requirement must be observed for each claim in the patent application. If an independent claim is novel, it is not necessary to examine the novelty of its dependent claims, since all of them will be novel.

4.5 Conversely, if the independent claim is not novel, its dependent claims must be examined, as they may contain specific elements that render that subject matter novelty.

4.6 The novelty required for a claim must be determined on the basis of the claim as a whole, and not only on the basis of its characterising part, nor on the basis of an

individual analysis of its constituent elements, which may separately be covered by the state of the art. Thus, if the preamble defines features A and B, and the characterising part defines features C and D, it does not matter whether C and/or D are known in themselves, but whether they are known in combination with A and B - not only with A or only with B, but with both.

4.7 The subject matter under examination will not be new when all the features of a given claim (e.g., elements of a product or steps of a process), including those presented in the preamble, are disclosed in a single prior art document. Such features can be found in the prior art when they are clearly presented and/or when there is no doubt that the information is inherent in what has been literally disclosed.

4.8 It is also important to define what constitutes technical information that can be deduced directly and unambiguously from the prior art document. Thus, when considering novelty, it is not correct to interpret the teachings of a prior art document as involving well-known equivalents that are not explicitly described in that document; this is a question of obviousness, i.e., inventive step.

4.9 The absence of novelty in relation to a document found in the prior art cannot be based on possibilities, hypotheses or speculations arising from the subject matter disclosed in the prior art. The relationship between the documents compared must be one of strict identity, which means that a single document must describe each element of the claim analysed, either explicitly or implicitly, otherwise the question shifts to an analysis of inventive step.

4.10 For the analysis of the novelty requirement, it is not possible to combine two different documents from the prior art. When such a combination is necessary, only the inventive step should be discussed. However, more than one document from the prior art may be cited for arguments against the novelty of the claimed subject matter, provided that these prior art documents do not need to be combined to support such claims, as in the following cases:

- (i) Different documents may be used to discuss the novelty of different claims;

- (ii) For different alternatives in the same independent claim, such as Markush formulas, different prior art may be used to assess the novelty of the subject matter of the same claim, when each prior art refers to different alternatives within the possibilities offered by the claim. It should be noted that in the analysis of claims with alternatives, prior art that reveals one of the alternatives is sufficient to destroy the novelty of the claim as a whole. However, reformulations of the claim may be accepted in order to exclude the subject matter found in the prior art.
- (iii) A second document, such as a dictionary or similar reference document, may be cited in the discussion of the novelty of the subject matter of a claim in order to interpret the meaning of a specific term, such as to prove that cheese is a dairy product, or to demonstrate synonymy, noting that only the first prior art cited is prejudicial to the novelty of the claimed subject matter.
- (iv) where a document of the state of the art refers to a second published document, the latter shall be considered incorporated by reference to the former.

Specific Term and Generic Term

4.11 When the subject matter is claimed in a generic and broad manner, and there is a document in the prior art in which the subject matter is disclosed in a specific manner within the parameters claimed in the application under examination, the lack of novelty must be pointed out. For example, a product "made of copper" described in a prior art document affects the novelty of an invention for the same product "made of metal". However, the disclosure of the product made of copper does not affect the novelty of an invention for the same product made of another specific metal.

4.12 When there is an overlap between the state of the art and the claimed invention, and the remaining subject matter of the claim cannot be defined clearly and concisely with positive features, this specific subject matter of the state of the art may be excluded, provided that there is a basis for excluding this subject matter in the patent application as filed.

4.13 On the other hand, a disclosure in generic terms does not affect the novelty of an invention defined in specific terms.

Example 1:

A product "made of metal" described in a prior art document does not affect the novelty of an invention for the same product "made of copper".

Numerical Value and Numerical Range

4.14 If the claimed invention contains a technical feature defined by numerical values or a continuous numerical range, such as the dimensions of a component, temperature, pressure, or the content of components in a composition, and all other technical features are identical to those of a prior art document, then the determination of novelty must be conducted in accordance with the following rules:

- (i) When the numerical values or numerical ranges described in the prior document fall entirely within the claimed range of the technical feature, the prior document affects the novelty of the claimed subject matter.

Example 1:

The application claims a copper-based alloy comprising 10% to 35% by weight of zinc, 2% to 8% by weight of aluminium, and the remainder being copper. If the prior art document describes a copper-based alloy comprising 20% by weight of zinc and 5% by weight of aluminium, this affects the novelty of the aforementioned claim.

Example 2:

The application claims a furnace for heat treatment, where its linear arc has a thickness of 100-400 mm. If the prior art document describes a furnace for heat treatment in which the linear arc has a thickness of 180-250 mm, this document affects the novelty of the said claim.

- (ii) When the numerical range described in the prior art document and the numerical range of the technical feature partially overlap or have at least one extreme point in common, the prior art document affects the novelty of the invention.

Example 3:

The application claims a process for producing silicon nitride ceramics, where the calcination time is 1-10 hours. If the prior art document describes a process for producing silicon nitride ceramics where the calcination time is 4-10 hours, since the two ranges overlap in the calcination time of 4-10 hours, the prior art document affects the novelty of said claim, but does not affect the novelty of said claim in the case of a calcination time of 1-4 hours.

Example 4:

The application claims a process for spray coating, where the power of the spray gun is 20-50 kW during coating. If the prior art document describes a spray coating process where the power of the spray gun is 50-80 kW during coating, since the two ranges have a common extreme point, 50 kW, the prior art document affects the novelty of the said claim.

- (iii) The two extreme points of the numerical range described in the prior art document affect the novelty of the invention when the technical feature in question has discrete numerical values including one of said extreme points, but do not affect the novelty of the invention when the technical feature in question is a numerical value at any point between said two extreme points. For further details on selection patents, see paragraph 4.24 of this chapter.

Example 5:

The application claims a process for producing titanium dioxide photocatalyst, where the drying temperature is 40°C, 58°C, 75°C or 100°C. If the prior art document describes a process for producing titanium dioxide photocatalyst where the drying temperature is 40°C to 100°C, this disclosure affects the novelty of said claim in the case of a drying temperature of 40°C or 100°C, but does not affect the novelty of said claim in the case of a drying temperature of 58°C or 75°C.

- (iv) When the numerical values or numerical range of the technical feature in question fall within the range described in the prior art document and do not have any extreme points in common with it, the prior art document does not affect the novelty of the claimed invention. For further details on selection patents, see paragraph 4.24 of this chapter.

Example 6:

The application claims a piston ring for an internal combustion engine, where the diameter of the piston ring is 95 mm. If the prior art document describes a piston ring with a diameter of 70-105 mm used in an internal combustion engine, this does not detract from the novelty of the said claim, provided that the 95 mm ring has not been explicitly mentioned and specified in the prior art.

Example 7:

The application claims an ethylene-propylene copolymer, where the degree of polymerisation is 100-200. If the prior art document describes an ethylene-propylene copolymer in which the degree of polymerisation is 50-400, this does not detract from the novelty of the claim, provided that the degree of polymerisation of 100-200 has not been explicitly mentioned and specified in the prior art.

**Product claims defined by features or parameters for performance,
use, or manufacturing process**

Product claims defined by features or performance parameters

4.15 Product claims defined by performance features or parameters may be allowed if the invention can only be defined in such terms, or cannot be defined more precisely without unduly restricting the scope of the claims. For this type of claim, the examiner must consider whether the features or performance parameters in the claim imply that the claimed product has a certain structure and/or particular composition. If the features or performance parameters imply that the claimed product has a structure and/or composition distinct from that of the product described in the prior art document, the claim has novelty. On the other hand, if the skilled person, based on the features or performance parameters, cannot distinguish the claimed product from that described in the prior art document, it can be assumed that the claimed product is identical to the product in the prior art document and, therefore, the claim does not present novelty.

Example:

An application claims a compound A in a crystalline state defined by a variety of parameters including X-ray diffraction data, and the prior art document also describes a compound A in a crystalline state. If the crystalline states of both cannot be distinguished from each other based on the description in the prior art document from these parameters, it can be assumed that the claimed product is identical to the product in the prior art document and, therefore, the claim does not present novelty.

Product claims characterised by use

4.16 Claims for a product characterised by its use, where the product is already known in the prior art, are not accepted due to lack of novelty. In cases where a product is not known in the prior art, such a claim formulation is not accepted due to

lack of clarity, in accordance with Article 25 of the IPL, since the product must be defined in terms of its technical features.

Example:

A claim for a compound X for use as an antiviral would not be considered new in relation to the same compound X used as a dye described in a prior document. Although the use of compound X may be new, the chemical formula that determines its properties has not been changed. Thus, the invention of the antiviral compound X does not present novelty.

Product claims characterised by the manufacturing process

4.17 Claims for products defined in terms of a manufacturing process are only allowed if the products meet the requirements for patentability, i.e., they are novel and inventive, provided that the product cannot be described in any other way. For this type of claim, the examiner must consider whether the manufacturing process feature results in a particular structure and/or composition of the product. If the skilled person can conclude that the process will necessarily result in a product having a structure and/or composition different from that of the product in the prior art document, the claim presents novelty. On the other hand, if the claimed product, when compared with the product in the prior art document, has the same structure and composition despite the different manufacturing process, the product claim does not present novelty.

Example:

The application claims a glass cup obtained by process X, and a prior art document describes a glass cup obtained by process Y. If the glass cups obtained by both processes have the same structure, shape and constituent material, the product claim is not novelty. On the other hand, if process X comprises a firing step at a particular temperature not described in the prior art document, which considerably increases the break resistance of the glass cup when compared to the glass cup in the prior art document, then this indicates that the claimed glass cup has a different microstructure due to the different manufacturing process, and has an internal structure different from that of the glass cup in the prior art document. Thus, the claim presents novelty.

Second use claims

4.18 A claim for the non-medical use of a known compound presents novelty, provided that this new use has not been previously made available to the public.

Example:

Consider the state of the art that reveals the use of alloy X to manufacture a certain part A. An application dealing with "the use of alloy X to manufacture a certain part B" presents novelty.

In "Swiss type" claims ("Use of a compound of formula X, characterised in that it is for preparing a medicament for treating disease Y"), novelty is assessed in relation to the disease to be treated.

On the other hand, claims of the type "Use of compound X characterised by the treatment of disease Y" correspond to therapeutic method claims and are therefore not considered inventions under Article 10(VIII) of the IPL.

Selection patents

4.19 An invention by selection consists of selecting individual elements, subsets or ranges within a generic description of the state of the art, whether from options for substitutes in a compound, components present in compositions or ranges of process parameters, and which have particular and unexpected properties in relation to the closest prior art. Selection patents can be found in process applications involving particular conditions not specifically disclosed in the prior art, and/or in applications for products selected from broadly defined products, typically in Markush-type product formulas, as well as, for example, in derivative compounds and compositions.

4.20 The selection patent must meet the following criteria:

- (i) The selected component must not have been specifically disclosed in order to meet the novelty criterion;
- (ii) The selected component must have some clearly demonstrated unexpected technical effect to meet the inventive step criterion (see the topic "Invention by Selection" in the Inventive Step chapter).

4.21 Specifically disclosed means that the matter is contained in the body of the application, whether in the specification, drawings, examples of preparation/use, sequence listings, or claims, in a clear and concrete manner, without the need for deduction by the examiner.

4.22 Thus, novelty for such selection may be attributed if the description in a previous document is only generic, without the specific item being selected being explicitly mentioned, i.e., textually and concretised in the form of examples, tests, results, lists and tables. Thus, a previous generic description alone does not detract from the novelty of a specific claimed subject matter.

4.23 If a product has been disclosed in a prior art document, for example, a compound, through its nomenclature or structural formula, among the so-called preferred compounds and concretised in the examples of preparation/use, it cannot be the subject matter of a selection patent, as the compound is considered to be specifically disclosed and does not fulfil the novelty requirement.

4.24 In the case of process selection applications in which a subrange of a broader range included in the prior art document is selected, in order to fulfil the novelty requirement, the selected subrange must not have been specifically disclosed and concretised in the prior art.

Example 1:

The patent application refers to a process for obtaining a product, with temperature control between 125°C and 130°C. The prior art reveals the same process for obtaining the product, using temperatures ranging from 120°C to 180°C, with tests presented using temperatures of 140°C and 150°C. In this case, the claimed process is novel in view of the fact that it deals with a specific temperature selection within a comparatively wide range and different from that explicitly disclosed and implemented in the prior art.

Example 2:

The patent application refers to a process for obtaining a product, with temperature control between 125°C and 140°C. The prior art reveals a process for obtaining the product, using temperatures ranging from 120°C to 160°C, with tests presented using temperatures of 140°C and 150°C.

In this case, the claimed process includes a temperature that was explicitly disclosed and implemented in the prior art (140°C), and thus the selection of the claimed temperature range is not considered new.

4.25 The examiner should bear in mind that numerical values relating to measurements are subject to errors, which have limits on their accuracy. For this reason, the general convention in technical and scientific literature applies, whereby the last decimal place of a numerical value indicates its degree of accuracy. In cases where there is no other margin of error, the maximum margin should be determined by rounding the last decimal place.

Example:

The claim seeks an element with a length of 3.5 cm. The state of the art reveals a document describing the same element with a length of 3.45 cm. Considering that it is common knowledge among experts in the field that in a measurement of 3.5 cm, the margin of error is 3.45 to 3.54 cm, the application does not present any novelty.



Chapter V Inventive Step

Concept

5.1 The invention is endowed with an inventive step, in accordance with the provisions of Article 13 of the IPL, when taking into account the state of the art, it is not obvious or evident to a person skilled in the art. Novelty and inventive step are different criteria, and the question "is there an inventive step?" only arises if the invention is new.

5.2 The term "obvious or evident" means that which does not go beyond the normal development of technology, but only makes it clear or logical based on the state of the art, i.e., something that does not involve the exercise of any skill or ability beyond what is expected of a technician in the field.

5.3 If the skilled person in the field can arrive at the invention solely by logical analysis, inference or without undue experimentation based on the state of the art, the invention is obvious and thus does not present any unexpected technical solution. If this is the case, the application is not patentable due to lack of inventive step.

The Person Skilled in the Art

5.4 The definition of a skilled person in the art, for the purposes of inventive step, is the same as for the purposes of assessing sufficiency of disclosure. A skilled person in the art may be someone with average knowledge of the technique in question at the time of filing the application, with a technical-scientific level, and/or someone with practical operational knowledge of the subject matter. It is considered that they had at their disposal the means and capacity for routine work and experimentation, usual in the technical field in question. There may be cases where it is more appropriate to think in terms of a group of people, such as a production or research team. This may apply particularly to certain advanced technologies such as computers and nanotechnology.

Assessment of Inventive Step Overview

5.5 In assessing inventive step, the examiner should consider not only the technical solution itself, but also the technical field to which the invention belongs, the technical problem solved, and the technical effects produced by the invention.

5.6 The claimed invention should be considered as a whole, taking into account the elements contained in both the preamble and the characterising part. When determining the differences between the claims and the prior art, the question is not whether the differences would be obvious individually, but whether the claimed invention would be obvious as a whole. Therefore, as a general rule, in the case of claims combining several features, it is not correct to consider the subject matter claimed as obvious on the grounds that the various technical features, taken separately, are known or obvious in relation to the state of the art. However, when the claim is merely an "aggregation" or "juxtaposition" of known features, i.e., a when the combination results in an effect that is the simple sum of the individual effects of the features, this claim does not involve an inventive step.

5.7 In general, if an independent claim has inventive step, it is not necessary to examine the inventive step of its dependent claims, since they incorporate all the limitations present in the claims on which they depend.

5.8 Conversely, if an independent claim does not involve an inventive step, its dependent claims must be examined, as they may contain specific elements that render that subject matter inventive.

Steps for determining inventive step

5.9 Three steps are used to determine whether a claimed invention is obvious when compared to the prior art:

- (i) determine the closest prior art;
- (ii) determine the distinctive features of the invention and/or the technical problem actually solved by the invention; and
- (iii) determine whether, in view of the technical problem considered and starting from the closest prior art, the invention is obvious to a person skilled in the art.

Determining the closest prior art

5.10 The closest prior art consists of one or a combination of two documents, exceptionally three, related to the invention claimed in each independent claim, and must be the basis for assessing the presence of inventive step. The closest prior art may be:

- (i) One or more documents existing in the same technical field as the claimed invention, in which the technical problem to be solved is located, the technical effects or the intended use are closest to the claimed invention; or which describe the greatest number of technical features of the claimed invention; or
- (ii) One or more existing documents which, despite being in a technical field different from that of the claimed invention (see item 5.4 of this chapter), are capable of performing the function of the invention and describe the greatest number of technical features of the invention. For further details, see the subheading "Invention by analogy of technical field".

5.11 The closest prior art should be assessed from the perspective of a person skilled in the art at the relevant date of the application.

5.12 It should be noted that, when determining the closest prior art, the prior art in the same or similar field as the invention should be considered first, before considering a different technical field.

Determining the distinctive features of the invention and/or technical problem solved by the invention

5.13 The examiner should analyse *the distinctive features of the invention* and objectively determine the technical problem solved by the invention. In doing so, the examiner should first determine the distinctive features of the claimed invention in comparison to the closest prior art and determine the technical problem that is actually solved by the invention.

5.14 Since the closest prior art identified by the examiner may differ from that presented by the applicant in the specification, the technical problem actually solved by the invention may not be the same as that described in the specification. In such a case, the technical problem actually solved by the invention should be reformulated based on the closest prior art identified by the examiner.

5.15 As a rule, any technical effect of an invention can be used as a basis for reformulating the technical problem, provided that the technical effect can be recognised by a person skilled in the art from what is presented in the specification.

5.16 In the event that results/tests/trials or similar are presented during the technical examination, even after the application for examination, with the aim of proving the technical effect of the invention, the presentation of such data in the Applicant's arguments must be inherent to the subject matter initially disclosed. In such cases, the technical effect of the invention must be described in the subject matter initially disclosed, even if not in a quantitative form.

5.17 In cases where such results/test/trial data or similar data relate to a technical effect that is neither disclosed nor inherent in the application as originally filed, such information shall be disregarded in assessing the technical effect of the invention.

5.18 Features that do not contribute to the technical character of the invention are not considered for the assessment of inventive step. This situation may arise if a feature contributes only to the solution of a non-technical problem, such as a problem in a field excluded by Article 10 of the IPL.

Example:

Consider a claim for a cup that includes a pattern X. Pattern X has no technical effect, but is merely aesthetic. In this case, the assessment of inventive step must disregard the pattern.

5.19 It should be noted that the objective technical problem must be formulated in such a way that it does not include part of the technical solution offered by the invention in the definition of the problem, so as not to lead the examiner to conclude that the invention lacks inventive step. Example:

A vehicle has brake lights located outside the line of sight of the driver of another vehicle following behind it, which increases the likelihood of collisions. Consider that the technical problem has been defined as the misalignment between the brake lights of the first vehicle and the line of sight of the driver of the second vehicle, and that the solution to the problem consists of raising the position of the brake lights in order to achieve such alignment. The presence of part of the solution – alignment – in the definition of the problem could lead the examiner to conclude that there is no inventive step. In this case, the technical problem would be better defined as "difficulty in alerting the second vehicle to the braking of the first vehicle".

Determine whether, given the technical problem considered and based on the closest prior art, the invention would be obvious to a person skilled in the art.

5.20 At this stage, the examiner must judge, based on the closest prior art and the proposed solution to the technical problem, whether or not the invention is obvious to a person skilled in the art at the relevant date of the application. During the assessment, it must be determined whether there is a motivation to apply the said distinctive features of the invention to the closest prior art in order to solve the existing technical problem. Such motivation does not need to be explicitly stated in the prior art documents.

5.21 The skilled person in the field should not be considered a mere automaton motivated solely by the content revealed in the documents, but rather someone who has knowledge and experience in the field of the invention and is capable of making reasonable connections and relationships between the technical aspects involved. If the information in the prior art leads the skilled person to improve the prior art closest to it in order to arrive at the claimed invention, the latter is considered obvious. It must be assessed whether any teaching in the prior art, taken as a whole, would necessarily lead a skilled person, faced with the technical problem, to amend or adapt the closest prior art in order to achieve the solution proposed by the claim.

Combination of prior art documents

5.22 When determining whether the combination of two or, exceptionally, three separate disclosures is obvious or not, the examiner should assess the following criteria:

- (i) whether the content of the documents is such that a person skilled in the art would be able to combine them in view of the problem solved by the invention;
- (ii) whether the documents come from similar or related technical fields, or whether the documents are relevant to a particular problem to which the invention relates; and
- (iii) whether the combination of two or more parts of the same document could be obvious if there is a reasonable basis for a person skilled in the art to associate these parts with each other.

Specific Situations in the Assessment of Inventive Step

Invention that Opens a New Field

5.23 An invention that opens up a new field involves an inventive step. The following are examples of such revolutionary inventions:

Examples:

Compass, paper, printing technique, gunpowder, steam engine, filament lamp, radio, radar, fibre optics and laser.

Invention by Combination

Overview

5.24 An invention by combination of elements refers to a new solution to a technical problem obtained by combining certain solutions from the state of the art.

5.25 In determination of inventive step of an invention by combination, usually the following factors must be considered:

- (i) whether the combined technical features integrate functionally;
- (ii) whether there is difficulty or ease in combining them;
- (iii) whether there is any motivation to carry out the combination; and
- (iv) the technical effect resulting from the combination.

5.26 It is not necessary to find in the prior art any explicit suggestion, motivation or teaching for a combination of known documents. The motivation may even lie in another field of technology and refer to another problem, or a person skilled in the art may be motivated to carry out this combination, once able to make reasonable connections and relationships between the technical aspects involved.

Obvious combination

5.27 If a claimed invention is merely an aggregation or juxtaposition of certain known elements, each functioning in its routine form, and the total technical effect is merely the sum of the technical effects of each part without any synergy or functional interaction between the combined technical features, then the combination invention does not involve an inventive step.

Example:

The invention relates to a ballpoint pen with an electronic clock, where the solution is merely to attach a known electronic clock to a known ballpoint pen. After the combination, the electronic clock and the ballpoint pen still function as usual, without any functional interaction between them, and thus the invention is merely an aggregation and does not involve an inventive step.

5.28 Furthermore, if the combination falls within the scope of normal technological development, without any unexpected technical effect, then the invention does not involve an inventive step.

5.29 On the other hand, if the documents cited as prior art directly mention that the solution proposed in the application under review should not be followed by the technical expert in the field, i.e., the prior art suggests that the technical expert in the field should depart from the solution now proposed in the application under review, it becomes clear that there is no motivation for the technical expert in the field to use such documentation to arrive at the proposed solution, which constitutes evidence of inventive step. In this case, the technical precept present in the prior art would lead the technical expert to reject the solution found.

Non-obvious combination

5.30 If the combined technical features interact functionally with each other and produce an unexpected technical effect, or, in other words, if the technical effect after the combination is different from the sum of the technical effects of the individual features, then such a combination presents an inventive step. The fact that any of the technical features in the invention by combination are known, does not compromise the inventive step of the invention.

Example:

The technical effect of an individual transistor is essentially that of an electronic switch. However, transistors interconnected to form a microprocessor interact synergistically to achieve technical effects such as data processing. Thus, the technical effects are beyond the sum of their respective individual technical effects.

Invention by Selection

Overview

5.31 In assessing the inventive step of selection patents, the selected element(s) or subrange(s) must represent an advance to the state of the art, and not merely be an arbitrary selection from it.

5.32 The mere choice of arbitrary elements/subgroups/subranges does not guarantee the attribution of inventive step to the selection, since the effects/properties resulting from such choice will always be assessed from the point of view of the person skilled in the art. To assess inventive step in selection inventions, it is up to the applicant to demonstrate that the unexpected technical effect is not present in the elements/subgroups/subranges of the state of the art. It should be noted that additional data may be accepted as proof of inventive step.

Obvious selection

5.33 The following cases are obvious examples:

- (i) If the invention merely consists of choosing from a number of known possibilities, or merely choosing one of a number of equally possible alternatives, and the selected solution does not produce any unexpected technical effect, the invention does not involve an inventive step.

Example:

In the prior art, many heating processes are described where the invention lies in the selection of a known process, such as electric heating for a chemical reaction. If the selection does not produce any unexpected technical effect, the invention does not involve an inventive step.

- (ii) If the invention lies in the choice of particular dimensions, temperature ranges or other parameters from a limited range of possibilities, and if such a choice can be made by the skilled person by normal design procedures and does not produce any unexpected technical effect, the invention does not involve an inventive step.

Example:

The invention relates to a process for carrying out a known reaction and is characterised by a specific flow rate of an inert gas. Since the determination of the flow rate can be made by a person skilled in the art by conventional calculation, the invention does not involve an inventive step.

- (iii) If the invention can be obtained by mere direct extrapolation from the state of the art, it

does not involve an inventive step.

Example:

The invention consists of increasing the thermal stability of a composition Y, characterised by the use of a specific minimum amount of a component X in composition Y, whereas, in fact, the specific minimum amount of component X can be derived from the curve relating the amount of component X to the thermal stability of composition Y. Thus, the invention does not involve an inventive step.

Non-obvious selection

5.34 The following cases correspond to a non-obvious selection:

- (i) When the invention involves a special selection of particular operating conditions, such as temperature and pressure in a process, within a known range, and such selection produces unexpected technical effects on the functioning of the process or on the properties of the resulting product.

Example 1:

A process in which substances A and B are transformed at high temperatures into a substance C is known to occur between 50° C and 130°C, with illustrative examples using temperatures of 110° C and 125° C. It has now been determined that in the temperature range between 63°C and 65°C, which has not been previously explored, the yield of substance C was considerably higher than expected and with a higher degree of purity.

- (ii) The invention consists of selecting certain chemical compounds or compositions - including alloys - from a broad field where these compounds or compositions have an unexpected technical effect.

Example 2:

The invention lies in the selection of a radical "R" from a set of possibilities defined in the prior art (commonly in a Markush formula). The selected compounds have non-obvious properties, with no indications that would lead a person skilled in the art to make this particular selection. In general, such effects are proven through comparative tests.

(iii) If the invention is obtained from a selection that produces an unexpected technical effect, the invention has inventive step:

- a) In cases where the parameters vary and the state of the art does not provide indications about the most critical parameters to be tested or about the most promising possibilities; and
- b) In cases of exploration of a new technology that presents itself as a promising field of research, but whose state of the art provides only generic indications of the possibilities of the invention.

Example 3:

In a state-of-the-art document describing the production of an acid, the ratio of catalyst to 1 mole of raw material is above 0 and below or equal to 100% (mole). In the example given, the amount of catalyst is 2% to 13% (molar %), and it is indicated that productivity begins to increase from 2% of the amount of catalyst. In addition, the skilled person considers increasing the amount of catalyst in order to increase productivity. In an invention by selection relating to a process for producing the aforementioned acid, a smaller amount of catalyst (0.02% to 0.2%) is used. However, productivity increases by 35%, greatly exceeding the expected productivity, and, in addition, the processing of the reagent is also simplified. All this shows that the technical solution selected by this invention produced unexpected technical effects, since, based on prior knowledge, a person skilled in the art would have been led to increase the amount of catalyst to improve the productivity of the process, not to decrease it, and thus the invention involves an inventive step.

Invention by analogy of technical field

5.35 An invention by analogy of technical field refers to an invention that applies a known technology from one technical field to another technical field.

5.36 The skilled person may be led to seek suggestions in other related or remote technical fields. The examiner's assessment of whether the solution involves an inventive step should be based on the knowledge and skill of the skilled person at the relevant date of the application.

5.37 In determining inventive step by analogy of technical field, the following factors usually need to be considered: (i) the proximity between the two technical fields

; (ii) whether there is corresponding technical motivation; (iii) the level of difficulty in adapting the known technology to the other technical field; (iv) any technical difficulties to be overcome; and (v) the technical effect achieved.

5.38 If the technical field analogy is made between similar or close technical fields, and no unexpected technical effect is obtained, the invention does not involve an inventive step.

Example:

Applying a cabinet support structure to support a table does not involve an inventive step.

5.39 If the technical field analogy produces an unexpected technical effect overcoming difficulties encountered in the prior art, then the invention involves an inventive step.

Example:

The invention relates to submarine ailerons. In the prior art, a submarine remains at an arbitrary location under water by balancing its dead weight and buoyancy, and rises by horizontally operating the cabin to increase buoyancy. In a remote technical field such as aeronautics, an aeroplane flies by the buoyancy force of air produced entirely by the main wings. The invention makes use of technical measures applied in aeroplanes and applies the idea of the main wings of the aeroplane to the submarine. As a result, under the buoyancy or submergence forces created by the movable flaps that function as the submarine's ailerons, the submarine's ascent and descent performance is significantly improved. Considering that many technical difficulties were overcome in applying aeronautical technology to underwater technology, the invention produces unexpected technical effects and involves an inventive step.

Invention of a new use for a known product

5.40 An invention of a new use for a known product refers to an invention that uses a known product for a new purpose.

5.41 In determining the inventive step of an invention for a new use of a known product, the following factors usually need to be considered: the proximity of the technical field of the new use to that of the previous use and the unexpected technical effect of the new use.

5.42 If the new use merely utilises a known property of a known material, the invention of a new use does not involve an inventive step.

Example 1:

The use of a known composition as a cutting aid for materials (new use), where the prior art uses it as a lubricant, does not involve an inventive step.

Example 2:

The use of a composition as an insecticide, compared to its use as a wood preservative disclosed by the prior art, produces the expected technical effect and therefore does not involve an inventive step.

5.43 If the new use utilises an observed property of a known product and can produce an unexpected technical effect, then the invention of use thus involves an inventive step.

Example:

The use of a composition as a herbicide, compared to its use as a wood preservative disclosed by the prior art, produces an unexpected technical effect and thus involves inventive step.

5.44 In "Swiss formula" claims ("Use of a compound of formula X, characterised in that it is for preparing a medicament for treating disease Y"), inventive step is assessed in relation to the disease to be treated.

5.45 On the other hand, claims of the type "Use of compound X characterised for the treatment of disease Y" correspond to therapeutic method claims and are therefore not considered inventions under Article 10(VIII) of the IPL.

Invention by alteration of elements

Overview

5.46 Inventions by alteration of elements include inventions that alter the relationships between elements, inventions that replace elements, and inventions that omit elements.

5.47 In determining the inventive step of an invention by alteration of elements, the following factors usually need to be considered: whether there is technical motivation for the alteration in the relationships between elements or for the substitution or omission of elements, and whether the technical effect would be expected.

Invention by altering relationships between elements

5.48 An invention by changing relationships between elements means that, when compared to the state of the art, for example, the shape, size, proportion, position, operational relationship, change in the order of steps in a method, or the like, has been changed.

5.49 If the change in the relationships between elements does not lead to a change in the effect, function or use of the invention, or a change in the effect, function or use of the invention can be expected, the invention does not involve an inventive step.

Example:

The prior art describes a measuring instrument containing a fixed display and a rotating crank, and the invention is a similar measuring instrument, but containing a fixed crank and a rotating display. The difference between the invention and the prior art lies only in the change in the relationship between the elements, i.e., the reversal between movement and immobility. This type of reversal does not produce any unexpected technical effect, and thus the invention does not involve an inventive step.

5.50 If the change in the relationships between elements produces an unexpected technical effect, the invention involves an inventive step.

Example:

The invention relates to a lawn mower characterised by the fact that the oblique angle of its blade is different from that of a traditional lawn mower, i.e., the oblique angle of the invention allows the blade to be sharpened automatically, whereas the angle of the blade in the prior art does not have this effect. The invention produces an unexpected technical effect by changing elements and thus exhibits an inventive step.

Invention by substitution of elements

5.51 An invention by substitution of elements refers to an invention that is obtained by replacing a certain element of a known product or process with another element.

5.52 The invention does not involve an inventive step when, in solving the same technical problem, a known element is replaced by another with a corresponding function to obtain predictable results, i.e., without any unexpected technical effect being observed.

Example 1:

The invention relates to a pump that differs from the prior art in that the motive power in the invention is provided by an electric motor instead of a hydraulic motor. In this case, the electric motor acts in a manner corresponding to the hydraulic motor and therefore achieves a predictable effect.

Example 2:

The invention relates to a car chassis made of aluminium, whereas the prior art uses steel for this chassis. In this case, the technical effect relating to weight reduction is predictable, as it is an inherent property of aluminium.

5.53 If the replacement of elements confers an unexpected technical effect, then the invention has inventive step.

Example:

The state of the art refers to a process containing steps A, B, C, and D, and the invention replaces step C with a functionally corresponding step, but which surprisingly improves the performance of the process.

Invention by omission of elements

5.54 An invention by omission of elements refers to an invention in which one or more elements of a known product or process are omitted. If, after the omission of one or more elements, the corresponding function disappears as a consequence, or if such omissions are obvious to a person skilled in the art, the invention does not involve an inventive step.

Example:

The invention of a paint composition differs from the prior art in that it does not comprise an antifreeze agent. If, as the only difference, the antifreeze effect of the paint composition is lost as a consequence of the omission of the antifreeze agent, the invention does not involve an inventive step.

5.55 If, in comparison to the state of the art, after the omission of one or more elements (whether elements of a product or steps in a process), which may be associated with a reformulation of the invention, and the technical effects are preserved or improved, then the invention may involve an inventive step.

Example:

The state of the art relates to a process for manufacturing an alloy used in an engine cylinder, where one of the steps in this process is the heat treatment of the alloy. An

invention dealing with a process for manufacturing an alloy to be used in an engine head alters the chemical composition of the alloy, making the heat treatment step unnecessary, and exhibits an inventive step, since the final result has been preserved.

Secondary factors to be considered in the examination of inventive step

Overview

5.56 The elements inferred in the previous sections constitute the main criterion for assessing the inventive step requirement. In many cases, however, they are not sufficient for a reliable conclusion about the presence of the requirement and, therefore, some indications of the inventive step may be considered. It should be noted, however, that such secondary indications are only important in cases of doubt, when an objective examination of the teachings of the prior art does not lead to a sufficiently clear conclusion.

Solution to a long-known and unsolved technical problem

5.57 When an invention solves a long-standing and unsolved technical problem, the invention may contain an inventive step.

Example:

The problem of permanently marking farm animals such as cattle without causing pain to the animals or damage to the animal's hide has existed since the beginning of animal husbandry. An inventor successfully solved this technical problem by a cold marking solution based on the discovery that hide can be permanently pigmented by freezing without causing pain to the animal. This solution may involve inventive step.

Overcoming a technical prejudice or barrier

5.58 Overcoming a technical prejudice or barrier, or proving that the invention took a path contrary to the knowledge consolidated by the state of the art, can strengthen a claim of inventive step.

Example:

It was generally believed that in an electric motor, the smoother the interface between the commutator and the brush, the better the contact and the lower the current consumption. The invention produces rough microgrooves on the surface of the commutator, and the current consumption

is even lower than with a smooth surface. Given that the solution overcomes technical prejudice, an inventive step may exist.

Achieving commercial success

5.59 When an invention achieves commercial success, such as technology licensing, if this success is directly related to the technical features of the invention, this may mean that the invention involves an inventive step. However, if the success is due to other factors, such as sales campaigns or advertising, this criterion should not be used as a basis for assessing an inventive step.

Obtaining awards

5.60 When an invention receives some kind of recognition for its technical merit, this may mean that the invention has inventive step.

Example:

Award or honourable mention at conferences.

The manner in which the invention is created

5.61 The way in which an invention is created, regardless of how difficult or easy it is, should not affect the assessment of the inventive step of the invention. Most inventions are the result of the creative work of the inventor and the result of scientific research and long-term work experience, although there are some inventions that are created accidentally.

Example:

Motor vehicle tyres have high mechanical strength and good abrasion resistance. This was achieved by a technician who mistakenly added 30% instead of 3% carbon when preparing materials for the production of black rubber. The facts show that rubber with 30% carbon has high abrasion resistance, which would not have been expected beforehand. Although the invention was created by accident, this should not be taken into account in the assessment of the inventive step.

Chapter VI Markush claims

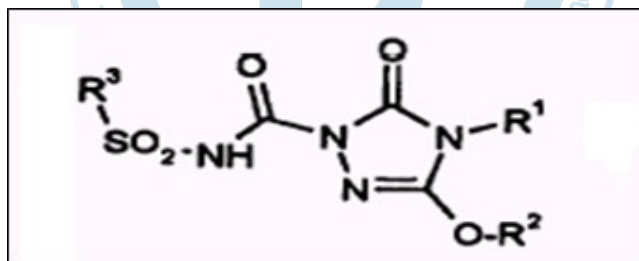
Introduction

6.1 Markush formulas are a way of describing and claiming various alternatives in patent applications. Although more common in the fields of chemistry and biotechnology, the presentation of alternatives for inventions in any technical field can be considered a Markush formula. The use of this feature dates back to a 1924 US patent by Eugene A. Markush, presenting alternatives within a dye manufacturing process.

6.2 The "Markush formula" is a generic expression for a class of chemical substances, conventionally used in patents, and consists of a basic chemical structure that is replaced by one or more variable substructures, which are accompanied by a list of definitions of these variable portions.

Example:

In the figure below, R¹ represents H, OH, amino; R² represents H or CH₃; and R³ represents a substituent radical from the group consisting of alkyl (between 1 and 6 carbons), phenyl and pyridine.



6.3 Thus, the term "Markush formula" has been used to designate any chemical structure containing a basic structure and one or more variable or optional chemical groups. For biological sequences, it is possible to delimit the base sequence of nucleotides or amino acids and the alternatives provided for in various positions.

6.4 A Markush formula allows the selection of a large number of substituents, which can bind to the molecule in different positions, as well as through different arrangements of the same. As a result, a multiplicity of compounds can be protected from a single representation structure.

Novelty

6.5 Any amendment not provided for in a Markush formula known from the prior art leads to a new compound, thus fulfilling the novelty requirement.

Example:

When you have an invention that describes a compound with a basic structure of a heterocyclic ring with a propyl substituent group, and the state of the art describes another compound with the same basic heterocyclic structure with a methyl substituent group in the same position; the propyl and methyl groups, despite belonging to the same chemical class - alkyl with 1 to 6 carbon atoms, do not destroy the novelty of the invention.

6.6 For different alternatives in the same independent claim, different prior art may be used to assess the novelty of the subject matter of the same claim, when each piece of prior art refers to different alternatives within the possibilities offered by the claim. Due to the numerous possibilities of compounds provided for in a Markush formula, the analysis of the claimed subject matter may indicate that one part of the compound is not novel, while another part is new. It should be noted that in the analysis of claims with alternatives, a prior art that reveals one of the alternatives is sufficient to destroy the novelty of the claim as a whole. However, reformulations of the claim may be accepted in order to exclude the subject matter found in the prior art.

Inventive step

6.7 When assessing the inventive step of a Markush formula, whether the inventive step is obvious or evident from the prior art must be verified. The compounds defined in the new Markush formula will have inventive step if, based on the knowledge contained in the prior art, a person skilled in the art would not be motivated to make the proposed structural amendments. In cases where the prior art presents subject matter that are very similar to that claimed, the claimed compounds will have inventive step if there is an unexpected technical effect resulting from their structural amendments.

Example:

A modification of a radical of a molecule existing in the prior art that results in the reduction or elimination of a side effect that one wishes to avoid in a medicine may indicate the existence of an unexpected technical effect.

6.8 In order to prove the technical effect revealed or inherent in the application as filed, it may be necessary to submit comparative tests between the effects caused by the claimed compounds and those of the prior art, in order to prove the presence of an unexpected technical effect.

Sufficiency of disclosure

6.9 The sufficiency of disclosure of a group of inventions represented by a Markush formula is only satisfied if it allows each invention in the group to be carried out by a person skilled in the art based on the specification, and not just some of the alternatives present in the claim. In the case of compounds defined in a Markush formula, it cannot be predicted or extrapolated that compounds with substituents belonging to different chemical classes can be obtained by the same preparation method, since the nature of the reactions is different. Thus, in order for all compounds in a Markush formula to be sufficiently described, the Specification must allow a person skilled in the art to carry out the invention without undue experimentation, based on a detailed description of the reactions and conditions involved in the preparation processes, including concrete examples of the preparation of at least one representative compound for each chemical class of the different substituents. Thus, the specification must provide clear examples of how different substituents provided for in Markush can be incorporated into the final product.

6.10 If the preparation of the compounds and, consequently, the compounds themselves with substituents belonging to different chemical classes are not sufficiently described in the Specification, it will not be possible for a person skilled in the art to reproduce them, which is contrary to the provisions of Article 24 of the IPL.

Example:

The specification refers to the alkyl substituent (C1 to C6) and the heterocyclic substituent in a certain position of the Markush formula. There may be doubt as to whether the compound containing heterocyclic radicals in the same position can be obtained by the same preparation process. Therefore, this group of heterocyclic substituents - for which no examples of preparation were given - does not provide sufficiency of disclosure, since it cannot be assumed that the same preparation method for the chemical classes described can be applied to those whose

preparation is not described - examples of preparation have been given - is not sufficiently descriptive, since it cannot be assumed that the same method of preparation of the chemical classes described can be applied to those whose preparation has not been described. Therefore, when the examples of preparation in the Specification do not cover all the chemical classes of the claimed compounds, the examiner shall raise an objection in accordance with the provisions of Article 24 of the IPL.

Substantiation, clarity and precision of claims

6.11 All possible substitutes claimed in the compounds must be substantiated in the Specification and defined clearly and precisely.

6.12 An application that presents compound X in the specification and compound Y in the set of claims, not mentioned in the specification, lacks justification in accordance with the provisions of Article 25 of the IPL. In such cases, the inclusion of compound Y in the specification is unlikely to provide sufficiency of disclosure for the application, and is therefore not in accordance with Article 24 of the IPL, even though it meets the substantiation criterion set out in Article 25 of the IPL.

6.13 Terms that lead to uncertainty regarding the subject matter to be protected should be better defined, as far as possible, during the examination process.

Examples:

“Carbocyclic aryl”, “heterocyclic aryl”, “biaryl”, “lower alkyl”, “cycloalkyl”, and “substituted” are some expressions that lead to ambiguity and imprecision in Markush compound claims.

6.14 When substituents are presented in this way, important features such as chain length, number and nature of heteroatoms, and presence or absence of branches are not defined; they only indicate the chemical group to which the compounds belong.

Chapter VII

Compositions

Introduction

7.1 A composition is a mixture of chemical and/or biological elements or components, which must be sufficiently clear so as not to allow ambiguities.

Example:

Detergent composition characterised by containing elements A, B and C.

7.2 It must be verified, according to the Specification, which features must be present in the composition claim(s) in question, in order to precisely define the claim.

7.3 On the other hand, a composition claim defined by a single component and without quantitative limitations is equivalent to a claim for the component itself, insofar as it includes the possibility that the "composition" contains 100% of that component. This means that a composition can be characterised perfectly well by the presence of a single ingredient, provided that this is what has been developed and that there are elements of text in the claim that determine that it is indeed a composition. In other cases, the composition will require more precise details for its definition.

Novelty

7.4 Compositions not included in the state of the art are considered new. A composition comprising component(s) already known in the state of the art will be considered new if it presents a new component in the composition or a new ratio between the components that differentiates it from the state of the art.

7.5 The effect, use, form of administration/application or physical form *per se* do not confer novelty on a composition already known in the prior art. However, these elements may be accepted in the wording of the claims to confer clarity and precision on the subject matter claimed.

Example:

A "pharmaceutical composition characterised by containing X and Y" does not present novelty in relation to a prior art document dealing with a detergent composition characterised by containing X and Y.

7.6 In the case of applications for new chemical and/or biological products containing a composition claim, the novelty and inventive step of the product(s) are considered to extend to the composition containing them.

Clarity and precision: Need for qualitative/quantitative definitions

7.7 Qualitative or qualitative/quantitative definitions must be present in the claim to better define the composition of interest. A greater or lesser degree of precision may be required, where appropriate, to give greater clarity and precision to the claim.

For example, for a cosmetic composition in which the invention consists of adding a colouring agent, regardless of whether it is known in the prior art, the following situations arise:

Situation 1: the Specification shows that the invention actually lies in the use of dye in cosmetic compositions, and the state of the art reveals that such addition was not known. In this case, an acceptable claim would be:

"Cosmetic composition characterised by comprising a colouring agent associated with one or more cosmetically active ingredients."

Situation 2: the Specification shows that the invention actually lies in the use of the dye and can be applied to any cosmetic composition. However, it appears that either the invention does not apply to any dye (or class of dyes) or the state of the art reveals that such an addition is already known for certain dyes (or class of dyes). In this case, the acceptable claim should be:

"Cosmetic composition characterised by comprising such and such dyes (or class of dyes) associated with one or more cosmetically active ingredients (or other text implying the existence of more than one component)".

Situation 3: the Specification shows that the invention actually lies in the use of the dye and can be applied to any cosmetic composition. However, it appears that the

The invention applies only to a certain concentration range of the dye. In this case, the acceptable claim should be:

"Cosmetic composition characterised by comprising from x% to y% of a dye associated with one or more cosmetically active ingredients (or other text implying the existence of more than one component)."

Situation 4: the Specification shows that the invention actually lies in the use of the dye, but that the development was directed towards a specific cosmetic composition with well-defined active and non-active elements (even at class level), including their concentration ranges. In this case, the claim must contain all these elements defined (qualitatively and quantitatively) in accordance with what the examiner deems sufficient for the clarity and precision of the claim.

Types of Composition

Compositions defined exclusively by their use, form of administration or mechanism of action

7.8 Independent claims for compositions defined exclusively by their use, form of administration or mechanism of action are not precise, causing an indefiniteness as to the subject matter protected, and must be rejected in accordance with the provisions of Article 25 of the IPL.

7.9 Claims not eligible for protection:

Example 1:

Veterinary composition defined solely by its intramuscular administration (the composition defined solely by its form of application).

Example 2:

Composition defined exclusively by its use in treating asthma (composition defined exclusively by its therapeutic application).

Example 3:

Composition defined solely by being a serotonin reuptake inhibitor (the composition defined solely by its mechanism of action).

Example 4:

Pesticidal composition defined solely by being for application to soybean and cotton crops (the composition defined solely by its application).

7.10 However, if an independent claim properly defines its components/constituents, dependent claims establishing the use, form of administration or mechanism of action of a composition are eligible for protection.

Kit including Compositions

7.11 In such sets (kits), components or groups of components are physically separated, being packaged together or separately.

Example 1:

Kit comprising a vaginal cream and an applicator.

Example 2:

Kit comprising a composition for the treatment of asthma and a nebuliser.

Example 3:

Flu treatment kit comprising one tablet with a decongestant function and another with an antipyretic function.

Example 4:

Kit comprising amoxicillin powder for reconstitution and an ampoule of liquid for injection.

Example 5:

Adhesive kit comprising a composition with an adhesive function and another with a hardening function.

7.12 It is important to note how the kit claim is defined: if the groups of components in the kit are defined, even if it is mentioned that they may be packaged together or separately, the claim is eligible for protection.

Compositions characterised by their physical form and/or method of application

7.13 A composition may be claimed by: its physical form (e.g., plaster, lozenge, gel, aerosol, granules, pill, tablet, solution, and suppository); and/or its form of application (e.g., intravenous, subcutaneous, and sublingual). In such cases, in addition to defining the components of the composition itself, it is essential that the claim text include the constructional features (e.g., shape, thickness, particle size, and type of product coating).

7.14 A claim for "Composition characterised by being in pill form", defined exclusively by its physical form, must be rejected, since it does not precisely define the protected object. Note that, in this case, the claim would lack clarity, since the protection would cover any and all compositions in pill form. However, if the composition is defined in a specific and detailed manner with regard to its constituents, this claim formulation could be accepted.

Example:

Composition consisting of X, Y and Z characterised by being in pill form.

7.15 All of the above considerations regarding other compositions apply here.

Combination of active ingredients

Overview

7.16 A combination is the association of two or more active ingredients in the form of a product. The combination may be contained in a single form or in separate forms for simultaneous administration.

7.17 With regard to the novelty requirement for a combination, the same observations made for compositions in general apply.

7.1 A combination is considered to contain an inventive step when, for a person skilled in the art, it is not obvious or evident from the state of the art. In this case, one must observe whether the interaction between the active substances associated in the combination produces an unexpected technical effect, different from that expected. For example, a synergistic or supra-additive effect, in which it does not correspond to the mere sum of the individual effects of each active substance that makes up the association (additive effect), reduction of undesirable effects, among others.

7.18 However, the existence of a synergistic effect does not necessarily confer an inventive step on the invention, as it could already be predicted for a certain class of compounds.

Synergistic effect (or supra-additive effect)

7.19 The synergistic effect is a response obtained from the combination of two or more active ingredients, the result of which is greater than that presented by the simple sum of the effects when considered individually.

Example of Claim - Chimeric promoter consisting of the fusion of promoter A and promoter B:

The application describes a chimeric promoter consisting of the fusion of two promoters already known in the prior art. The results presented demonstrate that the expression of a gene X controlled by the chimeric promoter was higher than the expression of gene X controlled by the promoters alone or in combination.

7.20 Compositions involving components with a synergistic effect may be characterised only qualitatively (without specifying the quantities of each component), provided that:

- (i) the combination of products already known for the same application in any proportions has not been predicted in the prior art;
- (ii) the synergistic effect is clearly demonstrated; and
- (iii) the synergistic effect can be observed in any proportions of the products involved.

Example of Claim - Synergistic composition characterised by containing compound A + compound B:

The application describes a herbicidal composition consisting of compounds A and B for use in controlling weeds in cereal crops. Both compounds are already known in the prior art, but not in combination. The results of the composition were presented for various concentrations of the two compounds and clearly demonstrate the synergistic effect, as it was superior to the herbicidal action of the two compounds alone or in combination.

7.21 Therefore, if any of the conditions defined above are not met, the claims must be defined quantitatively, clearly specifying the desired proportions of the components present, limited to those supported in the Specification. Comparative data relating to the effect of the components individually and in combination must be presented, and all tests relating to the comparative data must be carried out under the same conditions.

7.22 In cases where the state of the art already includes compositions containing the components of interest, even if no synergistic effect has been observed/described

between them, or if there is evidence of incompatibility between these components in the broad concentration range claimed, the claims must be defined qualitatively and quantitatively, clearly specifying the desired proportions of the components present, limited to those supported in the Specification, provided that there is an unexpected technical effect.

