COMPARATIVE STUDY REPORT

ON

INVENTIVE STEP

(JPO - KIPO - SIPO)

CONTENTS

COMPARISON OUTLINE

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I. Determining inventive step			
A. Judicial, legislative or administrative criteria or guidelines for determining inventive step			
1. Legislation	o Article 29(2) of the Patent Act	o Article 29(2) of the Patent Act	o Article 22,Paragraph 3 of the Patent Law
2. Guidelines	o Examination Guidelines Part II. Chapter 2. “Novelty and Inventive Step” 2.Inventive step(Nonobviousness)	o Examination Guidelines Part III. Chapter 2. “Novelty” and Chapter 3. “Inventive Step” o Examination Guidelines Part IV. Chapter 1. “Patent Application” Chapter 2. “Amendments” o Examination Guidelines of Organic Compound fields. Section 3. “General Matters” Section 6. “Patentability” o Examination Guidelines of Inorganic Compound fields. Section 5.3 “Inventive Step” o Examination Guidelines of medical fields. Section 4.4 “Inventive Step”	o Guidelines for Patent Examination Part II Chapter 4. ”Inventive step”, Part II Chapter 10, Section 6. ”Inventive step of Chemical Invention”, Section 9.4.2. ”Inventive step”, Part III Chapter 2, Section 5.4 ”Examination of Novelty and Inventive Step”, Part IV Chapter 6, Section 4 ”Examination of Inventive Step for Utility Model”.
3. Background and purpose of the provision relating to inventive step	o The purport of the provision of Patent Act Article 29(2) is not to grant a patent to such inventions that were easily made by a person skilled in the art, since granting a patent to	o The purport of the provision of Patent Act Article 29(2) is not to grant a patent to inventions that would have been easily made by a person skilled in the art because granting a patent to	o There is no expatiation in Guidelines for Patent Examination of background and purpose of the provision relating to inventive step. Generally, an invention or utility model which has slight

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	such inventions does not contribute to and even hampers the progress of technology. (Examination Guidelines Part II. Chapter 2. Section 2.1)	such inventions is against the objectives of the patent system to contribute the development of industry and even hampers the technical progress. (Examination Guidelines Part III. Chapter 3. Section 2.)	change comparing with prior art and a person skilled in the art can obtain it readily, and also produces no unexpected technical effect, shall not be granted patent right, even if it posses novelty. If such invention or utility model be granted patent right, the patent certainly will be in excess, causing improper restriction to the public using known techniques. Therefore, any invention or utility model for which patent right may be granted must possess inventiveness besides novelty and practical app1icability according to Patent Law.
B. Claim interpretation criteria	o The scope of claims shall state a claim or claims and state for each claim all matters necessary to specify the invention for which the applicant requests the grant of a patent. In such case, an invention specified by a statement in one claim may be the same invention specified by a statement in another claim. (Article 36(5) of the Patent Act) o The determination of a claimed invention should be made on the basis of the statements of the claim. Matters stated in the claim defining the claimed invention should be construed in the light of the description in the specification, the drawings and the common general knowledge as of the filing.	o The scope of claims shall describe the matter for which protection is sought in one or more claims (Article 42(4) of the Patent Act). Thus, the assessment of Novelty and Inventive Step on an invention is based on the subject matters described in the claims. o The general principle of specifying inventions are as follows: (1) When the claim statements are clear, specifying the claimed invention should be made as stated in the claim. The terminology described in the claims is interpreted as having a general meaning and scope generally accepted in the technical field with the	o The extent of protection of the patent right for invention or utility model shall be determined by the terms of the claims. The description and the appended drawings may be used to interpret the claims. (Article 59.1 of the Patent Law) o The claims shall be supported by the description and shall define the extent of the patent protection sought for in a clear and concise manner. (Article 26.4 of the Patent Law)

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	The method of determining a claimed invention is as follows. (1) When the claim statements are clear, the determination of the claimed invention should be made just as stated in the claim. Terms or language in such a claim should be construed as what they normally mean. (2) Even though the claim statements are clear, however, when terms used in the claim are defined or explained in the specification or the drawings, the definition or explanation should be considered when construing the terms. (3) If the claimed invention is not clear, even by referring to the description in the specification, the drawings and the common general knowledge as of the filing, the determination of the claimed invention should not be conducted. (4) In the case where there is inconsistency between an invention found in the claim and an invention described in the specification and the drawings, the determination and examination of an invention should not be made solely on the basis of the description in the specification and the drawings, disregarding the statements of the claim. Even though they are described in the specification or the drawings, matters, not stated in	exception of the case wherein the terminology has a specific meaning which explicitly defined in the description. (2)In the case where the description of claims is clearly understood, an examiner should avoid limited interpretation just by referencing detailed description of the invention or drawings in finding technical features of the invention. (3) In the case where a term disclosed in the claims is obscure and unclear, an examiner should examine whether the subject matter of invention can be comprehended in view of the detailed description, drawings, and common general knowledge as of the time of filing. (4) If a claimed invention is not clear, even in view of the detailed description in the specification, the drawings and the common general knowledge as of the time of filing, the assessment of novelty (or inventive step) is not conducted. (Examination Guidelines Part III. Chapter 2. “Specifying the invention disclosed in claims” Section 4.1)	

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	the claim, should not be treated as they do exist in the claim when the determination of the claimed invention should be made. On the other hand, matters stated in the claim should be always considered and should not be treated as they do not exist in the claim. (Examination Guidelines Part II. Chapter 2. "1.Novelty" Section 1.5.1)		
1. Application of prior art to a claim with a preamble stating features necessary for definition of claimed subject matter followed by a characterizing portion stating those technical features to be protected	o See I. B. above.	o Even in the case of Jepson type claim, which consists of the preamble and the body, an invention should be construed as a whole including the preamble because the type of claims does not change the technical scope. (Examination Guidelines Part III. Chapter 2. "Principle of specifying invention which includes special expression" Section 4.1.2(4))	o An independent claim of an invention or utility model shall contain a preamble portion and a characterizing portion, and be presented in the following form: (1)a preamble portion: indicating the title of the subject matter of the technical solution of the invention or utility model, and those technical features which are necessary for definition of the claimed subject matter but which, in combination, are part of the most related prior art; (2) a characterizing portion: stating, in such words as "characterized in that…" or in similar expressions, the technical features of the invention or utility model, which distinguish it from the most related prior art. Those features in combination with the features stated in the preamble portion, serve to define the extent of protection of the invention or utility model.

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			o Where the manner specified in the preceding paragraphs is not appropriate to be followed because of the nature of the invention or utility model, an independent claim may be presented in a different manner. (Rule 21.1 of the Implementing Regulations) o In the preamble portion of an independent claim, in addition to the title of the claimed subject matter of the technical solution of the invention or utility model, only those essential technical features which are closely related to the technical solution of the invention or utility model and in common with the prior art need to be stated. (Guidelines for Patent Examination Part II Chapter 2. Section 3.3.1)
2. Determination of claimed scope and content	o See I. B. above.	o See I. B. above.	o In the determination of the extent of protection for a claim, generally all the features in the claim shall be taken into account; however, the actual definitive effect of each feature shall finally be reflected on the subject matter of the claim. For example, where one or more technical features of a product claim cannot be clearly defined by either features of structure or features of parameter, it is allowed to define the technical features by virtue of features of process. However, the subject matter of the product claim

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			defined by the features of process is still the product, and the actual definitive effect of the features of process depends on what impact they may impose on the claimed product per se. o For a product claim the subject matter title of which contains definition by use, the definition by use shall be taken into account in determining the extent of patent protection of the product claim. However, the actual definitive effect of the use definition shall depend on the impact it imposes on the claimed product per se. (Guidelines for Patent Examination Part II Chapter 2. Section 3.1.1) o In the determination of extent of protection for such an independent claim containing reference to another claim, all the features of the claim referred to shall be taken into account, and their actual definitive effect shall depend on what final impact they may impose on the claimed subject matter of the independent claim. (Guidelines for Patent Examination Part II Chapter 2. Section 3.1.2) o The extent of protection as defined by each claim shall be clear. The extent of protection of a claim shall be construed according to the meaning of the words used in the claim.

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			Generally, the words used in a claim shall be understood as having the meaning which they normally have in the relevant art. In particular cases, where the description explicitly gives a certain word a special meaning and, by virtue of the definition to the word in the description, the extent of protection of the claim using the word is defined sufficiently clearly, such a case is also allowed. However, in this case the examiner should also invite the applicant to amend as far as possible the claim whereby the meaning is clear from the wording of the claim alone. (Guidelines for Patent Examination Part II Chapter 2. Section 3.2.2) o Technical feature defined by function in a claim shall be construed as embracing all the means which are capable of performing the function. (Guidelines for Patent Examination Part II Chapter 2. Section 3.2.1) o If the person skilled in the art can reasonably predict that all the equivalents or obvious variants of the embodiments set forth in the description have the same properties or uses, then the applicant shall be allowed to generalize the protection scope of the claim to cover all the equivalents or obvious variants. (Guidelines for Patent Examination

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			Part II Chapter 2. Section 3.2.1) o Usually, an open claim should use the transition phrase of “containing”, “including”, or “consisting essentially of …”, which shall be interpreted as including additional components or process steps non-recited in the claim is permitted. A closed claim should use the transition phrase of “consisting of …”, which shall normally be interpreted as not including any component or process step other than those set forth in the claim. (Guidelines for Patent Examination Part II Chapter 2. Section 3.3) o There are two modes of presentation for the claim of a composition: open-ended and close-ended. The open-ended mode means that the composition does not exclude those components that are not mentioned in the claim. The close-ended mode means that any of the other components that are not mentioned in the claim shall be excluded. (Guidelines for Patent Examination Part II Chapter 10. Section 4.2.1)
3. Dependent claim interpretation	o Claims are classified into independent form claims and dependent form claims. Independent form claims are those defined without referring to	o When there are two or more claims in an application, the assessment should be made for each claim (regardless of type of claims).	o The dependent claim shall, by additional technical features, further define the claim which it refers to.

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	other claims, while dependent form claims are those which refer to other preceding claims. The two types of claims differ only in the form of description, and are treated in the same manner. (Examination Guidelines Part I. Chapter 1. "Description Requirements of the Specification" Section 2.2.4, Article 36(6)(iv) of the Patent Act)	(Examination Guidelines Part III. Chapter 3. Section 4.(2)) o If an independent claim involves an inventive step, its dependent claim is deemed to have an inventive step as well. On the contrary, if an independent claim does not have an inventive step, the assessment of an inventive step should be made for each dependent claim. (Examination Guidelines Part III. Chapter 3. Section 9.(3))	(Rule 20.3 of the Implementing Regulations) o Where one claim contains all the technical features of another claim of the same kind, and further defines the technical solution of the latter, it is a dependent claim. Since the dependent claim further defines the claim on which it depends with additional technical features, its scope of protection falls within that of the claim on which it depends. An additional technical feature of a dependent claim may be a feature that further defines the technical features of the claim on which it depends, or a feature newly introduced. o Under some circumstances, a claim appearing in the form of dependent claim (i.e., including a reference portion as of a dependent claim) is not necessarily a dependent claim in substance. (Guidelines for Patent Examination Part II Chapter 2. Section 3.1.2)
C. Basic approach applied in assessing inventive step e.g. test for non-obviousness, avoidance of ex post facto reasoning, and considering what the skilled man would have done starting from a given problem	o Whether or not a claimed invention involves an inventive step is determined whether the reasoning that a person skilled in the art could have easily arrived at the claimed invention based on cited inventions can be made by constantly considering	o An inventive step is decided as to whether "an invention described in the claims" as filed would have been easily made by a person skilled in the art based on an invention(s) defined in Article 29 paragraph(1) of the Patent Act, prior to the filing of the patent	o Inventiveness means that, as compared with the prior art, the invention has prominent substantive features and represents a notable progress, and that the utility model has substantive features and represents progress.

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	what a person skilled in the art would do after precisely comprehending the state of the art in the field to which the present invention pertains at the time of the filing. o After determining what is described in a claimed invention and one or more cited inventions, one cited invention most suitable for the reasoning is selected. And comparison of the claimed invention with a cited invention is made, and the identicalness and the difference in matters defining the inventions are clarified. Then, the reasoning for lacking an inventive step of the claimed invention is attempted on the basis of contents of the selected invention above, other cited inventions (including well-known or commonly used art) and the common general knowledge. The reasoning can be made from various and extensive aspects. For example, the examiner evaluates whether the claimed invention falls under a selection of an optimal material, a workshop modification of design, a mere juxtaposition of features on the basis of a cited inventions, or whether the contents of cited inventions disclose a cause or a motivation for a person skilled in the art to arrive at the claimed invention. If advantageous effects of the claimed invention over a cited	application (referred to as “cited prior art(s)). o Assessment of the inventive step shall be done by focusing on (a) whether the cited prior art provides any motivation to a person skilled in the art to arrive at the claimed invention or (b) whether the difference(s) between the prior art and the claimed invention can be considered as an exercise of ordinary creativity, in consideration of (c) whether the claimed invention has any advantageous effects over the cited prior art. o The procedures of assessing the inventive step are as follows: (1) Specify the claimed invention (2) Specify the cited invention(s) (3) Select the cited invention which is the closest to the claimed invention and make a clear difference by comparing the closest cited invention with the claimed invention (4) Assess whether an invention described in the claims would have been easily made by a person skilled in the art, in view of cited inventions and the common general knowledge before the filing as for the difference between the claimed invention and the cited invention(s). O Grounds for assessing the inventive step are as follows:	(Article 22,Paragraph 3 of the Patent Law) o When evaluating whether or not an invention involves an inventive step, the examiner shall consider not only the technical solution itself, but also the technical field to which the invention pertains, the technical problem solved, and the technical effects produced by the invention. The invention shall be considered as a whole. (Guidelines for Patent Examination Part II Chapter 4. Section 3.1) o That an invention has prominent substantive features means that, having regard to the prior art, it is non-obvious to a person skilled in the art. If the person skilled in the art can obtain the invention just by logical analysis, inference or limited experimentation on the basis of the prior art, the invention is obvious and therefore has no prominent substantive features. (Guidelines for Patent Examination Part II Chapter 4. Section 2.2) o To determine whether an invention has prominent substantive features is to determine, to the person skilled in the art, whether the claimed invention is non-obvious as compared with the prior art. If the claimed

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	invention can be clearly found in the description in the specification, etc., it is taken into consideration as facts to support to affirmatively infer the involvement of an inventive step. When the reasoning can be made as a result of the above method, the claimed invention should be denied its inventive step. When the reasoning cannot be made, the claimed invention should not be denied its involvement of an inventive step. o The reasoning can be made from various and extensive aspects. Examples are as follows. (1) Selection of an optimal material, workshop modification of design, mere juxtaposition of features ① Selection of an optimal material, workshop modification of design, etc. Among exercises of ordinary creativity of a person skilled in the art are a selection of an optimal material from publicly known materials which achieve a specific object, an optimization of a numerical value range, a replacement with equivalents, and a workshop modification of design in applying specific technology. When the difference of the claimed invention in comparison falls only under these	(1) Probable cause or motivation including ① Suggestions shown in the disclosures of the cited inventions, Suggestions shown in the disclosures of the cited inventions relevant to a claimed invention can be significant grounds for assessing that a person skilled in the art would have been led to the claimed invention ② Common problem to be solved, A common problem to be solved can be a significant ground for assessing that a person skilled in the art would have been led to the claimed invention by applying or combining cited inventions. ③ Common function or operation, A common function or operation between a claimed invention and a cited is well-founded ground that a person skilled in the art would have arrived at the claimed invention. ④ Close relation of technical field The notion that there exists a publicly known technical means in the relevant technical field to the claimed invention for solving the technical problem	invention is obvious as compared with the prior art, it does not have prominent substantive features. On the contrary, if the result of comparison shows that the claimed invention is non-obvious as compared with the prior art, it has prominent substantive features. (Guidelines for Patent Examination Part II Chapter 4. Section 3.2.1) o Usually the following three steps are followed to determine whether a claimed invention is obvious as compared with the prior art. (1) Determining the closest prior art. The closest prior art refers to a technical solution in the prior art that is the most closely related to the claimed invention, which shall be the basis for determining whether or not the claimed invention has prominent substantive features. The closest prior art may, for example, be an existing technology in the same technical field as the claimed invention, and its technical problem to be solved, technical effects or intended use are the closest to the claimed invention, and/or has disclosed the greatest number of technical features of the claimed invention; or be an existing technology which, despite being in a different technical field from the claimed invention, is capable of performing the function of the invention and has disclosed the

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	categories, it is usually considered that a person skilled in the art could have easily arrived at it, unless otherwise there is another ground for inferring inventive step. ② Mere juxtaposition of features If matters defining an invention are not linked each other functionally or operationally and the invention is a combination of each matter (mere juxtaposition of features), the invention is deemed as a mere exercise of ordinary creativity of a person skilled in the art, unless otherwise there is another ground for inferring inventive step. (2) Probable cause or motivation ① Relation of technical fields An attempt to apply a technical means in a related technical field in order to solve a problem is a mere exercise of ordinary creativity of a person skilled in the art. A replaceable or add-able means in a related technical field, for example, can be a strong ground for the reasoning that a person skilled in the art would have been led to a claimed invention. ② Similarity of a problem to be solved	set out in the claimed invention. (2) Mere exercise of ordinary creativity of a person skilled in the art including ① Selection of an optical material among the publicly known materials to achieve a specific goal, In the case of selecting optimized conditions by experiments from publicly known technology, the inventive step of the claimed invention cannot be acknowledged. ② Optimization of a numerical value range, Selecting an optical numerical range by experiments from the publicly known art is normally considered as an exercise of ordinary creativity of a person skilled in the art, and hence the inventive step is generally denied. ③ Replacing with equivalents, Replacing a part of an invention with a publicly known art, which is capable of carrying out the same function and interchangeable, is not considered involving an inventive step because it falls within the scope of ordinary creativity of a person skilled in the art, unless the replacement has an	greatest number of technical features of the invention. It should be noted that, when determining the closest prior art, account shall be first taken of the prior art in the same or similar technical fields. (2) Determining the distinguishing features of the invention and the technical problem actually solved by the invention. During examination, the examiner shall objectively analyze and determine the technical problem actually solved by the invention. For this purpose, the examiner shall first determine the distinguishing features of the claimed invention as compared with the closest prior art and then determine the technical problem that is actually solved by the invention on the basis of the technical effect of the distinguishing features. The technical problem actually solved by the invention, in this sense, means the technical task in improving the closest prior art to achieve a better technical effect. In the course of examination, because the closest prior art identified by the examiner may be different from that asserted by the applicant in the description, the technical problem actually solved by the invention, which is redetermined on the basis of the closest prior art, may not be the same as that described in the description. Under such circumstance, the technical

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	A close similarity of a problem to be solved can be a strong ground for the reasoning that a person skilled in the art would be led to a claimed invention by applying or combining cited inventions. When a cited invention does not intend a similar problem to be solved to that of a claimed invention, further examination based on the state of the art should be conducted whether a problem to be solved is obvious or whether it would have been easily conceived. Even based on a problem to be solved of a cited invention which is different from that of a claimed invention, the inventive step of the claimed invention can be denied regardless of the difference in problems, if the reasoning can properly be made that a person skilled in the art could have easily arrived at the matters defining the claimed invention in a different way of thinking from the problem-solution of the claimed invention. This also applies to inventions wherein any problem to be solved cannot be identified, for example, inventions based on a discovery by trial and error. ③ Similarity of function, work or operation If a close similarity in function, work or operation	unforeseeable advantage. ④ Mere modification of design in applying a specific technology, When an invention is merely drawn by applying normal design procedures maintaining the technical concept of the prior art and is not considered to have an effect unforeseen in the prior art, the inventive step of the invention cannot be acknowledged. ⑤ Partial removal of technical features, The claimed invention is not considered to involve an inventive step when the removal of a function or an effect as a result of omission of some constitutes disclosed in the prior art is obvious to a person skilled in the art. However, considering the state of art, the inventive step can be acknowledged when the omission of some constitutes does not affect the function of the invention or rather enhance the function. ⑥ Mere change and limitation of use, Mere change in the use of a known invention or a further limitation of such use is not considered to involve an inventive step. In other words, the claimed invention, which is distinguished	problem actually solved by the invention shall be redetermined on the basis of the closest prior art identified by the examiner. The redetermined technical problem may depend on the particular situations of each invention. As a principle, any technical effect of an invention may be used as the basis to redetermine the technical problem, as long as the technical effect could be recognized by a person skilled in the art from the contents set forth in the description. (3) Determining whether or not the claimed invention is obvious to a person skilled in the art. At this step, the examiner shall make a judgment, starting from the closest prior art and the technical problem actually solved by the invention, as to whether or not the claimed invention is obvious to a person skilled in the art. In the course of judgment, what is to be determined is whether or not there exists such a technical motivation in the prior art as to apply the said distinguishing features to the closest prior art in solving the existing technical problem (that is, the technical problem actually solved by the invention), where such motivation would prompt a person skilled in the art, when confronted with the technical problem, to improve the closest prior art and thus reach the claimed invention. If there exists such a technical motivation in the prior art, the

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	exists between a claimed invention and a cited invention or between cited inventions, there can be a well-founded reasoning that a person skilled in the art would have been led to the claimed invention by applying and combining the cited inventions. ④ Suggestions shown in the cited inventions Suggestions shown in the contents of cited inventions relevant to a claimed invention can be a strong ground for the reasoning that a person skilled in the art would have been led to the claimed invention. (3) Advantageous effects If an advantageous effect compared to cited inventions can clearly be identified from descriptions in the specification and the drawings, it should be taken into consideration as a fact to support to affirmatively infer its inventive step. An advantageous effect compared to cited inventions means an effect which is advantageous in comparison with an effect of a cited invention, among the effects derived from the matters defining a claimed invention. (Examination Guidelines Part II. Chapter 2. Section 2.4, 2.5)	from the prior art only in a modification of its use or further extension of its use without exhibiting any advantage, is not considered to involve an inventive step. ⑦ General application of known art The claimed invention, which merely consists of a known technique in a closely analogous situation in order to solve a problem posed by the prior art with readily foreseeable effect, lacks an inventive step. However, the claimed invention is considered to involve an inventive step when the application of the known technique leads to unexpected advantageous effects in combination with other components in comparison with the prior art. o Advantageous effect to be considered In an effect derived from matters defining a claimed invention is advantageous in comparison with an effect of a cited invention, it is taken into consideration as a fact to affirmatively support its inventive step. (Examination Guidelines Part III. Chapter 3. Sections 4-6)	invention is obvious and thus fails to have prominent substantive features. Guidelines for Patent Examination Part II Chapter 4. Section 3.2.1.1) o When evaluating whether or not an invention represents notable progress, the examiner shall primarily consider whether or not the invention produces advantageous technical effects. Usually, an invention shall be regarded as producing advantageous technical effects and therefore representing notable progress in any of the following circumstances: (1) where, as compared with the prior art, the invention produces a better technical effect, such as quality improved, output increased, energy saving, and environmental pollution prevented or controlled; (2) where the technical solution provided by the invention is of a different inventive concept and can produce a technical effect of substantially the same level as in the prior art; (3) where the invention represents a new trend of technical development; or (4) where, despite negative effect in some respect, the invention produces outstanding positive technical effects in other respects. (Guidelines for Patent Examination

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			Part II Chapter 4. Section 3.2.2)
D. Criteria for determining the ability to apply prior art from non-analogous technical fields	o Whether or not a claimed invention involves an inventive step is determined whether the reasoning that a person skilled in the art could have easily arrived at the claimed invention based on cited inventions can be made by constantly considering what a person skilled in the art would do after precisely comprehending the state of the art in the field to which the present invention pertains at the time of the filing. o The reasoning can be made from various and extensive aspects. o A close similarity of a problem to be solved can be a strong ground for the reasoning that a person skilled in the art would be led to a claimed invention by applying or combining cited inventions. When a cited invention does not intend a similar problem to be solved to that of a claimed invention, further examination based on the state of the art should be conducted whether a problem to be solved is obvious or whether it would have been easily conceived.	o A cited invention, which is the object of comparison with a claimed invention in assessing an inventive step, shall be, in principle, selected from the same technical field as the claimed invention or from a reasonably relevant technical field to the problem, effect and use of the claimed invention. The same technical field shall refer to, in principle, the industrial field where the invention is applied, but shall also refer to the technical field that can be inferred from the effects or functions of some (or all) elements of the claimed invention. o Even if the prior art is in a different technical field from a claimed invention, it can be recognized as a cited invention in the case that the prior art might be applied to other technical fields or used by the applicant in the process of solving a specific technical problem. o When a claimed invention is compared to the prior art which belongs to a different technical	o If the technical problem to be solved impels that person to seek technical means in other technical field, he should also be presumed to have access to the relevant prior art, common technical knowledge, and routine experimental measures in the other technical field before the filing date or the priority date. (Guidelines for Patent Examination Part II Chapter 4. Section 2.4) o The closest prior art may, for example, be an existing technology in the same technical field as the claimed invention, and its technical problem to be solved, technical effects or intended use are the closest to the claimed invention, and/or has disclosed the greatest number of technical features of the claimed invention; or be an existing technology which, despite being in a different technical field from the claimed invention, is capable of performing the function of the invention and has disclosed the greatest number of technical features of the invention.

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	o If a close similarity in function, work or operation exists between a claimed invention and a cited invention or between cited inventions, there can be a well-founded reasoning that a person skilled in the art would have been led to the claimed invention by applying and combining the cited inventions. o Suggestions shown in the contents of cited inventions relevant to a claimed invention can be a strong ground for the reasoning that a person skilled in the art would have been led to the claimed invention. (Examination Guidelines Part II. Chapter 2. Section 2.4)	field from the claimed invention, examiners should take into account the eligibility of citation including the relevance of two technical fields, the close similarity of a problem to be solved, and the close similarity of a function or operation. (Examination Guidelines Part III. Chapter 3. Section 5.2(1))	(Guidelines for Patent Examination Part II Chapter 4. Section 3.2.1.1) For an invention, the examiner shall consider not only the technical field to which the invention belongs, but also the proximate or relevant technical fields, and those other technical fields in which the problem to be solved by the invention would prompt a person skilled in the art to look for technical means. For a utility model, the examiner will normally focus on the technical field to which the utility model belongs. Where there is a clear technical teaching, for example, where there is an explicit description in the prior art, to prompt a person skilled in the art to look for technical means in a proximate or relevant technical field, the proximate or relevant technical field may be considered. (Guidelines for Patent Examination Part IV Chapter 6. Section 4)
E. Criteria for determining the differences between the prior art and the claims			
1. Combinations of prior art			

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a. Requirements, if any, of a teaching or suggestion to combine features	o Selection of an optimal material, workshop modification of design, etc. Among exercises of ordinary creativity of a person skilled in the art are a selection of an optimal material from publicly known materials which achieve a specific object, an optimization of a numerical value range, a replacement with equivalents, and a workshop modification of design in applying specific technology. When the difference of the claimed invention in comparison falls only under these categories, it is usually considered that a person skilled in the art could have easily arrived at it, unless otherwise there is another ground for inferring inventive step. o Mere juxtaposition of features If matters defining an invention are not linked each other functionally or operationally and the invention is a combination of each matter (mere juxtaposition of features), the invention is deemed as a mere exercise of ordinary creativity of a person skilled in the art, unless otherwise there is another ground for inferring inventive step. o Relation of technical fields An attempt to apply a technical means in a related technical	o The claimed invention is to be considered as a whole so that the inventive step of the inventive step shall not be denied merely because each element described in a claim is deemed to be known from or obvious over the cited inventions. o In a claim disclosing a plurality of elements, the assessment of the inventive step relies not upon each independent element, but upon the technical idea of the claimed invention which constitutes the respective elements structurally combined as a whole. Therefore, when assessing an inventive step of the claimed invention, examiners shall consider the difficulty in forming structurally combined elements as a whole based on the principle of a problem solution, rather than consider whether individually dissected elements in the claim are publicly known. In addition, the examiners shall consider unique effects the invention has as a whole. o When the examiners assess the inventive step by combining various prior art teachings, the examiners mainly consider whether the cited inventions contain a motivation or hint leading to the claimed invention by combining or assembling the prior art disclosures. Nevertheless, taken into account the state of the art, the	o In the course of determining whether or not the claimed invention is obvious to a person skilled in the art, what is to be determined is whether or not there exists such a technical motivation in the prior art as to apply the said distinguishing features to the closest prior art in solving the existing technical problem (that is, the technical problem actually solved by the invention), where such motivation would prompt a person skilled in the art, when confronted with the technical problem, to improve the closest prior art and thus reach the claimed invention. If there exists such a technical motivation in the prior art, the invention is obvious and thus fails to have prominent substantive features. o Under the following circumstances, it is usually thought there exists such a technical motivation in the prior art. (i) The said distinguishing feature is a common knowledge, such as a customary means in the art to solve the redetermined technical problem, or a technical means disclosed in a textbook or reference book to solve the redetermined technical problem. (ii) The said distinguishing feature is a technical means related to the closest prior art, such as a technical means disclosed in other part of the same reference document, the

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	field in order to solve a problem is a mere exercise of ordinary creativity of a person skilled in the art. A replaceable or addable means in a related technical field, for example, can be a strong ground for the reasoning that a person skilled in the art would have been led to a claimed invention. o Similarity of a problem to be solved A close similarity of a problem to be solved can be a strong ground for the reasoning that a person skilled in the art would be led to a claimed invention by applying or combining cited inventions. When a cited invention does not intend a similar problem to be solved to that of a claimed invention, further examination based on the state of the art should be conducted whether a problem to be solved is obvious or whether it would have been easily conceived. Even based on a problem to be solved of a cited invention which is different from that of a claimed invention, the inventive step of the claimed invention can be denied regardless of the difference in problems, if the reasoning can properly be made that a person skilled in the art could have easily arrived at the matters defining the claimed invention in a different way of thinking from the problem-	common general knowledge at the time of filing, the general problems of the field, and the trend and demands in the technical industry, the examiners can deny the inventive step of the claimed invention if the combination of prior art disclosures is deemed to have been easily made by a person in the art. o The assessment of whether prior art discloses a motivation, hint, or the like for a combination shall be comprehensively reviewed the followings: whether the motivation, hint, or the like is explicitly taught in the prior art; whether the motivation, hint or the like is inherent from the technical problem to be solved by the invention; or whether the motivation, hint, or the like is a part of the common general knowledge or empirical rules of a person skill in the art. o In general, if a combination invention described in a claim is regarded merely as a juxtaposition (array) or aggregation (simple collection) of features, the inventive step of the combination invention can be denied by proving that the individual features are obvious insofar as there are no other grounds supporting the inventive step. However, if a combination invention achieves an effect by a functional interaction between	function of which in the other part is the same as the function of the distinguishing feature in the claimed invention in solving the redetermined technical problem. (iii) The said distinguishing feature is a relevant technical means disclosed in another reference document, the function of which in that reference document is the same as the function of the distinguishing feature in the claimed invention in solving the redetermined technical problem. (Guidelines for Patent Examination Part II Chapter 4. Section 3.2.1.1)

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	solution of the claimed invention. This also applies to inventions wherein any problem to be solved cannot be identified, for example, inventions based on a discovery by trial and error. o Similarity of function, work or operation If a close similarity in function, work or operation exists between a claimed invention and a cited invention or between cited inventions, there can be a well-founded reasoning that a person skilled in the art would have been led to the claimed invention by applying and combining the cited inventions. o Suggestions shown in the cited inventions Suggestions shown in the contents of cited inventions relevant to a claimed invention can be a strong ground for the reasoning that a person skilled in the art would have been led to the claimed invention. (Examination Guidelines Part II. Chapter 2. Section 2.5(1)(2))	technical features, which is different from or greater than the sum of the effects of the individual technical features, e.g., a combined synergistic effect, the inventive step may be acknowledged since a set of technical features is considered to be a technical meaningful combination. (Examination Guidelines Part III. Chapter 3. Section 7(1)-(2))	

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b. Restrictions, if any, on the ability to modify a prior art teaching; e.g. the number of prior art teachings that can be combined	o There is no particular restrictions of the number of prior art teachings that can be combined in the examination of inventive step under Article 29 (2) of the Patent Act.	o The assessment of the inventive step of the combination invention can be made by combining more than two disclosures (including well-known or commonly used arts) but the combination of the disclosures is limited to the condition where a person skilled in the art would have easily combined the disclosures at the time of filing. o In this case, there is no special limit on the number of prior art to be combined. (Examination Guidelines Part III. Chapter 3. Section 7(2))	o In the examination of inventive step, it is permissible to combine together different technical contents disclosed in one or more prior art documents to assess the claimed invention. (Guidelines for Patent Examination Part II Chapter 4. Section 3.1) o For an invention application, one, two or more prior art references may be cited to assess its inventive step. o For a utility model, normally one or two prior art references may be cited to assess its inventive step. Where the utility model is made just by juxtaposing some prior art means, the examiner may, according to the circumstance of the case, cite more than two prior art references to assess its inventive step. (Guidelines for Patent Examination Part IV Chapter 6. Section 4)
2. Problem of common general knowledge i.e. the question as to whether the examiner, if he is reasonably certain that a given feature is common general knowledge but cannot prove it (because there is no supporting document), is entitled to refuse a			

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claim			
a. On the basis of that knowledge alone	o Whether or not a claimed invention involves an inventive step is determined as follows: After determining what is described in a claimed invention and one or more cited inventions, one cited invention most suitable for the reasoning is selected. And comparison of the claimed invention with a cited invention is made, and the identicalness and the difference in matters defining the inventions are clarified. Then, the reasoning for lacking an inventive step of the claimed invention is attempted on the basis of contents of the selected invention above, other cited inventions (including well-known or commonly used art) and the common general knowledge. (Examination Guidelines Part II. Chapter 2. Section 2.5(2)) o "The common general knowledge" means technologies generally known to a person skilled in the art (including well-known or commonly used art) or matters clear from empirical rules. "Well-known art" means	o The examiner assesses whether an invention described in the claim would have been easily made by a person skilled in the art, in view of cited inventions and the common general knowledge before the filing. (Examination Guidelines Part III. Chapter 3. Section 5.1(4)) o The common general knowledge means technologies generally known to a person skilled in the art, e.g., well-known or commonly used art or matters clearly obtained from empirical rules. "Well-known art" means disclosure generally known in the relevant technical field like technologies widely known throughout the industry, technologies that appeared in many prior art documents or technologies well known to the extent to present examples. "Commonly-used art" means a well-known art which is used widely. (Examination Guidelines Part III. Chapter 3. Section 7(2)) o If the invention is regarded as a well-known art or a commonly-used art, the examiner may notify the applicant of the grounds for	o Usually the following three steps are followed to determine whether a claimed invention is obvious as compared with the prior art. (1) Determining the closest prior art; (2) Determining the distinguishing features of the invention and the technical problem actually solved by the invention; (3) Determining whether or not the claimed invention is obvious to a person skilled in the art. (Guidelines for Patent Examination Part II Chapter 4. Section 3.2.1.1) o The common knowledge of the art cited in the Office Action by the examiner shall be accurate. Where the applicant has objections to the common knowledge cited by the examiner, the examiner shall state the reasons or provide corresponding evidence for proof. (Guidelines for Patent Examination Part II Chapter 8. Section 4.10.2.2) o Certain technical means is common knowledge can be proved in the art with reference to the

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	technologies generally known in the relevant technical field, e.g., many prior art documents, those widely known throughout the industry, or those well-known to the extent needless to present examples. "Commonly used art" means well-known art which is used widely. (Examination Guidelines Part II. Chapter 2. “1.Novelty” Section 1.2.4(3)) o Since well-known or commonly used art is important material constituting the state of the art which can be a ground for a notice of reasons for refusal, well-known or commonly used art should be accompanied with an exemplary document insofar as possible except when it is so well-known that any evidential document seems unnecessary, regardless of whether it is used as a basis to determine the cited invention or to determine the knowledge (the state of the art including the common general knowledge) or the ability (the ability to use ordinary technical means for research and development or the ordinary creativity) of a person skilled in the art if an examiner refers to well-known or commonly used art. (Examination Guidelines Part II. Chapter 2. Section 2.8(2))	rejection without any evidential material attached. However, it is inappropriate to cite a well-known art or a commonly-used art as the closest cited invention without any support by evidential materials. o If an applicant claims that the invention is not well-known art or commonly-used art in a written opinion in response to notification of the grounds for rejection on the basis of the well-known technology without any evidential material attached, the examiner should in principle provide an evidential material regarding the grounds for rejection. However, in case that the examiner has the difficulty in providing an evidential material, the examiner may deny the inventive step by thoroughly explaining why the invention falls under well-known art or commonly-used art, or pointing out why the applicant’s argument is not proper. o The evidential materials with regard to well-known art and commonly-used art are textbooks, introductory books, dictionaries of technical standards, national standards(KS) in the field of the art to which the subject matter pertains, and so forth. (Examination Guidelines Part III. Chapter 3. Section 9)	technical contents recorded in a reference book such as a textbook, a technical dictionary, or a technical manual. (Guidelines for Patent Examination Part II Chapter 4. Section 3.2.1.1; Part IV Chapter 2. Section 4.1; Part IV Chapter 8. Section 4.3.3)

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	o If an applicant admits in a specification that a technology presented as prior art is publicly known prior to the filing of the application, the technology may be properly cited as the state of the art at the time of filing, in determining inventive step of a claimed invention. (Examination Guidelines Part II. Chapter 2. Section 2.8(3))		
b. On the basis of that knowledge combined with one or more published pieces of prior art	o See E.2.a. above.	o See E.2.a. above.	o See E.2.a. above.
3. Criteria for evaluating differences between the prior art and the invention in regard to:			
a. Temperature or other ranges	o Among exercises of ordinary creativity of a person skilled in the art are a selection of an optimal material from publicly known materials which achieve a specific object, an optimization of a numerical value range, a replacement with equivalents, and a workshop modification of design in applying specific technology. When the difference of the claimed invention in comparison falls only under these categories, it is usually considered that a person skilled	o “An invention with numerical limitation” is an invention wherein some parts of indispensable elements of the invention are expressed by specific numerical values. o Selecting an optical numerical range by experiments from the publicly known art is normally considered as an exercise of ordinary creativity of a person skilled in the art, and here the inventive step is generally denied. However, a claimed	o If the invention resides in the choice of particular dimensions, temperature ranges or other parameters from a limited range of possibilities, while such choice can be made by the person skilled in the art through normal design procedures and does not produce any unexpected technical effect, the invention does not involve an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 4.3)

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	in the art could have easily arrived at it, unless otherwise there is another ground for inferring inventive step. (Examination Guidelines Part II. Chapter 2. Section 2.5(1))	invention has an inventive step if there is more advantageous effect than the effect of the cited invention within a limited numerical range. o This advantageous effect should be a remarkably improved effect regarding the overall scope of the numerical limitation, and a necessity of a critical significance of the numerical limitation is determined under the following criteria. (1) The critical significance of the numerical limitation is required, when the claimed invention and the cited invention have a common problem to be solved and qualitatively same effect. (2) If each of the two inventions has a different problem to be solved and qualitatively different effects, the critical significance of the numerical limitation is not required even though the two inventions have the same matter defining the inventions except for the numerical limitation. (Examination Guidelines Part III. Chapter 3. Section 6.4.2)	
b. Shapes or configurations	o See E.3.a. above.	o When an invention is merely drawn by applying normal design procedures maintaining the	o An invention by changing relations between elements means that, as compared with the prior

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		technical concept of prior art and is not considered to have an effect unforeseen in the prior art, the inventive step of the invention cannot be acknowledged. For example, if the difference between the claimed invention and the cited prior art is only caused by the application of particular parameters such as size, proportion, relative dimensions, and amount of a limited range of possibilities, the inventive step cannot be acknowledged. On the contrary if the difference can lead to any particular change in the function for operation with an unforeseeable advantage, the invention is regarded as involving an inventive step. (Examination Guidelines Part III. Chapter 3. Section 6.2.2)	art, the shape, size, proportion, position, operational relationship or the like has been changed. (1) If the change in relations between elements does not lead to a change in effect, function, or use of the invention, or the change in effect, function, or use of the invention can be expected, the invention does not involve an inventive step. (2) If the change in relations between elements produces an unexpected technical effect, the invention has prominent substantive features and represents notable progress, and thus involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 4.6.1)
c. Materials or parts	o See E.3.a. above.	o Replacing a part of an invention with a publicly know part, which is capable of carrying out the same function and interchangeable, is not considered involving an inventive step because it falls within the scope of ordinary creativity of a person skilled in the art, unless the replacement has an unforeseeable advantage. (Examination Guidelines Part III. Chapter 3. Section 6.2.1)	o An invention by replacing elements refers to an invention that is made by substituting a certain element of a known product or process with another known element. (1)If the invention is just an equivalent alteration between known measures of the same function, or, in solving the same technical problem, a substitution of a recently developed known material with the same function for the corresponding material in a known product, or a substitution of a certain known

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			material for the corresponding material in a known product while the similar use of the known material is already known, and it does not produce any unexpected technical effect, then the invention does not involve an inventive step. (2)If the replacement of elements confers unexpected technical effect on the invention, then the invention has prominent substantive features and represents notable progress, and thus involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 4.6.2)
d. Sizes, ratios or amounts	o See E.3.a. above.	o See E.3.b. above.	o See E.3.a. & E.3.b.above.
e. Reversed elements or parts	o See E.3.a. above.	o See E.3.b. above.	o See E.3.b. above.
f. Omitted elements or parts	o See E.3.a. above.	o The claimed invention is not considered to involve an inventive step when the removal of a function or an effect as a result of the omission of some constituents disclosed in the prior art is obvious to a person skilled in the art. However, considering the state of the art, the inventive step can be acknowledged when the omission of some constituents does not affect the function of the invention or rather enhances the function. (Examination Guidelines Part III.	o An invention by omitting elements refers to an invention in which one or more elements of a known product or process are omitted. (1) If, after the omission of one or more elements, the corresponding function disappears accordingly, the invention does not involve an inventive step. (2)If, as compared with the prior art, after the omission of one or more elements (such as the omission of one or more parts in a product invention, or the omission of one or more steps in a process invention), all the

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		Chapter 3. Section 6.2.3)	corresponding functions can still be preserved, or unexpected technical effects are brought about, then the invention has prominent substantive features and represents notable progress, and thus involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 4.6.3)
g. Change or limitation of use	o See E.3.a. above. o Even if the medicinal use of the claimed medicinal invention differs from the medicinal use of the cited invention, when the relevance of the working mechanism between both has been derived from the publicly known art or common general knowledge at the time of filing, the inventive step of the medicinal invention of the present patent application is usually denied, unless otherwise there is another ground for inferring inventive step such as advantageous effect or the like. (Examination Guidelines Part VII. Chapter 3. “Medicinal Inventions” Section 2.3.1.1(1))	o Mere change in the use of a known invention or a further limitation of such use is not considered involving an inventive step. In other words, the claimed invention, which is distinguished from the prior art only in modification of its use or further extension of its use without exhibiting any advantage, lacks an inventive step. (Examination Guidelines Part III. Chapter 3. Section 6.2.4) o As for a medicinal use invention wherein pharmacological effects cannot be easily inferred from chemical structures of effective active substance or compositions of a composition in view of the level of technique as of the filing or significant effects cannot be easily inferred from pharmacological mechanism described in the prior art by a person with ordinary skill in the art, an inventive step of such invention thereof is admitted.	o An invention of new use of known product refers to the invention of using a known product for a new purpose. In determining the inventive step of an invention of new use of known product, usually the following factors need to be taken into account: the proximity of the technical field of the new use to that of the prior use, and the technical effect of the new use etc. (1) If the new use merely utilizes a known property of a known material, the invention of new use does not involve an inventive step. (2) If the new use utilizes a newly found property of the known product and can produce an unexpected technical effect, then the invention of use has prominent substantive features and represents notable progress, and thus involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 4.5)

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		(Examination Guidelines of Medicinal Fields 4.4) o For a medicinal use invention, the pharmacological effects should be stated in the specification to support its inventive step at the time of filing. In principle, the pharmacological effects should be supported by clinical trials, but in certain cases, it is possible to prove its effects by animal tests or in-vitro tests. (Examination Guidelines of Medicinal Fields 5.1.1)	o Inventive Step of Use Invention of Chemical Product (1) Inventive step of use invention of new product A use invention of a new chemical product is regarded as involving an inventive step if the use cannot be expected from the known product having a similar structure or composition. (2) Inventive step of use invention of known product A use invention of a known product is regarded as involving an inventive step if the new use cannot be derived or expected from the structure, composition, molecular weight, known physical/chemical property and existent use of the product, but utilizes a newly discovered property of the product, and produces unexpected technical effect. (Guidelines for Patent Examination Part II Chapter 10. Section 6.2)
h. Selection invention	o Where an invention with a generic concept is expressed in a cited reference, an invention with more specific concept selected from the generic concept is called "selection invention", if it is novel over the generic invention and pertains to a technical field in which an effect of a product is difficult to understand from its structure. Where an invention is expressed as alternatives either in form or	o " A selection invention" is an invention which comprises indispensable elements with a more specific concept selected from a generic concept disclosed in a cited invention, wherein the specific concept is not directly disclosed in the cited invention. o In the case of selecting optimized conditions by experiments from publicly known technology, the inventive step of	o An invention by selection refers to an invention made by selecting for purpose a smaller range of options or individual option not mentioned in the prior art from a larger range of options disclosed in the prior art (a selection invention). In determining the inventive step of a selection invention, the main factor to be considered is whether the selection can bring

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	de facto in a cited reference, an invention selected from a group of inventions each of which is identified by supposing that each of the alternatives is a matter to define each of such inventions is also called "selection invention", if it is novel over the alternatives and pertains to a technical field in which an effect of a product is difficult to understand from its structure. Thus, an invention can be a selection invention, if it is not an invention described in a publication. o A selection invention involves an inventive step, when it generates an advantageous effect which is qualitatively different or qualitatively the same but quantitatively prominent in comparison with that of an invention with a generic concept in a cited invention, neither of which is foreseen by a person skilled in the art from the state of the art nor disclosed in a cited reference. (Examination Guidelines Part II. Chapter 2. Section 2.5(3)③)	the claimed invention cannot be acknowledged because selecting the best or suitable concept from publicly known technology comes within the scope of an exercise of ordinary creativity of a person skilled in the art. o However, if a selection invention generates an advantageous effect in comparison with a cited invention, the inventive step of the selection invention can be acknowledged. In this case, all specific concepts included in the selection invention should have advantageous effects, which are qualitatively different, or qualitatively same but quantitatively prominent. The detailed description of the selection invention should precisely explain that the invention generates an advantageous effect in comparison with the cited invention, and does not need to necessarily provide experimental data to conform the prominence of the effect. If the grounds for rejection are notified due to the effect, the applicant can assert the effect concretely by submitting materials relating to experimental comparisons. (Examination Guidelines Part III. Chapter 3. Section 6.4.1)	about unexpected technical effect. (1) If the invention consists merely in choosing among a number of known possibilities, or merely in choosing from a number of equally likely alternatives, and the selected solution does not produce any unexpected effect, it does not involve an inventive step. (2) If the invention resides in the choice of particular dimensions, temperature ranges or other parameters from a limited range of possibilities, while such choice can be made by the person skilled in the art through normal design procedures and does not produce any unexpected technical effect, the invention does not involve an inventive step. (3) If the invention can be arrived at merely by a simple extrapolation in a straightforward way from the known art, it does not involve an inventive step. (4) If the invention is made by selection producing unexpected technical effect, the invention has prominent substantive features and represents notable progress, and thus involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 4.3)
i. Others	o No other comments.	o A product invention described by its manufacturing process	o No other comments.

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		Although a manufacturing process is described in the claims of the product invention, the examiner can assess the inventive step of the product invention by comparing the product itself defined by the claimed invention with a publicly known invention without considering the manufacturing process because an applicant should directly describe the product in the claim when defining a product invention except for special circumstances where the product can only be specified by the manufacturing process thereof. When novelty and an inventive step are assessed, it is not the manufacturing process but the product itself described by its manufacturing process to be claimed. Therefore, the examiner shall compare “the product itself” in the claim with a publicly known product. The examiner does not have to take into account the manufacturing process or manufacturing apparatus or the product. At least, the product described by properties, features and composition is considered in this case. (Examination Guidelines Part III. Chapter 3. Section 6.4.4)	
4. Indication of problem to be solved	o A close similarity of a problem to be solved can be a strong	o A common problem to be solved can be a significant ground for	o During examination, the examiner shall objectively analyze and

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	ground for the reasoning that a person skilled in the art would be led to a claimed invention by applying or combining cited inventions. When a cited invention does not intend a similar problem to be solved to that of a claimed invention, further examination based on the state of the art should be conducted whether a problem to be solved is obvious or whether it would have been easily conceived. Even based on a problem to be solved of a cited invention which is different from that of a claimed invention, the inventive step of the claimed invention can be denied regardless of the difference in problems, if the reasoning can properly be made that a person skilled in the art could have easily arrived at the matters defining the claimed invention in a different way of thinking from the problem-solution of the claimed invention. This also applies to inventions wherein any problem to be solved cannot be identified, for example, inventions based on a discovery by trial and error. (Examination Guidelines Part II. Chapter 2. Section 2.5(3)②)	assessing that a person skilled in the art would have been led to the claimed invention by applying or combining the cited inventions. If the technical problems to be solved described both in the claimed invention and in the cited invention are not in the same technical field, the examiner decides whether the technical problem of the claimed invention is obvious in the relevant field of the art or easily conceivable in light of technical common sense, and whether that reasoning can be used as a ground for denying the inventive step by scrutinizing the technical problem. o Even in the case of a cited invention with a different problem compared to the claimed invention, if it is obvious that a person skilled in the art would have easily arrived at the claimed invention through a mere exercise of ordinary creativity, the inventive step of claimed invention can be denied. (Examination Guidelines Part III. Chapter 3. Section 6.1.2)	determine the technical problem actually solved by the invention. For this purpose, the examiner shall first determine the distinguishing features of the claimed invention as compared with the closest prior art and then determine the technical problem that is actually solved by the invention on the basis of the technical effect of the distinguishing features. The technical problem actually solved by the invention, in this sense, means the technical task in improving the closest prior art to achieve a better technical effect. In the course of examination, because the closest prior art identified by the examiner may be different from that asserted by the applicant in the description, the technical problem actually solved by the invention, which is redetermined on the basis of the closest prior art, may not be the same as that described in the description. Under such circumstance, the technical problem actually solved by the invention shall be redetermined on the basis of the closest prior art identified by the examiner. The redetermined technical problem may depend on the particular situations of each invention. As a principle, any technical effect of an invention may be used as the basis to redetermine the technical problem, as long as the technical effect could be recognized by a person skilled

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			in the art from the contents set forth in the description. o At the step of determining whether or not the claimed invention is obvious to a person skilled in the art, the examiner shall make a judgment, starting from the closest prior art and the technical problem actually solved by the invention, as to whether or not the claimed invention is obvious to a person skilled in the art. In the course of judgment, what is to be determined is whether or not there exists such a technical motivation in the prior art as to apply the said distinguishing features to the closest prior art in solving the existing technical problem (that is, the technical problem actually solved by the invention), where such motivation would prompt a person skilled in the art, when confronted with the technical problem, to improve the closest prior art and thus reach the claimed invention. If there exists such a technical motivation in the prior art, the invention is obvious and thus fails to have prominent substantive features. o Under the following circumstances, it is usually thought there exists such a technical motivation in the prior art. (i) The said distinguishing feature is a common knowledge, such as a

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			customary means in the art to solve the redetermined technical problem, or a technical means disclosed in a textbook or reference book to solve the redetermined technical problem. (ii) The said distinguishing feature is a technical means related to the closest prior art, such as a technical means disclosed in other part of the same reference document, the function of which in the other part is the same as the function of the distinguishing feature in the claimed invention in solving the redetermined technical problem. (iii) The said distinguishing feature is a relevant technical means disclosed in another reference document, the function of which in that reference document is the same as the function of the distinguishing feature in the claimed invention in solving the redetermined technical problem. (Guidelines for Patent Examination Part II Chapter 4. Section 3.2.1.1)
5. Indication of advantage of claimed invention	o If an advantageous effect compared to cited inventions can clearly be identified from descriptions in the specification and the drawings, it should be taken into consideration as a fact to support to affirmatively infer its inventive step. An advantageous effect compared to	o If an effect derived from matters defining a claimed invention is advantageous in comparison with an effect of a cited invention, it is taken into consideration as a fact to affirmatively support its inventive step. o Even if the claimed invention is	o When evaluating whether or not an invention represents notable progress, the examiner shall primarily consider whether or not the invention produces advantageous technical effects. Usually, an invention shall be regarded as producing advantageous technical effects

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	cited inventions means an effect which is advantageous in comparison with an effect of a cited invention, among the effects derived from the matters defining a claimed invention. o Reasoning is attempted by confirming and taking into consideration an advantageous effect, if any, of a claimed invention compared to cited inventions. It should be noted that, regardless of advantageous effects, inventive step may be denied by the uncontestable reasoning that a person skilled in the art could have easily arrived at a claimed invention. o However, when the advantageous effect compared to the cited invention so remarkable that it cannot be foreseen by a person skilled in the art from the state of the art, there may be cases where the inventive step is affirmed. (Examination Guidelines Part II. Chapter 2. Section 2.5(3))	considered to have been easily made by combining cited inventions at the first glance, if the claimed invention has an advantageous effect, such as qualitatively different, or qualitatively the same but quantitatively prominent effect, in comparison with those of the cited inventions, and if the advantageous effect would not have been foreseen by a person skilled in the art from the state of the art, the inventive step can be acknowledged. Particularly, in the case of an invention in a technical field in which an effect of a product is difficult to predict from its structure, such as a selection invention and a chemical invention, its advantageous effect compared to the cited invention is an important factor to positively infer the inventive step. (Examination Guidelines Part III. Chapter 3. Section 6.3(1),(2))	and therefore representing notable progress in any of the following circumstances: (1) where, as compared with the prior art, the invention produces a better technical effect, such as quality improved, output increased, energy saving, and environmental pollution prevented or controlled; (2) where the technical solution provided by the invention is of a different inventive concept and can produce a technical effect of substantially the same level as in the prior art; (3) where the invention represents a new trend of technical development; or (4) where, despite negative effect in some respect, the invention produces outstanding positive technical effects in other respects. (Guidelines for Patent Examination Part II Chapter 4. Section 3.2.2)
6. Comparative test	o Where advantageous effects compared to cited inventions are described in a specification, or where advantageous effects are not explicitly described but can be inferred from the statements in the specification or the drawings by a person skilled in the art, the effects asserted in	o In case where the advantageous effect of the claimed invention which is superior to that of the prior art is either disclosed in the detailed description or easily recognized by a person skilled in the art from the detailed description or the drawings even though it is not	o Advantageous effects may be described by way of analysis of the structural features of the invention or utility model in combination with theoretical explanation, or illustrated with reference to experimental data, rather than by just assertion that the invention or utility

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	a written argument or verified in experimental results should be considered. However, the effects asserted which are not described in the specification and that a person skilled in the art couldn't deduce from the description of the specification or the drawings should not be taken into consideration. (Examination Guidelines Part II. Chapter 2. Section 2.5(3)②)	explicitly disclosed, the examiner can assess the inventive step based on the inventor's assertion of the advantageous effect. However, the effect merely based on the inventor's assertion should not be taken into consideration in assessing the inventive step if the advantageous effect is neither disclosed nor inferred from the descriptions or drawings. (Examination Guidelines Part III. Chapter 3. Section 6.3(3)) o The detailed description of the selection invention should precisely explain that the invention generates an advantageous effect in comparison with the cited invention, and does not need to provide experimental materials to confirm the prominence of the effect. If the grounds for rejection are notified due to the effect, the applicant can assert the effect concretely by submitting materials relating to experimental comparisons. (Examination Guidelines Part III. Chapter 3. Section 6.4.1)	model possesses the advantageous effects. o However, no matter which approach is applied to explain the advantageous effects, the invention or utility model shall be compared with the prior art and the difference between the invention or utility model and the prior art shall be pointed out. o The advantageous effects of an invention or utility model in the field of mechanics or electricity may, under certain circumstances, be explained by analysis of the structural features of the invention or utility model in conjunction with their operation mode. However, for an invention in the field of chemistry, under most circumstances, it is appropriate to explain the advantageous effects with reference to experimental data rather than in the above way. o For those matters measurement of which is not available at present and the judgment of which has to rely on human sensory organs, such as taste and smell, the advantageous effects may be described by means of statistical experimental results. (Guidelines for Patent Examination Part II Chapter 2. Section 2.2.4)
7. Unexpected result			o An invention produces an unexpected technical effect means that, as compared with the prior

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			art, the technical effect of the invention represents a "qualitative" change, that is, new performance; or represents a "quantitative" change which is unexpected. Such a qualitative or quantitative change can not be expected or inferred by the person skilled in the art in advance. If an invention produces an unexpected effect, it means the invention represents notable progress on the one hand, and it also means that the technical solution of the invention is non-obvious and thus has prominent substantive features on the other hand. Therefore the invention involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 5.3)
a. Cases where an unexpected result is an essential criterion for unobviousness (selection inventions and inventions comprising the combination of known elements)	o Even though a reasoning seems to be possible that a person skilled in the art could have easily arrived at a claimed invention because of the close similarity between the matters defining a cited invention and the ones defining a claimed invention or because of a combination of plural cited inventions, the inventive step should be positively inferred if a claimed invention has an advantageous effect, qualitatively different or qualitatively the same but quantitatively prominent in comparison with those of cited inventions, and if the	o See E.1.a. above. o See E.3.h. above.	o In determining the inventive step of a selection invention, the main factor to be considered is whether the selection can bring about unexpected technical effect. (See E.3.h. above.) o An invention by diversion refers to an invention of applying a known technology in one technical field to another technical field. In determining the inventive step of an invention by diversion, usually the following factors need to be taken into account: the proximity of the diverted technical field to the previous technical field, whether there

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	advantageous effect cannot be foreseen by a person skilled in the art from the state of the art. Particularly, in the case of an invention in a technical field in which an effect of a product is difficult to predict from its structure like a selection invention explained later, the advantageous effect compared to the cited invention is an important fact to positively infer its inventive step. (Examination Guidelines Part II. Chapter 2. Section 2.5(3)①)		exists the corresponding technical motivation, the difficulty or easiness of the diversion, any technical difficulties to be overcome, and the technical effect of the diversion etc. (1) If the diversion is made between similar or close technical fields, and no unexpected technical effect is produced, the invention by diversion does not involve an inventive step. (2) If the diversion produces an unexpected technical effect or overcomes a difficulty that has never been encountered in the previous technical field, the invention by diversion has prominent substantive features and represents notable progress, and thus involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 4.4) o For a compound that is similar in structure to a known compound, it must have unexpected use or effect. The said unexpected use or effect may be a use different from that of the known compound, the substantive progress or improvement of a known effect of a known compound, or a use or effect which is not clear in the common general knowledge or cannot be deduced from the common general knowledge. (Guidelines for Patent Examination Part II Chapter 10. Section 6.1)

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b. Cases where it is merely one of a number of relevant secondary criteria	o If an advantageous effect compared to cited inventions can clearly be identified from descriptions in the specification and the drawings, it should be taken into consideration as a fact to support to affirmatively infer its inventive step. (Examination Guidelines Part II. Chapter 2. Section 2.5(3))	o See E.5. above.	o If the examiner can determine with the approach as described in Section 3.2, Chapter IV in Part II of Guidelines for Patent Examination that the technical solution of invention is non-obvious to the person skilled in the art and can produce advantageous technical effect, then the invention has prominent substantive features and represents notable progress, and thus involves an inventive step. Under such circumstance, whether the invention produces unexpected technical effect shall not be overemphasized. (Guidelines for Patent Examination Part II Chapter 4. Section 6.3)
c. Does an unexpected effect (result) have to be advantageous to constitute an inventive step?	o Even though a reasoning seems to be possible that a person skilled in the art could have easily arrived at a claimed invention because of the close similarity between the matters defining a cited invention and the ones defining a claimed invention or because of a combination of plural cited inventions, the inventive step should be positively inferred if a claimed invention has an advantageous effect, qualitatively different or qualitatively the same but quantitatively prominent in comparison with those of cited inventions, and if the advantageous effect cannot be foreseen by a person skilled in	o See E.5. above.	o No other comments.

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	the art from the state of the art. (Examination Guidelines Part II. Chapter 2. Section 2.5(3)①)		
8. Others	o No other comments.	o No other comments.	o No other comments.
F. Resolving the level of ordinary skill			
1. A person skilled in the art, an average expert			
a. Amount of knowledge and skill expected	o A person skilled in the art is able to comprehend all technical matters in the state of the art in the field to which a claimed invention pertains at the time of filing as his/her own knowledge. In addition, a person skilled in the art is supposed to be able to comprehend all technical matters in the field of technology relevant to a problem to be solved by an invention as his/her own knowledge. (Examination Guidelines Part II. Chapter 2. Section 2.2(2))	o The criterion for an inventive step is subjected to “a person with ordinary skill in the art to which the invention pertains” (referred to as “a person skilled in the art”). A person skilled in the art refers to a hypothetical person who has common general knowledge in the art to which the claimed invention pertains and the ability to use ordinary technical means for research and development (including experiment, analysis, manufacture, etc.); who has the ability to exercise ordinary creativity in selecting materials and changing designs, optimizing numerical ranges and replacing elements with equivalent parts; and who is able to comprehend based on his/her own knowledge all technical matters regarding the state of the art in the field to which a claimed invention pertains at the time of filing a	o Whether or not an invention involves an inventive step shall be evaluated on the basis of the knowledge and capability of the person skilled in the art. The person skilled in the art refers to a fictional “person” who is presumed to be aware of all the common technical knowledge and have access to all the technologies existing before the filing date or the priority date in the technical field to which the invention pertains, and have capacity to apply all the routine experimental measures before that date. However, he is not presumed to have creativity. If the technical problem to be solved impels that person to seek technical means in other technical field, he should also be presumed to have access to the relevant prior art, common technical knowledge, and routine experimental measures in the other technical field before the

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		patent application. (Examination Guidelines Part III. Chapter 3. Section 3.2)	filing date or the priority date. (Guidelines for Patent Examination Part II Chapter 4. Section 2.4)
b. Ordinary practitioner/average expert	o "A person with ordinary skill in the art to which the invention pertains" provides a hypothetical person: who has the common general knowledge in the art to which the invention pertains at the time of filing, and has ability to use ordinary technical means for research and development; who has ability to exercise ordinary creativity in selecting materials and changing designs; and who is able to comprehend all technical matters in the state of the art in the field to which a claimed invention pertains at the time of filing as his/her own knowledge. (Examination Guidelines Part II. Chapter 2. Section 2.2(2))	o See F.1.a. above.	o See F.1.a above.
c. A team of persons skilled in the art	o There may be cases where it is more appropriate to think in terms of “a group of persons" than a single person. (Examination Guidelines Part II. Chapter 2. Section 2.2(2))	o No concrete explanation thereof	o See F.1.a above.

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Preliminary remarks concerning the criteria referred to in point 2. to 9.			
2. Long-felt but unsolved needs	o No specific comments.	o The fact that a claimed invention solves a technical problem that a person skilled in the art has attempted to solve for a long time or fulfill a long-felt need many be regarded as an indication of the inventive step. In addition, such as solution of a technical problem or a need should have been recognized by a person skilled in the art for a long time and fulfilled by the claimed invention for the first time. To accept this as an indicator of the inventive step, an objective evidence is required. (Examination Guidelines Part III. Chapter 3. Section 8(3))	o Where the invention has solved a technical problem which was desired to be solved for a long time but not successfully solved, the invention has prominent substantive features and represents notable progress, and thus involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 5.1)
3. Prior art teaching away from the claim (technical prejudice)	o When there is such a description in a cited reference that precludes the reasoning the claimed invention is easily arrived at, the cited reference is not eligible for a cited invention. However, regardless of the description in a cited reference such as the difference of the problem to be solved, which prima facie precludes the reasoning, the eligibility for a cited invention shall be maintained, if the reasoning could be possible in terms of	o If a prior art document teaches not to refer to the prior art thereof, i.e., if there is a description in the prior art document that precludes the reasoning that a person skilled in the art would easily arrive at the claimed invention, the inventive step is not denied by the prior art despite the similarity between the prior art and the claimed invention. In addition, the fact that the technical features in a prior art document are described as	o Technical prejudice refers to the understanding of technicians in the art of a certain technical problem in a technical field during a certain period of time that departs from the objective facts, leads the technicians to believe that there is no other possibility and hinders the research and development in that technical field. If an invention is made by overcoming such technical prejudice and adopting the technical means which was abandoned by the technicians due

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	other aspects such as a close relation of technical fields or close similarity of function, work or operation, etc. (Examination Guidelines Part II. Chapter 2. Section 2.8)	inferior cannot be necessarily considered as a preclusion factor in assessing the inventive step. (Examination Guidelines Part III. Chapter 3. Section 8(1)) o If an invention is made by technical means which a person skilled in the art has abandoned due to technical prejudice interfering with the research and development of a technical problem of technical problem in the relevant field of the art, thereby solving the technical problem, that is regarded as an indicator of the inventive step. (Examination Guidelines Part III. Chapter 3. Section 8(4))	to the prejudice, and hereby has solved a technical problem, then the invention has prominent substantive features and represents notable progress, and thus involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 5.2)
4. Showing the failure of others	o See F.2. above.	o If a claimed invention proposes means for overcoming or solving technical difficulties which have been failed in resolving by others, this is regarded as an advantageous evidence for an inventive step. (Examination Guidelines Part III. Chapter 3. Section 8(5))	o No other comments.
5. Showing the invention lies in a very active or crowded art	o See F.2. above.	o No concrete explanation thereof	o No other comments.

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6. Development of brand-new technical field	o See F.2. above.	o If a claimed invention falls within the area of a brand-new technology and therefore has no prior art relevant to the invention, or even the closest prior art to the invention is far away from the invention, the inventive step may be positively inferred. (Examination Guidelines Part III. Chapter 3. Section 8(6))	o An invention opening up a whole new field refers to a totally new technical solution which is unprecedented in the history of technology and ushers in a new epoch for the development of science and technology in a certain period of time. As compared with the prior art, an invention opening up a whole new field has prominent substantive features and represents notable progress, and therefore involves an inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 4.1)
7. Commercial success	o A commercial success or other similar facts can be taken into consideration in order to support to affirmatively infer an inventive step, insofar as the examiner finds that the fact is established by the features of a claimed invention, not by any other factors such as sales promotion technique and advertisement through an applicant's legitimate assertion or substantiation. (Examination Guidelines Part II. Chapter 2. Section 2.8(6))	o Commercial success or favorable responses from the industry or the fact that the claimed invention had not been implemented by anybody for a long time before the claimed invention was filed may be regarded as indicative of the inventive step as a secondary evidence. However, those facts alone are not to be regarded as indicative of the inventive step. First of all, as the inventive step should be assessed based on the contents disclosed in the specification, commercial success is not to be regarded as a reference for the assessment of the inventive step, provided that such success is not derived from the technical features of the invention but from other factors (e.g., improvement in sales techniques	o Where an invention achieves commercial success, if the technical features of the invention directly brought about such success, it means that the invention has advantageous effect on the one hand and it is non-obvious on the other hand. Such kind of invention has prominent substantive features and represents notable progress, and thus involves an inventive step. However, if the success is brought about by other factors, such as an advance in selling techniques or advertising, it shall not be used as a basis for assessing inventive step. (Guidelines for Patent Examination Part II Chapter 4. Section 5.4)

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		or advertising) (Examination Guidelines Part III. Chapter 3. Section 8(2))	
8. Complexity of the technology	o See F.2. above.	o No concrete explanation thereof	o No other comments.
9. Other criteria	o No other comments.	o No other comments.	o No other comments.

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II. Special consideration applicable to chemical practice			
A. Criteria used to determine the inventive step based upon			
1. a. Unexpected or superior properties of a chemical	o Even though a reasoning seems to be possible that a person skilled in the art could have easily arrived at a claimed invention because of the close similarity between the matters defining a cited invention and the ones defining a claimed invention or because of a combination of plural cited inventions, the inventive step should be positively inferred if a claimed invention has an advantageous effect, qualitatively different or qualitatively the same but quantitatively prominent in comparison with those of cited inventions, and if the advantageous effect cannot be foreseen by a person skilled in the art from the state of the art. Particularly, in the case of an invention in a technical field in which an effect of a product is difficult to predict from its structure like a selection invention explained later, the advantageous effect compared to the cited invention is an important fact to positively infer its inventive step. (Examination Guidelines Part II.	o Even if the claimed invention is considered to be easily made by combining cited inventions at the first glance, if the claimed invention has an advantageous effect, such as qualitatively different or qualitatively the same but quantitatively prominent effect, in comparison with those of the cited inventions, and if the advantageous effect would not have been foreseen by a person skilled in the art from the state of the art, the inventive step can be acknowledged. Particularly, in the case of an invention in a technical field in which an effect of a product is difficult to predict from its structure, such as a selection invention and a chemical invention, the advantageous effect compared to the cited invention is an important factor to positively infer the inventive step. (Examination Guidelines Part III. Chapter 3. Section 6.3(2)) o An inventive step of an invention of an organic compound	(1) When a compound is novel, not similar in structure to a known compound, and has a certain use or effect, the examiner may deem it to involve an inventive step without requiring that it shall have an unexpected use or effect. (2) For a compound that is similar in structure to a known compound, it must have unexpected use or effect. The said unexpected use or effect may be a use different from that of the known compound, the substantive progress or improvement of a known effect of a known compound, or a use or effect which is not clear in the common general knowledge or cannot be deduced from the common general knowledge. (3) Whether two compounds are similar in structure has relation to the technical field of the compounds, the examiner shall apply different criteria to different technical fields. (4) It shall be noted that the inventive step of a compound ought not to be denied simply on the grounds of structural similarity. It is necessary to further explain that its use or effect can be expected or is predictable, or that a person skilled in the art is able to

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	Chapter 2. Section 2.5(3)①)	is assessed based on two major properties; (1) chemical structure of the organic compound, (2) properties or usage of the organic compound. . An invention of an organic compound with remarkably different chemical structure from that of a cited invention is considered to have an inventive step. . An invention of an organic compound with unexpected or unique properties is considered to have an inventive step even though the chemical structure of the invention is similar to that of a cited invention. . An invention of an organic compound with remarkably advantageous effects, compared with that of a cited invention, has an inventive step, even though the chemical structure or the properties of the compound can be anticipated by the cited invention. (Examination Guidelines of Organic Compound Fields 6.41)	produce or use that compound by logical analysis, inference or limited experiment on the basis of the prior art. (5) If the effect of a technical solution is caused by something known and inevitable, the technical solution does not involve an inventive step. For example, an insecticide A-R is in the prior art, wherein, R is C_{1-3} alkyl. It has been pointed out in the prior art that the effectiveness of insecticide is improved with the increase of the number of atom in the alkyl. If the insecticide in an application is A-C_4H_9, the effectiveness has been obviously improved compared with the prior art. The application does not involve an inventive step because it has been pointed out in the prior art that the improved effectiveness of the insecticide is inevitable. (Guidelines for Patent Examination Part II Chapter 10. Section 6.1)
b. Determination of inventive step between chemical substance of similar structure	o See II.A.1.a. above.	o When a well-known catalyst of which constitution is similar to a catalyst in the present invention exists and furthermore, the reactions of the two	o See II.A.1.a above.

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		catalysts to be used are homogeneous, an inventive step is admitted if the catalyst of the present invention has remarkable effects due to the constitutional difference in the catalysts. (Examination Guidelines of Inorganic Compound Fields 5.3.3) o See II.A.1.a. above.	
2. Evidence required to evaluate therapeutic properties	o As for working examples supporting the medicinal use, a description of the result of the pharmacological test is usually required. o Since the result of the pharmacological test is to confirm the pharmacological effect of the claimed medicinal invention, all of the followings should be made sufficiently clear, in principle; (i) which compound is, (ii) applied to what sort of the pharmacological test system, (iii) what sort of result is obtained, and (iv) what sort of relationship the pharmacological test system has with the medicinal use of the claimed medicinal invention. (1)Relationship between the medicinal use and the working mechanism Even if the medicinal use of the claimed medicinal invention	o In general, in an invention relating to mechanical apparatus, etc., there are many cases where a person with ordinary skill in the art may clearly understand the operation and effects from the constitution of the invention and easily reproduce it although embodiments are not described in a specification of a patent application. However, in a chemical invention, namely, science by experiments, predictability and feasibility are significantly insufficient although there may be differences according to the contents of the present invention and the level of technique, such that if experimental examples suggested with experiment data are not described, it is considered to be difficult for a person with ordinary skill in the art to	o As for a chemical product invention, the use and/or its technical effect of the product shall be completely disclosed. Even if the structure of the compound has been confirmed for the first time, at least one use of the compound shall be described. If a person skilled in the art is unable, on the basis of the prior art, to predict that the use and/or its technical effect stated in the invention can be carried out, the description shall sufficiently provide qualitative or quantitative data of experimental tests for the person skilled in the art to be convinced that the technical solution of the invention enable the use to be carried out and/or the effect as expected to be achieved. For a new pharmaceutical compound or pharmaceutical composition, not only its specific medical use or pharmacological action, but

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	differs from the medicinal use of the cited invention, when the relevance of the working mechanism between both has been derived from the publicly known art or common general knowledge at the time of filing, the inventive step of the medicinal invention of the present patent application is usually denied, unless otherwise there is another ground for inferring inventive step such as advantageous effect or the like. (2)Conversion of a medicine for animals other than human beings to a medicine for human beings A claimed medicinal invention, derived by merely converting one compound or one group of compounds of a cited invention used for the same or a similar kind of diseases of animals other than human beings into a medicine for human beings, usually does not involve an inventive step even if there is no suggestion in the contents of the cited invention about the pertinent conversion, unless otherwise there is another ground for inferring inventive step such as advantageous effect or the like.. The situation is the same with the conversion of a medicine for human beings to into a medicine for animals other than human beings. (3)Medicine formulated by combining two or more medicinal components	clearly understand the effects of the invention and easily reproduce them, leading to many cases where it is hardly considered to be a complete invention. In particular, in a use invention of medicine where pharmacological effects are required to be described, only when the feature that specific substance has such pharmacological effects is described using experimental examples showing pharmacological data, etc. or is described concrete enough to replace them, the invention is finally considered to be completed and at the same time, is considered to satisfy the descriptive requirements of the specification. Although the experimental examples are required to be described as above, if matters not described in an original specification are supplemented through an amendment to be made later are beyond the range of the description described in the specification, such that it may be considered as altering the gist of the specification. - Case No. 2000Huh2958, Supreme Court 30 Nov. 2001 (Examination Guidelines Part IV. Chapter 2. Section 2. 3.3(2))	also its effective amount and the method of application shall be described. If a person skilled in the art is unable, on the basis of the prior art, to predict that the said use or action stated in the invention can be carried out, the qualitative or quantitative data of the laboratory test (including animal test) or clinical test shall be sufficiently provided for the person skilled in the art to be convinced that the technical solution of the invention can solve the technical problem or achieve the technical effect as expected. The description shall describe effective amount, method of application or method of formulation to such an extent that the person skilled in the art can carry it out. As for the property data showing the effect of the invention, the method used to measure it shall be specified when various measuring methods for it in the prior art yield different results. If it is a special method, it shall be explained in detail to enable a person skilled in the art to carry it out. o As for a use invention of a chemical product, the description shall describe the chemical product to be used, the method for using the product and the effect to be achieved to enable a person skilled in the art to carry it out.

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	In order to solve a problem well known to a person skilled in the art such as an increase in a medicinal effect, or the reduction of a side effect, optimization of the combination of two or more medicinal components is among exercise of ordinary creativity of a person skilled in the art. When the difference between the claimed medicinal invention and the cited invention falls only on these points, ordinarily, the inventive step of the claimed medicinal invention is denied. On the other hand, in the claimed medicinal invention defined by a combination of two or more medicinal components, when the combination of the components is novel and a remarkable effect is performed by the combination of two or more compounds or groups of compounds, the claimed medicinal invention can involve an inventive step. (Examination Guidelines Part VII. Chapter 3. “Medicinal Inventions” Section 2.3.1.1)	o The determining of an inventive step means to determine whether an invention can be easily invented by a person with ordinary skill in the art from well-known techniques. The determining an inventive step shall be made by mainly considering difficulties in adopting and combining each constitutional requirement of the invention and synthetically determining the results thereof in consideration of the objects/effects of the invention. In a medicinal use invention, if it is an invention of which pharmacological effects cannot be easily inferred from chemical structures of effective active substance or compositions of a composition in view of the level of technique at the time of filing or it has significant effects that cannot be easily inferred from pharmacological mechanism described in the prior art by a person with ordinary skill in the art, an inventive step thereof is admitted. (Examination Guidelines of Medicinal Fields 4.4) o For a medicinal use invention, the pharmacological effect should be described in the specification to support its medical use at the time of filing. In principle, the pharmacological effect should be	(Guidelines for Patent Examination Part II Chapter 10. Section 3.1 & Section 3.3)

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ITEM and SUBITEM	JAPAN PATENT OFFICE	KOREAN INTELLECTUAL PROPERTY OFFICE	STATE INTELLECTUAL PROPERTY OFFICE
		supported by clinical trials, but in a few cases, it is permissible to prove its effects by animal tests or in-vitro tests, instead of clinical trials. (Examination Guidelines of Medicinal Fields 5.1.1) o For a toxicity test, the result of acute toxicity test could be required at an examination stage in case when the toxicity is concerned. (Examination Guidelines of Medicinal Fields 5.1.2)	
3. Intermediates	o There are no criteria used to determine the inventive step based upon intermediates.	o "Intermediate" means a material composed en route to a manufacturing process of a final product, with usefulness of a raw material of the final product, and should have "structural contribution" to the final product. If the intermediate is an organic compound, its patentability is assessed based on Examination Guidelines of Organic Compound Fields. (Examination Guidelines of Organic Compound Fields 3.13)	o No other comments.
4. Inventive step of invention defined by parameters (e.g.	o Where a claim includes statements defining a product by its function or	o In case of a parameter invention, the inventive step should be assessed by taking into account	o Circumstances where it is permitted to use physical/chemical parameter(s) to

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ITEM and SUBITEM	JAPAN PATENT OFFICE	KOREAN INTELLECTUAL PROPERTY OFFICE	STATE INTELLECTUAL PROPERTY OFFICE
numerical formula)	characteristic, etc. and it falls under either the following ① or ②, there may be cases where it is difficult to compare the claimed invention with a cited invention. In the above circumstances, if the examiner has a reason to suspect that the claimed product would be prima facie similar to the product of the cited invention and that the claimed invention would prima facie involve no inventive step without making a strict comparison of the claimed product with the product of the cited invention, the examiner may send the notice of reasons for refusal under Article 29(2). Then an applicant may argue or clarify by putting forth a written argument or a certificate of experimental results, etc. against the notice of reasons for refusal. The reason for refusal is to be dissolved if the applicant's argument succeeds in changing the examiner's evaluation at least to the extent that it is unclear that the claimed product is prima facie similar to the product of the cited invention and that the claimed invention would prima facie involve no inventive step. Where the applicant's argument, which is, for example, abstract or general, does not change the examiner's evaluation to that extent, the examiner may make a decision of refusal under	the functions or characteristics caused by a parameter. For assessing the inventive step of a parameter invention, it should be firstly considered whether a technical meaning exists in introducing a parameter. If the parameter described in claims is merely a matter of expression form different from a publicly known invention or a matter of confirming the intrinsic features of a publicly known invention, and if the cause and effect relationships between the parameter and the advantageous effect are weak, the inventive step is denied. However, if the parameter invention is a type of an invention with a numerical limitation, the assessment criteria for the invention with numerical limitation can be applied. In this case, even without the technical meaning of the parameter, as long as a qualitatively different or qualitatively the same but quantitatively prominent effect of the claimed invention is considered to be caused by the numerical limitation, the inventive step of the parameter can be acknowledged. o Although it is difficult to figure out or convert a certain parameter in a claim and to compare the claimed invention with	characterize the claim of a chemical product are: the chemical product has unclear structure and cannot be precisely characterized merely by using its chemical name, structural formula or composition. The said parameter(s) shall be clear enough. (Guidelines for Patent Examination Part II Chapter 10. Section 4.3) o For this kind of claims, the examiner shall consider whether the feature of performance or parameters in a claim implies that the claimed product has a certain particular structure and/or composition. (Guidelines for Patent Examination Part II Chapter 3. Section 3.2.5)

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ITEM and SUBITEM	JAPAN PATENT OFFICE	KOREAN INTELLECTUAL PROPERTY OFFICE	STATE INTELLECTUAL PROPERTY OFFICE
	Article 29(2). ① A case where the function or characteristic, etc. is neither standard, commonly used by a person skilled in the art in the relevant technical field nor comprehensible of its relation to a commonly used function or characteristic, etc. to a person skilled in the art if the function or characteristic is not commonly used; or ② A case where plural of functions or characteristics, etc. each of which is either standard, commonly used by a person skilled in the art in the relevant technical field or comprehensible of its relation to a commonly used function or characteristic, etc. to a person skilled in the art if the function or characteristic is not commonly used, are combined in a claim so that the claim statements as a whole fall under ①. (Examination Guidelines Part II. Chapter 2. Section 2.6(1))	the cited invention, the examiner notifies the applicant of the grounds for rejection due to the inventive step without having to strictly compare the claimed invention with the cited invention and wait for the applicant's proof statement, if there is a reasonable doubt that the parameter invention can be easily derived from the cited invention. o The examiner might have reasonable doubt in the following cases: (a) the parameter described in the claims is converted with a different definition and a test/measurement method, and then the claimed invention is found to be easily derived from the cited invention. (b)the examiner evaluates the parameter of the cited invention according to the measurement/evaluation method in the description, and then the claimed invention is proved to be similar to the cited invention. (c) an embodiment in the description of the claimed invention is similar to that of the cited invention. (Examination Guidelines Part III. Chapter 3. Section 6.4.3)	

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5. Other criteria			
a. Characteristic of manufacturing method of a chemical substance and an inventive step as an invention of chemical substance	o If a claim is one with statements defining a product by its manufacturing process, there may be cases where it is difficult to determine what the product per se structurally is. In such circumstances, if the examiner has a reason to suspect that the claimed product would be prima facie identical with the product of the cited invention and that the claimed invention would prima facie involve no inventive step without making a strict comparison of the claimed product with the product of the cited invention, the examiner may send the notice of reasons for refusal under Article 29(2). (Examination Guidelines Part II. Chapter 2. Section 2.7(1))	o An invention of an organic compound does not have an inventive step if chemical structure or properties of a claimed invention is similar to that of cited invention, regardless of its different method of manufacturing organic compound. A patentability of material invention is assessed by its properties, not by its manufacturing process. (Examination Guidelines of Organic Compound Fields 6.4121)	o Circumstances where it is permitted to use the manufacturing process to characterize the claim of a chemical product are: the chemical product cannot be sufficiently characterized by the features other than the manufacturing process. (Guidelines for Patent Examination Part II Chapter 10. Section 4.3) o The subject matter of the product claim defined by the features of process is still the product, and the actual definitive effect of the features of process depends on what impact they may impose on the claimed product per se. (Guidelines for Patent Examination Part II Chapter 2. Section 3.1.1) o For the product claims including feature of manufacturing process, the examiner shall consider whether the feature of manufacturing process results in a certain particular structure and/or composition of the product. (Guidelines for Patent Examination Part II Chapter 3. Section 3.2.5)
B. Criteria to evaluate compositions or structures			

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1. Chemical product patentable per se	o Whether or not a claimed invention involves an inventive step is determined whether the reasoning that a person skilled in the art could have easily arrived at the claimed invention based on cited inventions can be made by constantly considering what a person skilled in the art would do after precisely comprehending the state of the art in the field to which the present invention pertains at the time of the filing. (Examination Guidelines Part II. Chapter 2. Section 2.4(1))	o See II.A.1.a. above.	o When a compound is novel, not similar in structure to a known compound, and has a certain use or effect, the examiner may deem it to involve an inventive step without requiring that it shall have an unexpected use or effect. o For a compound that is similar in structure to a known compound, it must have unexpected use or effect. The said unexpected use or effect may be a use different from that of the known compound, the substantive progress or improvement of a known effect of a known compound, or a use or effect which is not clear in the common general knowledge or cannot be deduced from the common general knowledge. (Guidelines for Examination Part II Chapter 10. Section 6.1)
2. Structural obviousness in chemical cases	o Reasoning is attempted by confirming and taking into consideration an advantageous effect, if any, of a claimed invention compared to cited inventions. It should be noted that, regardless of advantageous effects, inventive step may be denied by the uncontestable reasoning that a person skilled in the art could have easily arrived at a claimed invention. o However, when the advantageous effect compared to the cited invention so remarkable that it cannot be foreseen by a person	o See II.A.1.a. above.	o Whether two compounds are similar in structure has relation to the technical field of the compounds, the examiner shall apply different criteria to different technical fields. The compounds with similar structures must have the identical basic core structure or basic rings. o It shall be noted that the inventive step of a compound ought not to be denied simply on the grounds of structural similarity. It is necessary to further explain that its use or effect can be expected or is

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	skilled in the art from the state of the art, there may be cases where its inventive step is affirmed. For example, even though a reasoning seems to be possible that a person skilled in the art could have easily arrived at a claimed invention because of the close similarity between the matters defining a cited invention and the ones defining a claimed invention or because of a combination of plural cited inventions, the inventive step should be positively inferred if a claimed invention has an advantageous effect, qualitatively different or qualitatively the same but quantitatively prominent in comparison with those of cited inventions, and if the advantageous effect cannot be foreseen by a person skilled in the art from the state of the art. Particularly, in the case of an invention in a technical field in which an effect of a product is difficult to predict from its structure, the advantageous effect compared to the cited invention is an important fact to positively infer its inventive step. (Examination Guidelines Part II. Chapter 2. Section 2.5(3)①)		predictable, or that a person skilled in the art is able to produce or use that compound by logical analysis, inference or limited experiment on the basis of the prior art. (Guidelines for Patent Examination Part II Chapter 10. Section 6.1)

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3. Purer form of known product	o See II.B.1. above.	o No concrete explanation thereof	o No other comments.
4. Novel physical forms; e.g. new crystalline structure	o See II.B.1. above.	o No concrete explanation thereof	o No other comments.
5. Products of nature	o One of the requirements for a statutory invention is to be a "creation", and thus, mere discoveries, such as discoveries of natural things like an ore or natural phenomena, for which an inventor does not consciously create any technical idea, are not considered to be a statutory invention. However, if things in nature such as chemical substances or microorganisms have been isolated artificially from their surroundings, then those are creations and considered to be a statutory invention. (Examination Guidelines Part II. Chapter 1. Section 1.1(2))	o A mere discovery is not deemed to be a creation because a discovery means to find out laws which exist in nature. A statutory invention requires to be a creation, and thus, mere discoveries, such as discoveries of natural things such as an ore or natural phenomena are not considered to be a statutory invention. However, the method for artificially isolating substances from things in nature, not a mere discovery, is considered to be a statutory invention. So are the isolated chemical substances and microorganisms. (Examination Guidelines Part III. Chapter 1. Section 4.1.2) o Organic compounds artificially separated from natural products are equally treated as synthetic organic compounds.	o A substance, found in the nature and existing in its natural state, is merely an object of discovery in the sense of the “scientific discoveries” as provided for in Article 25. 1(1), and no patent right shall be granted for it. However, if a substance is isolated or extracted from the nature for the first time, of which the structure, the morphology or other physical/chemical parameters are unknown in the prior art and can be precisely characterized, and if it can be exploited industrially, the substance per se and the process for obtaining it are all patentable under the Patent Law. (Guidelines for Patent Examination Part II Chapter 10. Section 2.1)

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		(Examination Guidelines of Organic Compound Fields 6.15)	
6. Effects of components of a mixture	o If matters defining an invention are not linked each other functionally or operationally and the invention is a combination of each matter (mere juxtaposition of features), the invention is deemed as a mere exercise of ordinary creativity of a person skilled in the art, unless otherwise there is another ground for inferring inventive step. (Examination Guidelines Part II. Chapter 2. Section 2.5(1)②)	o When assessing the inventive step, the examiner shall consider the difficulty in forming structurally combined elements as a whole based on the principle of a problem solution, rather than consider whether individually dissected elements in the claim are publicly known. In addition, the examiner shall consider the unique effect that the invention has as a whole. (Examination Guidelines Part III. Chapter 3. Section 7(1))	o An invention by combination refers to a new technical solution made by combining certain known technical solutions to solve a technical problem objectively existing in the prior art. In determining the inventive step of an invention by combination, usually the following factors need to be taken into account: whether those combined technical features functionally support each other, the difficulty or easiness of combination, any technical motivation to make the combination in the prior art, and the technical effect of the combination etc. (1) Obvious combination If a claimed invention is merely an aggregation or juxtaposition of certain known products or processes, each functioning in its routine way, and the overall technical effect is just the sum of the technical effects of each part without any functional interaction between the combined technical features, that is, the claimed invention is just a mere aggregation of features, then the invention by combination does not involve an inventive step. (2) Non-obvious combination If the combined technical features functionally support each other and produce a new technical effect, or in other words, if the

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			technical effect after combination is greater than the sum of the technical effects of the individual features, then such combination has prominent substantive features and represents notable progress, and thus the invention involves an inventive step. Whether or not any of the technical features itself in the invention by combination is completely or partially known to the public does not affect the assessment of inventive step of said invention. (Guidelines for Patent Examination Part II Chapter 4. Section 4.2)
7. Various chemical forms of a compound; e.g. isomers	o See II.B.1. above.	o In case that a racemic mixture of an organic compound is known, a patentability of an optical isomer of the compound should be assessed by following conditions: An invention should have an effect, such as unique usefulness derived from unique chemical or physical properties of a compound. (Examination Guidelines of Organic Compound Fields 6.52)	o No other comments.

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C. 1. Criteria for chemical processes; e.g. process producing known chemical product, old process using new starting materials, etc.	o Where an invention of a product per se involves an inventive step, inventions of a process of producing the product or of a use of the product involves an inventive step in principle. (Examination Guidelines Part II. Chapter 2. Section 2.8(5))	o When a product invention has an inventive step, a process invention for making said product and a use invention for using said product also have an inventive step in principle. (Examination Guidelines Part III. Chapter 3. Section 9.(3)) o An invention of a manufacturing method with novel reaction has an inventive step. (Examination Guideline of Organic Compound Fields 6.4311)	o No other comments.

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2. Need for processes, including analogy process, or methods of use to be separately considered for inventive step when leading to or involving patentable products.	o See II.C.1. above.	o See II.C.1. above	o No other comments.
D. Other considerations to determine the inventive step in chemical practice			
1. Secondary tests (subtests) of non-obviousness	o See from I.F.2. to I.F.8. above. o There is no other “Secondary tests”.	o No concrete explanation thereof	o No other comments.

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ITEM and SUBITEM	JAPAN PATENT OFFICE	KOREAN INTELLECTUAL PROPERTY OFFICE	STATE INTELLECTUAL PROPERTY OFFICE
2. Extent to which comparative tests are required	o Even though a reasoning seems to be possible that a person skilled in the art could have easily arrived at a claimed invention because of the close similarity between the matters defining a cited invention and the ones defining a claimed invention or because of a combination of plural cited inventions, the inventive step should be positively inferred if a claimed invention has an advantageous effect, qualitatively different or qualitatively the same but quantitatively prominent in comparison with those of cited inventions, and if the advantageous effect cannot be foreseen by a person skilled in the art from the state of the art. Particularly, in the case of an invention in a technical field in which an effect of a product is difficult to predict from its structure, the advantageous effect compared to the cited invention is an important fact to positively infer its inventive step. (Examination Guidelines Part II. Chapter 2. Section 2.5(3)①) o Where advantageous effects compared to cited inventions are described in a specification, or where advantageous effects are not explicitly described but can be inferred from the statements	o If an effect derived from matters defining a claimed invention is advantageous in comparison with an effect of a cited invention, it is taken into consideration as a fact to affirmatively support its inventive step. (Examination Guidelines Part III. Chapter 3. Section 6.3(1)) o If necessary, comparative examples and applied examples can be described, along with examples of a claimed invention. With regard to comparative examples, a comparing invention should be the most similar one in the technical field to which claimed invention pertains. (Examination Guideline Part IV. Chapter 1. Section 2. 4.3)	o No other comments.

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	in the specification or the drawings by a person skilled in the art, the effects asserted or verified (e.g., experimental results) in a written argument, etc. should be considered. However, the effects asserted in the written argument, which are not described in the specification and that a person skilled in the art couldn't deduce from the description of the specification or the drawings, should not be taken into consideration. (Examination Guidelines Part II. Chapter 2. Section 2.5(3)②)		
3. Others	o No other comments.	o No other comments.	o No other comments.

COMPARATIVE ANALYSIS

I. Determining inventive step

A. Judicial, legislative or administrative criteria or guidelines for determining inventive step

1. Legislation

Relevant provisions in laws and implementing regulations are reproduced in Appendix I—1 (JPO), I-2 (KIPO), I—3 (SIPO).

2. Guidelines

Examination guidelines are reproduced in Appendix II—1 (JPO), II—2 (KIPO), II-3 (SIPO).
Some expertise is required to implement and revise the examination guidelines for a certain technical field such as chemistry, medical field, etc. Thus, the KIPO allows divisions in charge of examination on those fields to manage specific standards under the authority of Guidelines of the KIPO.

3. Background and purpose of the provisions relating to inventive step

The purports of all three offices are identical, though there are some differences in expression. In short, the purport of the provisions relating to inventive step is “to prevent granting exclusive rights (patent rights) to such inventions that could be easily made by a person skilled in the art”, because granting patents to such inventions would hamper the progress of technology.

B. Claim interpretation criteria

The practices of all three offices agree in that the claims determine the matter for which the protection is sought, and that the description in the specification and the drawings may be used to interpret the claims when needed.

1. Application of prior art to a claim with a preamble stating features necessary for definition of claimed subject matter followed by a characterizing portion stating those technical features to be protected

Regarding the interpretation of the “Jepson type claim” which consists of the preamble portion and

the characterizing portion, the practices of all three offices agree in that a claim should be construed as a whole including the preamble.

In the SIPO, an independent claim of an invention or utility model shall contain a preamble portion and a characterizing portion, except for the case where the use of Jepson type is not appropriate in light of the nature of the invention or utility model.

2. Determination of claimed scope and content

In all three offices, determination of a claimed invention should be made on the basis of the statements of the claim.

All three offices agree in that terminologies described in the claims are interpreted as having a general meaning and scope generally accepted in the technical field with the exception of the case wherein the terminology has a specific meaning which is explicitly defined in the description in the specification. Matters stated in the claim defining the claimed invention should be construed in light of the description and the drawings when needed.

3. Dependent claim interpretation

All three offices interpret the dependent claims as including all limitations in the cited claim.

If an independent claim involves an inventive step, its dependent claim is deemed to be inventive as well. On the contrary, if an independent claim does not have an inventive step, the assessment of an inventive step should be made for each dependent claim.

C. Basic approach applied in assessing inventive step
e.g. test for non-obviousness, avoidance of ex post facto reasoning, and considering what the skilled man would have done starting from a given problem

The approach in all three offices includes the steps of comparing the claimed invention with relevant prior art, recognizing the difference between them, and determining whether a person skilled in the art would have been easily or obviously led to the claimed invention.

Also, in all three offices, advantageous technical effects of the claimed invention should be taken into consideration as facts to support to affirmatively infer the involvement of an inventive step.

In the JPO and the KIPO, the general procedures applied for assessing the inventive step are as follows;

- Specify the claimed invention.
- Specify the cited invention(s).
- Select the cited invention which is the closest to the claimed invention
- Clarify differences between the claimed invention and the closest cited invention by comparing them
- Assess whether an invention described in the claims would have been easily made by a person skilled in the art, in view of cited inventions and the common general knowledge

  The assessment can be made from various and extensive aspects. For example, the examiner evaluates whether the claimed invention falls under a selection of an optimal material, a workshop modification of design, a mere juxtaposition of features on the basis of a cited inventions, or whether the contents of cited inventions disclose a cause or a motivation for a person skilled in the art to arrive at the claimed invention.

In the SIPO, usually the following steps are taken to determine whether a claimed invention is obvious as compared with the prior art.

- Specify the claimed invention.
- Specify the cited invention(s).
- Select the cited invention which is the closest to the claimed invention
- Determine the distinguishing features of the invention and the technical problem actually solved by the invention

  In this step, the examiner shall determine the distinguishing features of the claimed invention as compared with the closest prior art and then determine the technical problem that is actually solved by the invention on the basis of the technical effect of the distinguishing features. The technical problem actually solved by the invention, in this sense, means the technical task in improving the closest prior art to achieve a better technical effect.
- Determine whether or not the claimed invention is obvious to a person skilled in the art

  In this step, the examiner shall make a judgment, based on the closest prior art and the technical problem actually solved by the invention, as to whether or not the claimed invention is obvious to a person skilled in the art. In the course of judgment, what is to be determined is whether or not there exists such a technical motivation in the prior art as to apply the said distinguishing features to the closest prior art in solving the existing technical problem (that is, the technical problem actually solved by the invention).

D. Criteria for determining the ability to apply prior art from non-analogous technical fields

In Japan, aspects below can be the strong grounds for examiners to apply prior arts from non-analogous technical fields;
- Similarity of a problem to be solved
- Similarity of function, work or operation
- Suggestions shown in the cited inventions

In the KIPO, even if the prior art is in a different technical field from a claimed invention, it can be recognized as a cited invention in the case that the prior art might be applied to other technical fields or used by the applicant in the process of solving a specific technical problem. When a claimed invention is compared to the prior art which belongs to a different technical field from the claimed invention, examiners should take into account the eligibility of citation including the relevance of two technical fields, the close similarity of a problem to be solved, and the close similarity of a function or operation.

In the SIPO, for an invention, the examiner shall consider not only the technical field to which the invention belongs, but also the proximate or relevant technical fields, and those other technical fields in which the problem to be solved by the invention would prompt a person skilled in the art to look for technical means.
For a utility model, the examiner will normally focus on the technical field to which the utility model belongs. Where there is a clear technical teaching, for example, where there is an explicit description in the prior art, to prompt a person skilled in the art to look for technical means in a proximate or relevant technical field, the proximate or relevant technical field may be considered.
For example, the prior art including an existing technology which, despite being in a different technical field from the claimed invention, is capable of performing the function of the claimed invention and has disclosed the greatest number of technical features of the invention can be the closest prior art.

E. Criteria for determining the differences between the prior art and the claims

1. Combinations of prior art

a. Requirements, if any, of a teaching or suggestion to combine features

There is no difference among the three offices on the following two points:

(1) The examiner will reject an invention as not having an inventive step, if the invention is a mere juxtaposition of publicly known art and not producing any new effect other than the arithmetic sum of the combined features.

(2) The examiner must logically give reasons as to why a person skilled in the art would have combined the features described in the prior art documents.

b. Restrictions, if any, on the ability to modify a prior art teaching; e.g. the number of prior art teachings that can be combined

The practices of three offices coincide in that there is no particular restriction regarding the number of prior art teachings to be combined.

2. Problem of common general knowledge
i.e. the question as to whether the examiner, if he is reasonably certain that a given feature is common general knowledge but cannot prove it (because there is no supporting document), is entitled to refuse a claim

a. On the basis of that knowledge alone

In the JPO, well-known or commonly used art should be provided with supporting documents insofar as possible, since well-known or commonly used art is important material constituting the state of the art which can be a ground for a notice of reasons for refusal, regardless of whether it is used as a basis to determine the cited invention or to determine the knowledge (the state of the art including the common general knowledge) or the ability (the ability to use ordinary technical means for research and development or the ordinary creativity) of a person skilled in the art if an examiner refers to well-known or commonly used art.

In the KIPO, if the invention is regarded as a well-known art or a commonly-used art, the examiner may notify the applicant of the grounds for rejection without any evidential material attached. However, it is inappropriate to cite a well-known art or a commonly-used art as the closest cited invention without any support by evidential materials. If an applicant claims that

the invention is not well-known art or commonly-used art in a written opinion in response to the grounds for rejection on the basis of the well-known technology without any evidential material attached, the examiner should in principle provide an evidential material regarding the grounds for rejection. However, in case that the examiner has the difficulty in providing an evidential material, the examiner may deny the inventive step by thoroughly explaining why the invention falls under well-known art or commonly-used art, or pointing out why the applicant's argument is not proper.

In the SIPO, the common knowledge of the art cited in the Office Action by the examiner shall be accurate. Where the applicant has objections to the common knowledge cited by the examiner, the examiner shall state the reasons or provide corresponding evidence for proof.

b. On the basis of that knowledge combined with one or more published pieces of prior art

See E.2.a. above.

3. Criteria for evaluating differences between the prior art and the invention in regard to:

a. Temperature or other ranges

The practices of the three offices coincide on the following two points:

(1) No office recognizes an inventive step when the technical feature provided by the claimed invention against prior arts is only a change in temperature or numerical range which could have easily been made by a person skilled in the art and does not produce an unexpected effect/result.

(2) All offices may recognize inventive step when the new feature provided by the claimed invention produces an unexpected effect/result.

b. Shapes or configurations

The practices of the three offices coincide on the following two points:

(1) No office recognizes an inventive step when the technical feature provided by the claimed

invention against prior arts is only a change in shape or configuration which could have easily been made by a person skilled in the art and does not produce an unexpected effect/result.

(2) All offices may recognize inventive step when the new feature produces an unexpected effect/result.

c. Materials or parts

The practices of the three offices coincide on the following two points:

(1) No office recognizes an inventive step when the technical feature provided by the claimed invention against prior arts is only a partial change or limitation of materials or parts which could have easily been made by a person skilled in the art and does not produce an unexpected effect/result.

(2) All offices may recognize inventive step when the new feature produces an unexpected effect/result.

d. Sizes, ratios or amounts

The practices of the three offices coincide on the following two points:

(1) No office recognizes an inventive step when the technical feature provided by the claimed invention against prior arts is only a change or a numerical limitation of sizes, ratios or amounts which could have easily been made by a person skilled in the art and does not produce an unexpected effect/result.

(2) All offices may recognize inventive step when the new feature produces an unexpected effect/result.

e. Reversed elements or parts

The practices of the three offices coincide on the following two points:

(1) No office recognizes an inventive step for an invention achieved by reversing elements or

parts of the prior art, which could have easily been made by a person skilled in the art and does not produce an unexpected effect/result.

(2) All offices may recognize inventive step when the new feature produces an unexpected effect/result.

f. Omitted elements or parts

The practices of the three offices coincide on the following two points:

(1) No office recognizes an inventive step when the omission of elements or parts results in the disappearance of corresponding functions.

(2) All offices may recognize inventive step when the omission produces an unexpected effect/result.

The KIPO has commented that the inventive step can be acknowledged when the omission of some constituents does not affect the function of the invention or rather enhances the function.

The SIPO has commented that If, as compared with the prior art, after the omission of one or more elements, all the corresponding functions can still be preserved, or unexpected technical effects are brought about, then the invention has prominent substantive features and represents notable progress, and thus involves an inventive step.

g. Change or limitation of use

The practices of the three offices coincide on the following two points:

(1) No office recognizes an inventive step if the feature of the claimed invention is a change or limitation of the use of prior art which could have easily been made by a person skilled in the art and does not produce an unexpected effect/result.

(2) All three offices may recognize inventive step when the new feature produces an unexpected effect/result.

Especially on the medical use of invention, the JPO has commented that even if the medicinal use

of the claimed medicinal invention differs from that of the cited invention, when the relevance of the working mechanism between both has been derived from the publicly known art or common general knowledge at the time of filing, the inventive step of the medicinal invention of the present patent application is usually denied, unless otherwise there is another ground for inferring inventive step such as advantageous effect or the like.
Especially for the medical use of invention, the KIPO has commented that if it is an invention of which pharmacological effects cannot be easily inferred from chemical structures of effective active substance or compositions of a composition in view of the level of technique at the time of filing or it has significant effects that cannot be easily inferred from pharmacological mechanism described in the prior art by a person with ordinary skill in the art, an inventive step thereof is admitted. And, the KIPO has added a comment that the pharmacological effect should be described in the specification to support its medical use at the time of filing.

Especially on the field of chemical products, the SIPO has commented 1) a use invention of a new chemical product is regarded as involving an inventive step if the use cannot be expected from the known product having a similar structure or composition; 2) a use invention of a known product is regarded as involving an inventive step if the new use cannot be derived or expected from the structure, composition, molecular weight, known physical/chemical property and existent use of the product, but utilizes a newly discovered property of the product, and produces unexpected technical effect.

h. Selection invention

All three offices agree in that inventive step can be acknowledged in an invention consisted of particular subordinate ideas contained in prior art if it shows a significant and unexpected effect/result.

i. Others

Regarding product inventions described by its manufacturing process, the KIPO has commented as follows:

Although a manufacturing process is described in the claims of the product invention, the examiner can assess the inventive step of the product invention by comparing the product itself defined by the description with a publicly known invention without considering the manufacturing process because an applicant should directly describe the product in the claim when defining a

product invention except for special circumstances where the product can only be specified by the manufacturing process thereof.

When novelty and an inventive step are assessed, it is not the manufacturing process but the product itself described by its manufacturing process to be claimed. Therefore, the examiner shall compare “the product itself” in the claim with a publicly known product. The examiner does not have to take into account the manufacturing process or manufacturing apparatus or the product. At least, the product described by properties, features and composition is considered in this case.

4. Indication of problem to be solved

All three offices agree in that a close similarity of a problem to be solved can be a strong ground for assessing that a person skilled in the art would be led to a claimed invention by applying or combining cited inventions.

In the JPO, even in the case that a problem to be solved of a cited invention is different from that of a claimed invention, the inventive step of the claimed invention can be denied regardless of the difference in problems, if the reasoning can properly be made that a person skilled in the art could have easily arrived at the matters defining the claimed invention in a different way of thinking from the problem-solution of the claimed invention.

In the KIPO, even in the case that a problem to be solved of a cited invention is different from that of a claimed invention, if it is obvious that a person skilled in the art would have easily arrived at the claimed invention through a proper reasoning, the inventive step of claimed invention can be denied.

In the SIPO, the examiner shall first determine the distinguishing features of the claimed invention as compared with the closest prior art and then determine the technical problem that is actually solved by the invention on the basis of the technical effect of the distinguishing features. The technical problem actually solved by the invention, in this sense, means the technical task in improving the closest prior art to achieve a better technical effect.
At the step of determining whether or not the claimed invention is obvious to a person skilled in the art, the examiner shall make a judgment, starting from the closest prior art and the technical problem actually solved by the invention, as to whether or not the claimed invention is obvious to a person skilled in the art. In the course of judgment, what is to be determined is whether or not

there exists such a technical motivation in the prior art as to apply the said distinguishing features to the closest prior art in solving the existing technical problem (that is, the technical problem actually solved by the invention).

5. Indication of advantage of claimed invention

In the JPO and the KIPO, if an effect derived from matters defining a claimed invention is advantageous in comparison with that of cited inventions, it should be taken into consideration as a fact to support to affirmatively infer its inventive step.

In the SIPO, when evaluating whether or not an invention represents notable progress, the examiner shall primarily consider whether or not the invention produces advantageous technical effects.

6. Comparative test

In all three offices, the result of the comparative test between the claimed invention and the prior art may be used as one of the criteria in determining the inventive step.

7. Unexpected result

a. Cases where an unexpected result is an essential criterion for unobviousness (selection inventions and inventions comprising the combination of known elements)

The three offices agree in that an unexpected effect/result is an important factor to confirm inventive step, especially when the claimed invention is a selection invention.

In the JPO, even though a reasoning seems to be possible that a person skilled in the art could have easily arrived at a claimed invention because of the close similarity between the matters defining a cited invention and the ones defining a claimed invention or because of a combination of plural cited inventions, the inventive step should be positively inferred if a claimed invention has an advantageous effect, qualitatively different or qualitatively the same but quantitatively prominent in comparison with those of cited inventions, and if the advantageous effect cannot be foreseen by a person skilled in the art from the state of the art.

In the KIPO, if a selection invention generates an advantageous effect in comparison with a cited invention, the inventive step of the selection invention can be acknowledged. In this case,

all specific concepts included in the selection invention should have advantageous effects, which are qualitatively different, or qualitatively same but quantitatively prominent.
If a combination invention achieves an effect by a functional interaction between technical features, which is different from or greater than the sum of the effects of the individual technical features, e.g., a combined synergistic effect, the inventive step may be acknowledged since a set of technical features is considered to be a technical meaningful combination.

In the SIPO, when determining the inventive step of a selection invention, the main factor to be considered is whether the selection can bring about unexpected technical effect.
In addition, the SIPO considers that when judging the inventive step of an invention by diversion, whether unexpected effect is produced should be primarily taken into consideration.

b. Cases where it is merely one of a number of relevant secondary criteria

Both the JPO and the KIPO states that if an advantageous effect compared to cited inventions can clearly be identified from descriptions in the specification and the drawings, it should be taken into consideration as a fact to support to affirmatively infer its inventive step.

In the SIPO, if the examiner can determine that the technical solution of invention is non-obvious to the person skilled in the art and can produce advantageous technical effect, then the invention has prominent substantive features and represents notable progress, and thus involves an inventive step. Under such circumstance, whether the invention produces unexpected technical effect shall not be overemphasized.

c. Does an unexpected effect (result) have to be advantageous to constitute an inventive step?

In all three offices, there are no specific comments on whether an unexpected effect/result has to be advantageous to constitute an inventive step.

8. Others

Each office had no other comments.

F. Resolving the level of ordinary skill

1. A person skilled in the art, an average expert

a. Amount of knowledge and skill expected
b. Ordinary practitioner/average expert

There is no essential difference among the three offices with respect to the definition of “a person skilled in the art” and the amount of knowledge/skill expected of “a person skilled in the art”.

All offices consider that “a person skilled in the art” is a person who has the common technical knowledge in the relevant art, and has ordinary ability to use technical means for research/development or solve the problem by applying the common technical knowledge.

c. A team of persons skilled in the art

The JPO considers that there may be cases where it is more appropriate to think “a person skilled in the art” as “a group of persons" than a single person.

The KIPO and the SIPO has no specific comments regarding a “team” of persons skilled in the art.

2. Long-felt but unsolved needs

Both the KIPO and the SIPO take it as an indication of inventive step that the claimed invention would satisfy long—felt but unsolved needs.

In the JPO, whether or not a claimed invention involves an inventive step is determined whether the reasoning that a person skilled in the art could have easily arrived at the claimed invention based on cited inventions can be made by constantly considering what a person skilled in the art would do after precisely comprehending the state of the art in the field to which the present invention pertains at the time of the filing.

3. Prior art teaching away from the claim (technical prejudice)

All three offices take into account prior art which leads a person skilled in the art away from the claimed invention as a positive factor in judging the inventive step.

In the JPO, when there is such a description in a cited reference that precludes the reasoning the

claimed invention is easily arrived at, the cited reference is not eligible for a cited invention. However, regardless of the description in a cited reference such as the difference of the problem to be solved, which prima facie precludes the reasoning, the eligibility for a cited invention shall be maintained, if the reasoning could be possible in terms of other aspects such as a close relation of technical fields or close similarity of function, work or operation, etc.

In the KIPO, if there is a description in the prior art document that precludes the reasoning that a person skilled in the art would easily arrive at the claimed invention, the inventive step is not denied by the prior art despite the similarity between the prior art and the claimed invention. The KIPO also states that the fact that the technical features in a prior art document are described as inferior cannot be necessarily considered as a preclusion factor in assessing the inventive step.

Both the KIPO and the SIPO consider that the fact that an invention is made by overcoming technical prejudice and adopting the technical means which was abandoned by the technicians due to the prejudice, and hereby has solved a technical problem, is regarded as a positive indicator of the inventive step.

4. Showing the failure of others

The KIPO states that if a claimed invention proposes means for overcoming or solving technical difficulties which have been failed in resolving by others, this is regarded as an advantageous evidence for an inventive step.

The JPO and the SIPO has no specific comments regarding the failure of others.

5. Showing that the invention lies in a very active or crowded art

All three offices have no specific rules.

6. Development of brand-new technical field

The KIPO states that if a claimed invention falls within the area of a brand-new technology and therefore has no prior art relevant to the invention, or even the closest prior art to the invention is far away from the invention, the inventive step may be positively inferred.

The SIPO states that as compared with the prior art, an invention opening up a whole new field has

prominent substantive features and represents notable progress, and therefore involves an inventive step.

7. Commercial success

All three offices consider the commercial success is taken into account as a positive factor in judging the inventive step only when the success is derived from the technical features of the claimed invention.

8. Complexity of the technology

All three offices have no specific rule as to the complexity of the technology in judging the inventive step.

9. Other criteria

All three offices have no other criteria.

II. Special consideration applicable to chemical practice

A. Criteria used to determine the inventive step based upon

1. a. Unexpected or superior properties of a chemical

b. Determination of inventive step between chemical substances of similar structure

Is a newly discovered property of the novel chemical compound having similar structure to a known chemical compound, which property is inherent to the known chemical compound, but not disclosed in the prior art, favorably taken into account when determining inventive step of the novel chemical compounds?

All three offices consider that unexpected or superior properties of a chemical compared to the cited one are important factors to positively infer inventive step.

There is no difference among the three offices in that they recognize inventive step when a substance having a similar chemical structure to a known chemical possesses an unexpected property, i.e. a new property, or a superior effect with regard to the same property.

The KIPO states that an invention of an organic compound with unexpected or unique properties is considered to have an inventive step even though the chemical structure of the invention is similar to that of a cited invention. When a well-known catalyst of which constitution is similar to a catalyst in the present invention exists and furthermore, the reactions of the two catalysts to be used are homogeneous, an inventive step is admitted if the catalyst of the present invention has remarkable effects due to the constitutional difference in the catalysts.

The SIPO states that for a compound that is similar in structure to a known compound, it must have unexpected use or effect. The said unexpected use or effect may be a use different from that of the known compound, the substantive progress or improvement of a known effect of a known compound, or a use or effect which is not clear in the common general knowledge or cannot be deduced from the common general knowledge. Whether two compounds are similar in structure has relation to the technical field of the compounds, the examiner shall apply different criteria to different technical fields. It shall be noted that the inventive step of a compound ought not to be denied simply on the grounds of structural similarity. It is necessary to further explain that its use or effect can be expected or is predictable, or that a person skilled in the art is

able to produce or use that compound by logical analysis, inference or limited experiment on the basis of the prior art.

2. Evidence required to evaluate therapeutic properties

In all three offices, the result of pharmacological experiment requires to be described in order to confirm the pharmacological effect of the claimed medicinal invention.

In the JPO, as for working examples supporting the medicinal use, a description of the result of the pharmacological test is usually required. Since the result of the pharmacological test is to confirm the pharmacological effect of the claimed medicinal invention, all of the followings should be made sufficiently clear, in principle; (i) which compound is, (ii) applied to what sort of the pharmacological test system, (iii) what sort of result is obtained, and (iv) what sort of relationship the pharmacological test system has with the medicinal use of the claimed medicinal invention.
In the claimed medicinal invention defined by a combination of two or more medicinal components, when the combination of the components is novel and a remarkable effect is performed by the combination of two or more compounds or groups of compounds, the claimed medicinal invention can involve an inventive step.

In the KIPO, in a medicinal use invention, if it is an invention of which pharmacological effects cannot be easily inferred from chemical structures of effective active substance or compositions of a composition in view of the level of technique at the time of filing or it has significant effects that cannot be easily inferred from pharmacological mechanism described in the prior art by a person with ordinary skill in the art, an inventive step thereof is admitted.
For a medicinal use invention, the pharmacological effect should be described in the specification to support its medical use at the time of filing. In principle, the pharmacological effect should be supported by clinical trials, but in a few cases, it is permissible to prove its effects by animal tests or in-vitro tests, instead of clinical trials.

In the SIPO, for a new pharmaceutical compound or pharmaceutical composition, not only its specific medical use or pharmacological action, but also its effective amount and the method of application shall be described.
If a person skilled in the art is unable, on the basis of the prior art, to predict that the said use or action stated in the invention can be carried out, the qualitative or quantitative data of the laboratory test (including animal test) or clinical test shall be sufficiently provided for the

person skilled in the art to be convinced that the technical solution of the invention can solve the technical problem or achieve the technical effect as expected.
The description shall describe effective amount, method of application or method of formulation to such an extent that the person skilled in the art can carry it out.

3. Intermediates

In the JPO and the SIPO, there are no criteria used to determine the inventive step based upon intermediates.

The KIPO considers that "Intermediate" means a material composed en route to a manufacturing process of a final product, with usefulness of a raw material of the final product, and should have "structural contribution" to the final product, and that if the intermediate is an organic compound, its patentability is assessed based on Examination Guidelines of Organic Compound Fields.

4. Inventive step of invention defined by parameters (e.g. numerical formula)

Both the JPO and the KIPO consider that where it is difficult to compare the claimed invention defined by parameters with a cited invention, the examiner notifies the applicant of the grounds for rejection due to the inventive step without having to strictly compare the claimed invention with the cited invention and wait for the applicant’s proof statement, if there is a reasonable doubt that the parameter invention can be easily derived from the cited invention.

In the JPO, where a claim includes statements defining a product by its function or characteristic, etc. and it falls under either the following ① or ②, there may be cases where it is difficult to compare the claimed invention with a cited invention.
In the above circumstances, if the examiner has a reason to suspect that the claimed product would be prima facie similar to the product of the cited invention and that the claimed invention would prima facie involve no inventive step without making a strict comparison of the claimed product with the product of the cited invention, the examiner may send the notice of reasons for refusal under Article 29(2).
① A case where the function or characteristic, etc. is neither standard, commonly used by a person skilled in the art in the relevant technical field nor comprehensible of its relation to a commonly used function or characteristic, etc. to a person skilled in the art if the function or characteristic is not commonly used; or

② A case where plural of functions or characteristics, etc. each of which is either standard, commonly used by a person skilled in the art in the relevant technical field or comprehensible of its relation to a commonly used function or characteristic, etc. to a person skilled in the art if the function or characteristic is not commonly used, are combined in a claim so that the claim statements as a whole fall under ①.

In the KIPO, in case of a parameter invention, the inventive step should be assessed by taking into account the functions or characteristics caused by a parameter. For assessing the inventive step of a parameter invention, it should be firstly considered whether a technical meaning exists in introducing a parameter. If the parameter described in claims is merely a matter of expression form different from a publicly known invention or a matter of confirming the intrinsic features of a publicly known invention, and if the cause and effect relationships between the parameter and the advantageous effect are weak, the inventive step is denied. However, if the parameter invention is a type of an invention with a numerical limitation, the assessment criteria for the invention with numerical limitation can be applied. In this case, even without the technical meaning of the parameter, as long as a qualitatively different or qualitatively the same but quantitatively prominent effect of the claimed invention is considered to be caused by the numerical limitation, the inventive step of the parameter can be acknowledged.
Although it is difficult to figure out or convert a certain parameter in a claim and to compare the claimed invention with the cited invention, the examiner notifies the applicant of the grounds for rejection due to the inventive step without having to strictly compare the claimed invention with the cited invention and wait for the applicant’s proof statement, if there is a reasonable doubt that the parameter invention can be easily derived from the cited invention.

The SIPO states that circumstances where it is permitted to use physical/chemical parameter(s) to characterize the claim of a chemical product are: the chemical product has unclear structure and cannot be precisely characterized merely by using its chemical name, structural formula or composition. The said parameter(s) shall be clear enough.
For this kind of claims, the examiner shall consider whether the feature of performance or parameters in a claim implies that the claimed product has a certain particular structure and/or composition.

5. Other criteria

a. Characteristic of manufacturing method of a chemical substance and an inventive step as an invention of chemical substance

In all three offices, in principle, even if the claimed invention of chemical substance includes the statements defining its manufacturing process, an examiner determines the scope of the claimed invention based on what the chemical substance as a product per se is, regardless of difference of the manufacturing process.

In the JPO, if a claim is one with statements defining a product by its manufacturing process, there may be cases where it is difficult to determine what the product per se structurally is. In such circumstances, if the examiner has a reason to suspect that the claimed product would be prima facie identical with the product of the cited invention and that the claimed invention would prima facie involve no inventive step without making a strict comparison of the claimed product with the product of the cited invention, the examiner may send the notice of reasons for refusal under Article 29(2).

In the KIPO, an invention of an organic compound does not have an inventive step if chemical structure or properties of a claimed invention is similar to that of cited invention, regardless of its different method of manufacturing organic compound. A patentability of material invention is assessed by its properties, not by its manufacturing process. (The guidelines in the KIPO are made based on the leading case of the Supreme Court of Korea, and clearly state that the product itself manufactured by the process described in the claims has to be compared with the prior art in assessing its inventive step. However, considering the fact that the manufacturing process is apt to affect technical features of the product to some degree, it is hard to say that the process is entirely excluded in the assessment in terms of the product-by-process claim.)

In the SIPO, the subject matter of the product claim defined by the features of process is still the product, and the actual definitive effect of the features of process depends on what impact they may impose on the claimed product per se. For the product claims including feature of manufacturing process, the examiner shall consider whether the feature of manufacturing process results in a certain particular structure and/or composition of the product.

B. Criteria to evaluate compositions or structures

1. Chemical product patentable per se

The KIPO considers that in the case of an invention in a technical field in which an effect of a product is difficult to predict from its structure, such as a selection invention and a chemical

invention, the advantageous effect compared to the cited invention is an important factor to positively infer the inventive step.

In the SIPO, when a compound is novel, not similar in structure to a known compound, and has a certain use or effect, the examiner may deem it to involve an inventive step without requiring that it shall have an unexpected use or effect. For a compound that is similar in structure to a known compound, it must have unexpected use or effect. The said unexpected use or effect may be a use different from that of the known compound, the substantive progress or improvement of a known effect of a known compound, or a use or effect which is not clear in the common general knowledge or cannot be deduced from the common general knowledge.

The JPO has no specific comment for chemical products.

2. Structural obviousness in chemical cases

The KIPO states that an inventive step of an invention of an organic compound is assessed based on two major properties;
(1)chemical structure of the organic compound,
(2)properties or usage of the organic compound.
An invention of an organic compound with remarkably different chemical structure from that of a cited invention is considered to have an inventive step.
An invention of an organic compound with unexpected or unique properties is considered to have an inventive step even though the chemical structure of the invention is similar to that of a cited invention.
An invention of an organic compound with remarkably advantageous effects, compared with that of a cited invention, has an inventive step, even though the chemical structure or the properties of the compound can be anticipated by the cited invention.

The SIPO states that whether two compounds are similar in structure has relation to the technical field of the compounds, the examiner shall apply different criteria to different technical fields. The compounds with similar structures must have the identical basic core structure or basic rings.
It shall be noted that the inventive step of a compound ought not to be denied simply on the grounds of structural similarity. It is necessary to further explain that its use or effect can be expected or is predictable, or that a person skilled in the art is able to produce or use

that compound by logical analysis, inference or limited experiment on the basis of the prior art.

The JPO has no specific comment regarding obviousness in chemical cases.

3. Purer form of known product

All three offices have no specific comment as to purer form of known product.

4. Novel physical forms; e.g. new crystalline structure

All three offices have no specific comment as to novel physical forms.

5. Products of nature

All three offices follow the same practice that they don’t grant patents to products of nature but they may recognize inventive step on chemical substances artificially isolated from nature.

6. Effects of components of a mixture

There is no essential difference among the three offices with respect to the judgment criterion for inventive step of mixtures.

In short, all three offices do not recognize inventive step for a mixture that exhibits only an effect in the extent expected from the effects of each component (the arithmetic sum of effects).

7. Various chemical forms of a compound; e.g. isomers

Regarding isomers, the KIPO states that in case that a racemic mixture of an organic compound is known, a patentability of an optical isomer of the compound should be assessed by following conditions:
An invention should have an effect, such as unique usefulness derived from unique chemical or physical properties of a compound.

C. Criteria for chemical processes; e.g. process producing known chemical product, old process using new starting materials, etc.

1. Criteria for chemical processes; e.g. process producing known chemical product, old process using new starting materials, etc.

The JPO and the KIPO consider that where an invention of a product per se involves an inventive step, inventions of a process of producing the product or of a use of the product involves an inventive step in principle.

The SIPO has no specific comment as to criteria for chemical processes.

2. Need for processes, including analogy process, or methods of use to be separately considered for inventive step when leading to or involving patentable products.

See II.C.1. above.

D. Other considerations to determine the inventive step in chemical practice

1. Secondary tests (subtests) of non-obviousness

All three offices do not employ any special secondary tests or subtests different from those applied in other technical fields in judging inventive step in the chemical field.

2. Extent to which comparative tests are required

The JPO states that where advantageous effects compared to cited inventions are described in a specification, or where advantageous effects are not explicitly described but can be inferred from the statements in the specification or the drawings by a person skilled in the art, the effects asserted or verified (e.g., experimental results) in a written argument, etc. should be considered. However, the effects asserted in the written argument, which are not described in the specification and that a person skilled in the art couldn’t deduce from the description of the specification or the drawings, should not be taken into consideration.

The KIPO states that if necessary, comparative examples and applied examples can be described, along with examples of a claimed invention. With regard to comparative examples, a comparing invention should be the most similar one in the technical field to which claimed invention pertains.

3. Others

Each office made no other comments.

Appendix I-1.

Article 29 Conditions for Patentability

(1) An inventor of an invention that is industrially applicable may be entitled to obtain a patent for the said invention, except for the following:

(i) inventions that were publicly known in Japan or a foreign country, prior to the filing of the patent application;

(ii) inventions that were publicly worked in Japan or a foreign country, prior to the filing of the patent application; or

(iii) inventions that were described in a distributed publication, or inventions that were made publicly available through an electric telecommunication line in Japan or a foreign country, prior to the filing of the patent application.

(2) Where, prior to the filing of the patent application, a person ordinarily skilled in the art of the invention would have been able to easily make the invention based on an invention prescribed in any of the items of the preceding paragraph, a patent shall not be granted for such an invention notwithstanding the preceding paragraph.

Appendix I-2.

Article 29 Requirements for Patent Registration

(1) Inventions that have industrial applicability are patentable unless they fall under either of the following subparagraphs:

(i) inventions publicly known or worked in the Republic of Korea or a foreign country before the filing of the patent application; or

(ii) inventions described in a publication distributed in the Republic of Korea or a foreign country, or inventions publicly available through telecommunication lines as prescribed by Presidential Decree, before the filing of the patent application.

(2) Notwithstanding paragraph (1), where a person with ordinary skill in the art to which the invention pertains would have been able to easily make the invention based on the inventions prescribed in each subparagraph of paragraph (1) before the filing of the patent application, the patent shall not be granted for such an invention.

Appendix I-3.

Article 22.

Any invention or utility model for which patent right may be granted must possess novelty, inventiveness and practical applicability.

Novelty means that, the invention or utility model does not form part of the prior art; nor has any entity or individual filed previously before the date of filing with the patent administration department under the State Council an application relating to the identical invention or utility model disclosed in patent application documents published or patent documents announced after the said date of filing.

Inventiveness means that, as compared with the prior art, the invention has prominent substantive features and represents a notable progress, and that the utility model has substantive features and represents progress.

Practical applicability means that, the invention or utility model can be made or used and can produce effective results.

The prior art referred to in this Law means any technology known to the public before the date of filing in China or abroad.

Appendix II-1.

Current version of the Examination Guidelines for Patent and Utility Model in Japan:
http://www.jpo.go.jp/cgi/linke.cgi?url=/tetuzuki_e/t_tokkyo_e/1312-002_e.htm

Appendix II-2.

Current version of the Guidelines for examination in the KIPO:
http://www.kipo.go.kr/kpo/user.tdf?a=user.english.html.HtmlApp&c=60203&catmenu=ek60203

Current version of the examination Guidelines of chemistry and medical filed in the KIPO:
http://www.kipo.go.kr/kpo/user.tdf?a=user.html.HtmlApp&c=7053&catmenu=m05_12_03_03

Appendix II-3.

Current version of the Guidelines for examination in the SIPO:
The SIPO has recently published the latest version (Version 2010), but it’s not yet available online.

The URL of the last English version of the Guidelines (Version 2006) is:
http://www.sipo.gov.cn/sipo/zlsc/sczn2006/guidelines2006(EN).pdf