

the process of claim 1 ...", or "Process for the manufacture of the product of claim 1 ..."). Similarly, in a situation like the plug and socket example of III, 3.2(i), a claim to the one part referring to the other co-operating part (e.g. "plug for co-operation with the socket of claim 1 ...") is not a dependent claim. In all these examples, the examiner should carefully consider the extent to which the claim containing the reference necessarily involves the features of the claim referred to and the extent to which it does not.

In the case of a claim for a process which results in the product of a product claim, if the product claim is patentable then no separate examination for the novelty and non-obviousness of the process claim is necessary (see IV, 9.12), provided that all features of the product as defined in the product claim inevitably (cf. IV, 9.12) result from the claimed process (see III, 4.4, and T 169/88, not published in OJ). This also applies in the case of a claim for the use of a product, when the product is patentable and is used with its features as claimed (see T 642/94, not published in OJ). In all other instances, the patentability of the claim referred to does not necessarily imply the patentability of the independent claim containing the reference. It should also be noted that if the process, product and/or use claims have different effective dates (see C-V, 1 and 2), a separate examination may still be necessary in view of intermediate documents.

4. Clarity and interpretation of claims

4.1 Clarity

Art. 84

The requirement that the claims must be clear applies to individual claims and also to the claims as a whole. The clarity of the claims is of the utmost importance in view of their function in defining the matter for which protection is sought. Therefore, the meaning of the terms of a claim should, as far as possible, be clear for the person skilled in the art from the wording of the claim alone (see also III, 4.2). In view of the differences in the scope of protection which may be attached to the various categories of claims, the examiner should ensure that the wording of a claim leaves no doubt as to its category.

4.2 Interpretation

Art. 14(7)

Each claim should be read giving the words the meaning and scope which they normally have in the relevant art, unless in particular cases the description gives the words a special meaning, by explicit definition or otherwise. Moreover, if such a special meaning applies, the examiner should, so far as possible, require the claim to be amended whereby the meaning is clear from the wording of the claim alone. This is important because it is only the claims of the European patent, not the description, which will be published in all the official languages of the EPO. The claim should also be read with an attempt to make technical sense out of it. Such a reading may involve a departure from the strict literal meaning of the wording of the claims.

4.3 Inconsistencies

Any inconsistency between the description and the claims should be avoided if, having regard to Art. 69(1), second sentence, it may throw doubt on the extent of protection and therefore render the claim unclear or unsupported under Art. 84, second sentence or, alternatively, render the claim objectionable under Art. 84, first sentence. Such inconsistency can be of the following kinds:

- (i) simple verbal inconsistency

For example, there is a statement in the description which suggests that the invention is limited to a particular feature but the claims are not thus limited; also, the description places no particular emphasis on this feature and there is no reason for believing that the feature is essential for the performance

of the invention. In such a case, the inconsistency can be removed either by broadening the description or by limiting the claims. Similarly, if the claims are more limited than the description, the claims may be broadened or the description may be limited.

(ii) inconsistency regarding apparently essential features

For example, it may appear, either from general technical knowledge or from what is stated or implied in the description, that a certain described technical feature not mentioned in an independent claim is essential to the performance of the invention, or, in other words, is necessary for the solution of the problem to which the invention relates. In such a case, the claim does not meet the requirements of Art. 84, because Art. 84, first sentence, when read in conjunction with Rules 29(1) and (3), has to be interpreted as meaning not only that an independent claim must be comprehensible from a technical point of view but also that it must clearly define the subject-matter of the invention, that is to say indicate all the essential features thereof (see T 32/82, OJ 8/1984, 354). If, in response to this objection, the applicant shows convincingly, e.g. by means of additional documents or other evidence, that the feature is in fact not essential, he may be allowed to retain the unamended claim and, where necessary, to amend the description instead. The opposite situation in which an independent claim includes features which do not seem essential for the performance of the invention is not objectionable. This is a matter of the applicant's choice. The examiner should therefore not suggest that a claim be broadened by the omission of apparently inessential features;

(iii) part of the subject-matter of the description and/or drawings is not covered by the claims

For example, the claims all specify an electric circuit employing semiconductor devices but one of the embodiments in the description and drawings employs electronic tubes instead. In such a case, the inconsistency can normally be removed either by broadening the claims (assuming that the description and drawings as a whole provide adequate support for such broadening) or by removing the "excess" subject-matter from the description and drawings. However, if examples in the description and/or drawings which are not covered by the claims are presented not as embodiments of the invention but as background art or examples which are useful for understanding the invention, the retention of these examples may be allowed.

4.3a General statements, "spirit" of invention

General statements in the description which imply that the extent of protection may be expanded in some vague and not precisely defined way should be objected to. In particular, objection should be raised to any statement which refers to the extent of protection being expanded to cover the "spirit" of the invention. Objection should likewise be raised, in the case where the claims are directed to a combination of features, to any statement which seems to imply that protection is nevertheless sought not only for the combination as a whole but also for individual features or sub-combinations thereof.

4.4 Essential features

An independent claim should specify explicitly all of the essential features needed to define the invention except insofar as such features are implied by the generic terms used, e.g. a claim to a "bicycle" does not need to mention the presence of wheels.

If a claim is to a process for producing the product of the invention, then the process as claimed should be one which, when carried out in a manner which would seem reasonable to a person skilled in the art, necessarily has

as its end result that particular product; otherwise there is an internal inconsistency and therefore lack of clarity in the claim.

In the case of a product claim, if the product is of a well-known kind and the invention lies in modifying it in certain respects, it is sufficient that the claim clearly identifies the product and specifies what is modified and in what way. Similar considerations apply to claims for an apparatus.

Where patentability depends on a technical effect, the claims must be so drafted as to include all the technical features of the invention which are essential for the technical effect (see T 32/82, OJ 8/1984, 354).

4.5 Relative terms

It is preferable not to use a relative or similar term such as "thin", "wide" or "strong" in a claim unless the term has a well-recognised meaning in the particular art, e.g. "high-frequency" in relation to an amplifier, and this is the meaning intended. Where the term has no well-recognised meaning it should, if possible, be replaced by a more precise wording found elsewhere in the original disclosure. Where there is no basis in the disclosure for a clear definition and the term is not essential having regard to the invention, it should normally be retained in the claim, because to excise it would generally lead to an extension of the subject-matter beyond the content of the application as filed - in contravention of Art. 123(2). However, an unclear term cannot be allowed in a claim if the term is essential having regard to the invention. Equally, an unclear term cannot be used by the applicant to distinguish his invention from the prior art.

4.5a Terms like "about" and "approximately"

Particular attention is required whenever the word "about" or similar terms such as "approximately" are used. Such a word may be applied, for example, to a particular value (e.g. "about 200° C") or to a range (e.g. "about x to about y"). In each case, the examiner should use his judgment as to whether the meaning is sufficiently clear in the context of the application read as a whole. However, the word can only be permitted if its presence does not prevent the invention from being unambiguously distinguished from the prior art with respect to novelty and inventive step.

4.5b Trademarks

The use of trade marks and similar expressions in claims should not be allowed as it may not be guaranteed that the product or feature referred to is not modified while maintaining its name during the term of the patent. They may be allowed exceptionally if their use is unavoidable and they are generally recognised as having a precise meaning (see also II, 4.16 and 4.17).

4.6 Optional features

Expressions like "preferably", "for example", "such as" or "more particularly" should be looked at carefully to ensure that they do not introduce ambiguity. Expressions of this kind have no limiting effect on the scope of a claim; that is to say, the feature following any such expression is to be regarded as entirely optional.

4.7 Result to be achieved

The area defined by the claims must be as precise as the invention allows. As a general rule, claims which attempt to define the invention by a result to be achieved should not be allowed, in particular if they only amount to claiming the underlying technical problem. However, they may be allowed if the invention either can only be defined in such terms or cannot otherwise be defined more precisely without unduly restricting the scope of the claims and if the result is one which can be directly and positively verified by tests or procedures adequately specified in the description or known to the person

skilled in the art and which do not require undue experimentation (see T 68/85, OJ 6/1987, 228). For example, the invention may relate to an ashtray in which a smouldering cigarette end will be automatically extinguished due to the shape and relative dimensions of the ashtray. The latter may vary considerably in a manner difficult to define whilst still providing the desired effect. So long as the claim specifies the construction and shape of the ashtray as clearly as possible, it may define the relative dimensions by reference to the result to be achieved, provided that the specification includes adequate directions to enable the reader to determine the required dimensions by routine test procedures (see II, 4.9 to 4.11).

It should be noted that the above-mentioned requirements for allowing a definition of subject-matter in terms of a result to be achieved differ from those for allowing a definition of subject-matter in terms of functional features (cf. III, 6.5).

4.7a Parameters

Where the invention relates to a product, it may be defined in a claim in various ways, viz. as a chemical product by its chemical formula, as a product of a process (if no clearer definition is possible; see also III, 4.7b) or, exceptionally, by its parameters.

Parameters are characteristic values, which may be values of directly measurable properties (e.g. the melting point of a substance, the flexural strength of a steel, the resistance of an electrical conductor) or may be defined as more or less complicated mathematical combinations of several variables in the form of formulae.

Characterisation of a product mainly by its parameters should only be allowed in those cases where the invention cannot be adequately defined in any other way, provided that those parameters can be clearly and reliably determined either by indications in the description or by objective procedures which are usual in the art (see T 94/82, OJ 2/1984, 75). The same applies to a process-related feature which is defined by parameters. Cases in which unusual parameters are employed or a non-accessible apparatus for measuring the parameter(s) is used are prima facie objectionable on grounds of lack of clarity, as no meaningful comparison with the prior art can be made. Such cases might also disguise lack of novelty (see IV, 7.5).

Whether the method of and the means for measurement of the parameters need also be in the claim is dealt with in III, 4.10a.

4.7b Product-by-process claim

Claims for products defined in terms of a process of manufacture are allowable only if the products as such fulfil the requirements for patentability, i.e. inter alia that they are new and inventive. A product is not rendered novel merely by the fact that it is produced by means of a new process (see T 150/82, OJ 7/1984, 309). A claim defining a product in terms of a process is to be construed as a claim to the product as such. The claim may for instance take the form "Product X obtainable by process Y". Irrespective of whether the term "obtainable", "obtained", "directly obtained" or an equivalent wording is used in the product-by-process claim, it is still directed to the product per se and confers absolute protection upon the product (see T 20/94, not published in OJ).

Art 64(2)

According to Art. 64(2), if the subject-matter of a European patent is a process, the protection conferred by the patent extends to the products directly obtained by such process. The provisions of this Article are understood to apply to processes producing products completely different from the starting materials as well as to the processes producing only superficial changes (e.g. painting, polishing).

4.8 "Apparatus for ...", "Method for ...", etc.

If a claim commences with such words as: "Apparatus for carrying out the process etc..." this must be construed as meaning merely apparatus suitable for carrying out the process. Apparatus which otherwise possesses all of the features specified in the claims but which would be unsuitable for the stated purpose or would require modification to enable it to be so used, should normally not be considered as anticipating the claim.

Similar considerations apply to a claim for a product for a particular use. For example, if a claim refers to a "mold for molten steel", this implies certain limitations for the mold. Therefore, a plastic ice cube tray with a melting point much lower than that of steel would not come within the claim. Similarly, a claim to a substance or composition for a particular use should be construed as meaning a substance or composition which is in fact suitable for the stated use; a known product which prima facie is the same as the substance or composition defined in the claim, but which is in a form which would render it unsuitable for the stated use, would not deprive the claim of novelty. However, if the known product is in a form in which it is in fact suitable for the stated use, though it has never been described for that use, it would deprive the claim of novelty. An exception to this general principle of interpretation is where the claim is to a known substance or composition for use in a surgical, therapeutic or diagnostic method (see IV, 4.2).

In contrast to an apparatus or product claim, in case of a method claim commencing with such words as: "Method for remelting galvanic layers" the part "for remelting ..." should not be understood as meaning that the process is merely suitable for remelting galvanic layers, but rather as a functional feature concerning the remelting of galvanic layers and, hence, defining one of the method steps of the claimed method (see T 848/93, not published in OJ).

4.8a Definition by reference to use or another entity

Where a claim in respect of a physical entity (product, apparatus) seeks to define the invention by reference to features relating to the entity's use, a lack of clarity can result. This is particularly the case where the claim not only defines the entity itself but also specifies its relationship to a second entity which is not part of the claimed entity (for example, a cylinder head for an engine, where the former is defined by features of its location in the latter). Before considering a restriction to the combination of the two entities, it should always be remembered that the applicant is normally entitled to independent protection of the first entity per se, even if it was initially defined by its relationship to the second entity. Since the first entity can often be produced and marketed independently of the second entity, it will usually be possible to obtain independent protection by wording the claims appropriately (for example, by substituting "connectable" for "connected"). If it is not possible to give a clear definition of the first entity per se, then the claim should be directed to a combination of the first and second entities (for example, "engine with a cylinder head" or "engine comprising a cylinder head").

It may also be allowable to define the dimensions and/or shape of a first entity in an independent claim by general reference to the dimensions and/or corresponding shape of a second entity which is not part of the claimed first entity but is related to it through use. This particularly applies where the size of the second entity is in some way standardised (for example, in the case of a mounting bracket for a vehicle number-plate, where the bracket frame and fixing elements are defined in relation to the outer shape of the number-plate). However, references to second entities which cannot be seen as subject to standardisation may also be sufficiently clear in cases where the skilled person would have little difficulty in inferring the resultant restriction of the scope of protection for the first entity (for example, in the case of a covering sheet for an agricultural round bale, where the length and breadth

of the covering sheet and how it is folded are defined by reference to the bale's circumference, width and diameter, see T 455/92, not published in OJ). It is neither necessary for such claims to contain the exact dimensions of the second entity, nor do they have to refer to a combination of the first and second entities. Specifying the length, width and/or height of the first entity without reference to the second would lead to an unwarranted restriction of the scope of protection.

4.8b The expression "in"

To avoid ambiguity, particular care should be exercised when assessing claims which employ the word "in" to define a relationship between different physical entities (product, apparatus), or between entities and activities (process, use), or between different activities. Examples of claims worded in this way include the following:

- (i) Cylinder head in a four-stroke engine;
- (ii) In a telephone apparatus with an automatic dialler, dial tone detector and feature controller, the dial tone detector comprising ...;
- (iii) In a process using an electrode feeding means of an arc-welding apparatus, a method for controlling the arc welding current and voltage comprising the following steps: ...; and
- (iv) In a process/system/apparatus etc. ... the improvement consisting of ...

In examples (i) to (iii) the emphasis is on the fully functioning sub-units (cylinder head, dial tone detector, method for controlling the arc welding current and voltage) rather than the complete unit within which the sub-unit is contained (four-stroke engine, telephone, process). This can make it unclear whether the protection sought is limited to the sub-unit per se, or whether the unit as a whole is to be protected. For the sake of clarity, claims of this kind should be directed either to "a unit with (or comprising) a sub-unit" (e.g. "four-stroke engine with a cylinder head"), or to the sub-unit per se, specifying its purpose (for example, "cylinder head for a four-stroke engine"). The latter course may be followed only at the applicant's express wish and only if there is a basis for it in the application as filed, in accordance with Art. 123(2).

With claims of the type indicated by example (iv), the use of the word "in" sometimes makes it unclear whether protection is sought for the improvement only or for all the features defined in the claim. Here, too, it is essential to ensure that the wording is clear.

However, claims such as "use of a substance ... as an anticorrosive ingredient in a paint or lacquer composition" are acceptable on the basis of second non-medical use (see IV, 7.6, second paragraph).

4.9 Use claims

For the purposes of examination, a "use" claim in a form such as "the use of substance X as an insecticide" should be regarded as equivalent to a "process" claim of the form "a process of killing insects using substance X". Thus a claim in the form indicated should not be interpreted as directed to the substance X recognisable (e.g. by further additives) as intended for use as an insecticide. Similarly, a claim for "the use of a transistor in an amplifying circuit" would be equivalent to a process claim for the process of amplifying using a circuit containing the transistor and should not be interpreted as being directed to "an amplifying circuit in which the transistor is used", nor to "the process of using the transistor in building such a circuit".

4.10 References to the description or drawings

Rule 29(6)

The claims must not, in respect of the technical features of the invention, rely on references to the description or drawings "except where absolutely necessary". In particular they must not normally rely on such references as "as described in part ... of the description", or "as illustrated in Figure 2 of the drawings". The emphatic wording of the excepting clause should be noted. The onus is upon the applicant to show that it is "absolutely necessary" to rely on reference to the description or drawings in appropriate cases (see T 150/82, OJ 7/1984, 309). An example of an allowable exception would be that in which the invention involves some peculiar shape, illustrated in the drawings, but which cannot be readily defined either in words or by a simple mathematical formula. Another special case is that in which the invention relates to chemical products some of whose features can be defined only by means of graphs or diagrams.

4.10a Method of and means for measuring parameters referred to in claims

A further special case is where the invention is characterised by parameters. Provided that the conditions for defining the invention in this way are met (see III, 4.7a), the definition of the invention should appear completely in the claim itself whenever this is reasonably practicable. In principle the method of measurement is necessary for the unambiguous definition of the parameter. The method of and means for measurement of the parameter values need not however be in the claims when:

- (i) the description of the method is so long that its inclusion would make the claim unclear through lack of conciseness or difficult to understand; in that case the claim should include a reference to the description, in accordance with Rule 29(6);
- (ii) a person skilled in the art would know which method to employ, e.g. because there is only one method, or because a particular method is commonly used; or
- (iii) all known methods yield the same result (within the limits of measurement accuracy).

However, in all other cases the method of and means for measurement should be included in the claims as the claims define the matter for which protection is sought (Art. 84).

4.11 Reference signs

Rule 29(7)

If the application contains drawings, and the comprehension of the claims would be improved by establishing the connection between the features mentioned in the claims and the corresponding reference signs in the drawings, then appropriate reference signs should be placed in parentheses after the features mentioned in the claims. If there is a large number of different embodiments, only the reference signs of the most important embodiments need be incorporated in the independent claim(s). Where claims are drafted in the two-part form set out in Rule 29(1), the reference signs should be inserted not only in the characterising part but also in the preamble of the claims. Reference signs should not however be seen as limiting the extent of the matter protected by the claims; their sole function is to make claims easier to understand. A comment to that effect in the description is acceptable (see T 237/84, OJ 7/1987, 309).

If text is added to reference signs in parentheses in the claims, lack of clarity can arise (Art. 84). Expressions such as "securing means (screw 13, nail 14)" or "valve assembly (valve seat 23, valve element 27, valve seat 28)" are not reference signs in the sense of Rule 29(7) but are special features, to which the last sentence of Rule 29(7) is not applicable. Consequently, it is unclear whether the features added to the reference signs are limiting or not. Accordingly, such bracketed features are generally

not permissible. However, additional references to those figures where particular reference signs are to be found, such as "(13 - Figure 3; 14 - Figure 4)", are unobjectionable.

A lack of clarity can also arise with bracketed expressions that do not include reference signs, e.g. "(concrete) moulded brick". In contrast, bracketed expressions with a generally accepted meaning are allowable, e.g. "(meth)acrylate" which is known as an abbreviation for "acrylate and methacrylate". The use of brackets in chemical or mathematical formulae is also unobjectionable.

4.12 Negative limitations (e.g. disclaimers)

A claim's subject-matter is normally defined in terms of positive features indicating that certain technical elements are present. Exceptionally, however, the subject-matter may be restricted using a negative limitation expressly stating that particular features are absent. This may be done e.g. to remove non-patentable embodiments disclosed in the application as filed (see T 4/80, OJ 4/1982, 149) or if the absence of a feature can be deduced from the application as filed (see T 278/88, not published in OJ).

Furthermore, a prior-art disclosure may be excluded by using a "disclaimer" to re-establish the novelty of an inventive teaching which **accidentally** overlaps with the disclosure. A disclaimer with no basis in the application as filed can only re-establish novelty; it cannot make an obvious teaching inventive (see T 170/87, OJ 11/1989, 441). Care should be taken to ensure that the wording of the disclaimer does not infringe Art. 123(2); see C-VI, 5.3.11.

Negative limitations or disclaimers may be used only if adding positive features to the claim either would not define more clearly and concisely the subject-matter still protectable (see T 4/80, OJ 4/1982, 149) or would unduly limit the scope of the claim (see T 1050/93, not published in OJ).

4.13 "Comprising" vs. "consisting"

While in everyday language the word "comprise" may have both the meaning "include", "contain" or "comprehend" and "consist of", in drafting patent claims legal certainty normally requires it to be interpreted by the broader meaning "include", "contain" or "comprehend". On the other hand, if a claim for a chemical compound refers to it as "consisting of components A, B and C" by their proportions expressed in percentages, the presence of any additional component is excluded and therefore the percentages should add up to 100% (see T 759/91 and T 711/90, both not published in OJ).

4.14 Functional definition of a pathological condition

When a claim is directed to a further therapeutic application of a medicament and the condition to be treated is defined in functional terms, e.g. "any condition susceptible of being improved or prevented by selective occupation of a specific receptor", the claim can be regarded as clear only if instructions, in the form of experimental tests or testable criteria, are available from the patent documents or from the common general knowledge allowing the skilled person to recognise which conditions fall within the functional definition and accordingly within the scope of the claim (T 241/95, OJ 2/2001, 103) (see also IV, 4.2).

5. Conciseness, number of claims

Art. 84
Rule 29(5)

The requirement that the claims must be concise refers to the claims in their entirety as well as to the individual claims. The number of claims must be considered in relation to the nature of the invention the applicant seeks to protect. Undue repetition of wording, e.g. between one claim and another, should be avoided by the use of the dependent form. Regarding independent claims in the same category see III, 3.2 and 3.3. As for dependent