# Examiners' Report on Paper A/1995 (Chemistry)

The candidates were expected to realise that the client's letter contained references to two groups of inventions. The first group related to subject-matter based on a binary alloy of lead (**Pb**) and antimony (**Sb**), and the second group to subject-matter based on a ternary alloy of Pb, Sb and tin (**Sn**). The candidates should find out whether these groups were linked together in such a way that they formed a single general inventive concept.

The examiners realised that different approaches could be made with respect to the wording of the claims and that in accordance with this wording the question of unity could be answered in different ways. It was, of course, expected that the script presented by a candidate was consistent in itself with respect to the wording of the claims and the unity question. Thus, according to general practice in metallurgy, metallurgists are used to define all components of an alloy in a way such as: "Alloy consisting of *x* weight % of component *A*, ... *z* weight % of component *Z* (and usual amounts of impurities)" ("metallurgical approach"). Candidates normally dealing with applications from other parts of chemistry were expected to prefer a wording such as: "Alloy comprising component *A*, ... and z weight %, the percentage(s) being based on the alloy, of component *Z*" ("chemical approach"). Both approaches have been considered equivalent as regards the marking in this examination.

The basic invention was considered to be the method by which homogeneous alloys of Pb and 1 to 15 wt.% Sb could be prepared. Therefore a claim was expected defining the particular process for obtaining such alloys. The key feature of such a claim was the quenching to a temperature of below 200°C directly after the casting of the homogeneous mixture of the alloy metals. This feature was common to both the binary alloy and the ternary alloy.

Such a claim was taken as the "umbrella" linking together the above two groups if the chemical approach was used by a candidate. Candidates using the metallurgical approach who came to the conclusion that there was lack of unity due to the different (binary and ternary) alloys were given full credit as well.

As regards the assessment of lack of unity, reference is made to the Report to Paper B/1994: "If the only concept common to the different embodiments of the application (e.g. the different categories of claims) has no inventive character (= does not define a contribution that the claimed invention considered as a whole makes over the prior art) then there is lack of unity." This concept has been used again. Reference is made to the Guidelines C-III, 7.1 to 7.7 as regards this question.

In view of the prior art, a claim to the products of the above process was possible and expected. Some candidates lost a considerable amount of marks because they did not draw up such claims. They assumed that such claims would have been anticipated by the prior art. The client's letter made it clear, however, that omitting the quenching step resulted in different (inhomogeneous) products. The documents both stated that the alloys were left to solidify without taking active cooling measures. As there was no reference in the prior art to a quenching step or to an effect caused by such a step or to homogeneity of the products at all there was a strong argument for inventive step. Therefore the product *obtainable by this process* (cf. Guidelines C-III, 4.7b) could be deemed different (new) and inventive and worth claiming.

As a further aspect, a process claim was expected for the hardening of the alloys by rolling and finish rolling the quenched products under the conditions specified and a claim to the hardened products *obtainable by* this process.

Some candidates preferred to claim an alloy directly, characterised by reference to its homogeneity and strength. Credit was given for well-formed claims of this type if the description gave a clear explanation of the correlation of these properties and the measures that were necessary to obtain these properties.

In still further aspects, the use of these products in the manufacture of chemical production plants, the chemical reactor containing inner surfaces of made of these materials and containers for corrosive material made from that material could be claimed. Here the above considerations for novelty and inventive step applied as well.

Finally the use of such a reactor in urea production was likewise expected to be claimed.

In the "chemical approach", the first product claim to the alloy *obtainable by the particular "cast and quench" process* encompassed the ternary alloy as well. In the "metallurgical approach", a claim to the ternary alloy *as obtainable by this particular "cast and quench" process* was likewise expected. In both approaches, a claim to the use of the ternary alloy as a slide bearing material was expected. Document I referred to lead alloys including those of Pb and Sb covering a range of compositions. More particularly it discloses two ternary alloys representing the range disclosed in the client's letter (binary: 2.5 and 11 % Sb; ternary: 7 and 9 % Sb). Therefore a claim to the unquenched and hence inhomogeneous alloy simply disclaiming these known alloys was not deemed an appropriate solution (Decision T188/83 [OJ EPO 11/1984, 555-562]. The particular homogeneity which is the result of the quenching step was essential to the product.

The candidates were expected to present claims based on a fair reading of the client's disclosure and they were given credit for such claims. They were not expected to expand the invention based on their own speculative views or on their own additional special knowledge in this area (see the instructions to candidates) or even in contradiction to the client's instructions. Thus, a number of candidates disregarded the fact that the client clearly stated that a maximum of 15 wt.% of Sb should on no account be exceeded for technical reasons (see 95/A(C)/e/3, 3rd paragraph, lines 8 - 9: "which make the product unsuitable" i.e. they do not overcome the problem).

Some candidates drew up a claim to the urea obtainable in the reactor according to this invention. Such a claim could not gain marks for lack of novelty. According to Decision T 205/83 [OJ 12/1985, 363-372] a known product does not necessarily acquire novelty merely by virtue of the fact that it is prepared in a purer form. Evidence of novelty cannot involve properties which are not attributable to the substance parameters of the product itself, i.e. which are not inherent in it.

Some candidates drew up claims defining some essential features but they failed to take into account the context of these features. Taking Decision T 260/85 [OJ 4/1989, 105-114] into consideration, which deals with the importance of the context of a feature, may be helpful. Thus, to give an example: a claim describing rolling of shaped bodies in a particular temperature range and with a particular reduction of thickness which is however silent about the material of the shaped bodies treated in this way did not gain marks.

A claim to the use of an alloy obtainable by the "*cast and quench*" process as joint material for connecting plates of any material or as soldering material could not attract marks because it did not define the boundary conditions and it had no basis in the client's letter. Thus, the critical

feature of homogeneity due to the quenching step in the preparation of the alloy would certainly have been lost during the soldering step unless particular conditions were used. Such a claim was silent about the requirement that the heat should be dissipated immediately.

In accordance with the Guidelines C-III, **5** and 3.7a the wording of a claim can be made more concise by including a reference to a preceding claim wherein some of the features have already been defined. However, some candidates did not pay attention to include such a references which would have been necessary. Thus, a claim to the "Use of ternary alloys of lead, antimony and tin as a slide bearing material." was not deemed to be a proper solution, as it could not be derived from the client's letter that the percentage of the three components would have been meaningless.

While a claim to a product defined in terms of a process by which it can be obtained is acceptable under Art. 52(1) EPC if there is unambiguous information or evidence that the *product as such* is new and inventive, a claim to a "product for use ..." wherein the definition of the intended use is the only distinguishing feature is not properly delimited from a product of the prior art.. The requirements for the allowability of a claim to a product defined in terms of a process ("product-by-process claims") are defined in the Guidelines C-III, 4.7b . As regards the claim to a product defined in terms of an intended use reference is made to the Guidelines C-III, 4.8.

The candidates are reminded to read the instructions to candidates carefully. This may save time for them. Thus, it is not required to prepare an abstract or a title and such an effort does not result in additional marks.

Some candidates neither drew up claims to the subject-matter that can be referred to under the heading "ternary alloy" nor stated that they would file a separate application to that subject-matter contrary to the clear instruction at the end of the first paragraph on page 6 of the client's letter. A reference to such a separate application which could possibly be envisaged "when required" has not been considered to be sufficient. Marks could not be gained for this matter where the candidate remained silent about it or where he or she did not give a clear decision to file a separate application.

A number of candidates apparently did not read the client's letter carefully enough to find out the exact scope of the information given. Here some examples:

(i) The preferred range of 1 to 5 wt.% Sb applied to the binary alloy only. This range was inconsistent with the ternary alloy as defined on page 95/A(C)/e/6, 4th paragraph (containing 6 to 12 wt.% Sb).

(ii) On page 95/A(C)/e/6, 4th paragraph the letter contained information that a *particular* ternary alloy was considered useful for slide bearings . There has been no disclosure that this was true for any Pb/Sb/Sn alloy or an alloy containing at least 80 wt.% Pb and 1-15 wt.% of each of the other two metals.

## EXAMINATION COMMITTEE I

Candidate No. .....

Paper A (Chemistry) Schedule of marks

| Category | Maximum possible | Marks awarded by first examiners | | Revision of marks / grade (if any) or marking of further examiners (if appropriate) | |
|---|---|---|---|---|---|
| | | Exr ..... | Exr ..... | Exr ..... | Exr ..... |
| Independent claims | 30 | | | | |
| Dependent claims | 10 | | | | |
| Description | 8 | | | | |
| Total | 48 | | | | |
| Corresponding Grade | | | | | |

Translation of marks into grades

| | Grade |
|---|---|
| 0 - 11 | 7 |
| 12 - 17 | 6 |
| 18 - 23 | 5 |
| 24 - 29 | 4 |
| 30 - 35 | 3 |
| 36 - 41 | 2 |
| 42 - 48 | 1 |

**Remarks by examiners** which must be given if both the following requirements are fulfilled:
(a) the grades awarded by the two first examiners before their discussion differ by two grades or more;
(b) the marks awarded by at least one of the two first examiners have been changed during their discussion.
If marks are revised, brief explanation should be given.

**Sub-Committee for Chemistry**

☐ Sub-Committee agrees on _____ marks and grade _____

☐ Sub-Committee does not agree on a grade

**Remarks by Sub-Committee** which must be given where the Sub-Committee does not agree on a grade

Grade recommended to Board by Committee I _____

**Remarks by Committee I**

18.08.95

_____ _____

Date Signature of Chairman of Committee I