

Examiners' Report on Paper B/1993 (Chemistry)

The candidates were expected to realise that none of the claims could be maintained as they stood in view of the documents cited and clearly explained in the communication. It was clear that the prior art even deprived the specific catalysts of the examples of novelty.

Document III (**D III**) anticipates catalyst I, document IV (**D IV**) anticipates catalyst III and document V (**D V**) anticipates catalyst II.

Document III refers to the use of catalyst I and of similar catalysts (not with optimal results) in the oxidation of butanol and in the oxidative dehydrogenation of α -olefins.

Document IV refers to the use of catalyst III in the preparation of butadiene and also of acrylonitrile. Regeneration of the catalyst (using aqueous ammonia) and use of the regenerate in the dehydrogenation are disclosed as well.

Document V refers to the use of fresh or regenerated catalyst II in the ammoxidation of propene to acrylonitrile. In the regeneration ammonium carbonate is used.

It is to be noted that the three catalysts of the examples of the specification had compositions which were significantly different.

Having regard to these facts the examiners expected claims relating to the use of catalyst I in ammoxidation and of catalyst II in dehydrogenation. Such claims were novel and each defined an invention the subject-matter of which was patentable in view of the excellent results in the tables of the application which properly supported an argument for inventive step.

Thus, it is to be noted that in the tables in the specification unexpectedly good results are demonstrated for catalyst I in the ammoxidation reaction, and for catalyst II unexpectedly good results are shown for the dehydrogenation of 1-butene.

The results in Table 2 also show that the regenerated catalyst IV gives unexpectedly good results in ammoxidation.

The candidates were further expected to appreciate that the two use claims directed to the subject-matter outlined above could lead to an objection of lack of unity if maintained in the same application, and they were therefore expected to make reference to the necessity of filing a divisional application to either one of these uses.

Moreover, it was expected that, due to the fact that **D III** is silent as to regeneration of catalyst I and in view of the support given by Table 2, a claim to a method of regeneration of catalyst I used in ammoxidation could be drawn up.

On page 6 and in the tables on page 10 a mixture of fresh and regenerated catalyst (catalyst V) gives very good results. The reduced formation of hydrocyanic acid in the ammoxidation by means of such a mixture (at high conversions and at high yields of the

desired product) compared to the same reaction using fresh catalyst was a good argument in support of a product claim to such a mixture. Consequently, such a claim gained many marks.

A number of candidates maintained product claims directed to catalytic compositions *per se* although most of them had realised that each of documents **D III** to **DV** anticipated catalysts encompassed by claim 1 as filed. Therefore a variety of limitations to these claims were suggested.

Some candidates disclaimed the catalysts of their own examples. Nevertheless the examples disclaimed were then used to support their arguments as regards inventive step. Such arguments were not deemed convincing and such claims were not considered appropriate. Therefore these arguments could not be successful (cf. Decision T 170/87, Headnote 2 (OJ EPO 1989, 441): "2. A disclaimer can be used to make an inventive teaching which overlaps with the state of the art novel but it cannot make an obvious teaching inventive.").

The disclosure of **D III** and of **D V** goes beyond that of the specific examples of these documents. Thus, paragraph 3 of **D III** refers to similar compositions being tested (those within a variation of ± 0.1 were deemed satisfactory). Such a statement could only have been established on the basis of a wider range of tests than those disclosed *expressis verbis* in the document. For this reason a disclaimer to the individual catalysts in the examples of documents **D III** to **D V** is also inappropriate.

A number of candidates filed product claims to the catalytic compositions worded as product-by-process claims ("obtainable" or "obtained" by a specific process) without being able to demonstrate novelty of the subject-matter claimed. It must be kept in mind that a product is not rendered novel merely by the fact that it is produced by means of a new or different process (cf. the EPO Guidelines C-IV, 7.6, C-III, 4.7b and decision T 150/82).

Delimitation of a product claim by adding a reference to its intended use was not accepted in accordance with the Guidelines C-IV, 7.6 and C-III, 4.8 (" ... 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 is *per se* 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, but 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 view of this passage such a claim including the wording "compound for" has been construed to read "compound suitable for". There is no indication in the prior art that the known catalyst was not suitable for the use in the oxidative reactions referred to in the application.

It should have been noted that the experimental results in the very close citations **D III** to **D V** (which did not only contain some comparative examples accidentally anticipating part of the client's disclosure, as did **D II** in Paper A) and those in the application were

obtained under slightly different experimental conditions (other temperatures, other ratios of the reactants) which of course had an influence on the conversion degrees and yields. Argumentation based on such a comparison was, therefore, not deemed fully convincing and, consequently, could not gain full marks.

The best arguments and evidence could be found in the tables of the application itself. Reference can e.g. be made to the results of catalyst V given in the tables of the application compared to those of catalyst I in these tables (see the above paragraph referring to a claim to the mixture of fresh and regenerated catalyst).

An argument based on improvement of the induction period (see page 5) was neither expected nor accepted because no evidence was given in the application, see Decision T 20/81 which makes clear that alleged advantages over the prior art based on a certain feature can only be considered in assessment of inventive step if evidence has been given for such advantages.

Method claims to the preparation of catalysts according to analogy methods were produced by some candidates. Such claims were only awarded marks if they were properly delimited from the process features disclosed in the prior art or if the catalyst claimed was patentable (cf. Guidelines C-IV, 9.5a).

Some candidates filed claims directed to the use of ammonia or ammonium compounds in order to improve the activity of the catalytic compositions and based their arguments on the Decisions G 2/88 and G 6/88 from the Enlarged Board of Appeals. However, such claims were considered not to be inventive for the following reasons: There was no evidence as required by the above cited Decision T 20/81 or by Decision T 37/82 according to which a feature can only be considered in assessment of inventive step if there is evidence that it contributes alone or with the other features of the claim to the solution of the problem set in the description. In the description there is only a vague statement that "often" a better activity may be achieved. Neither the examples in the application nor the prior art provide any evidence for this allegation.

If a feature is essential for defending the patentability of a claim this feature must be defined in the claims as mandatory.

It has to be noted that the problem-solution approach was not applied at all or not correctly worked out by a number of candidates. It has not been considered sufficient to simply state that the prior art did not suggest a specific embodiment.

Some candidates did not come up with any arguments, at all, thus losing the benefit of approximately half the available marks which of course drastically reduced their chances of success.

More candidates than usual have not made efforts to deal with all the objections raised in the communication as far as necessary in view of the claims they suggested and to give convincing arguments for their reworded claims. A great number of the candidates did not draw up claims which could be defended as being new and inventive. Some candidates filed some good arguments but their claims were not amended accordingly.

EXAMINATION COMMITTEE I

Candidate's answer-paper No.

Report by examiner No.

FORM, for use by individual examiners, in PAPER B

Schedule of marks

Category	Maximum possible	Individual marks awarded	Where grades awarded are not identical	
			Revision of marks/grade (if any)	Remarks*
Claims:	24			
Argument	24			
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

* to be filled in if both the following requirements are fulfilled:

- (a) the grades awarded by the two individual examiners before their discussion differ by two grades or more;
 - (b) the marks awarded by at least one of the two individual examiners have been changed during their discussion.
- If remarks are to be filled in, they should briefly explain **why** the examiner has changed his marks.