EXAMINERS' REPORT - Paper B (Chemistry)

The technical field was corrosion inhibition of steel-reinforced concrete. As stated in the communication, the corrosion-inhibiting composition of the claims in the application was not novel in view of both **D1** and **D2**. Candidates were expected to restrict the claims as follows:

1. To a process for restoring steel-reinforced concrete structures by impregnating the surface of the hardened concrete structures with an aqueous composition comprising the alkanolamine and the nitrite as defined in given claim 1.

The subject-matter of such a claim is novel as

- document **D2** does not disclose the treatment of a hardened concrete structure but rather discloses adding a corrosion inhibitor to a concrete slurry prior to its hardening;
- document **D1** teaches the restoration of steel-reinforced concrete structures by first removing the concrete, then cleaning and finally coating the steel reinforcement with the coating composition containing the corrosion inhibitor. So, **D1** does not disclose impregnating the surface of a hardened concrete structure.

Candidates who did not include the feature "steel-reinforced" in their claims gained fewer marks because the corrosion problem only exists in steel-reinforced concrete.

2. To an aqueous corrosion-inhibiting composition which contains the alkanolamine and the nitrite as defined in given claim 1 and, in addition to that, the alkylalkoxysilane as defined on page 5, lines 12-17 of the English version of the paper.

The subject-matter of such a claim is novel as neither D1 nor D2 discloses compositions containing such a silane. It was stated in the application that it was known to use alkylalkoxysilanes on concrete structures, but there was no disclosure of these compounds in corrosion-inhibiting compounds.

There was unity of invention between these two types of claims. The general inventive concept was the restoration of existing hardened steel-reinforced concrete structures without having to remove the concrete. The composition containing the alkylalkoxysilane was especially adapted for use in this process (see page 5, lines 20-23 of the English version of the paper).

Dependent claims could be filed

- on the basis of given claims 2 to 4,
- directed to an aqueous corrosion-inhibiting composition as outlined under 2. above, which additionally contains a surfactant (see page 5, lines 23-25 of the English version of the paper), to preferred process conditions and to
- the preferred composition having the weight proportions for the inhibitor (alkanolamine + nitrite), the alkylalkoxysilane, the surfactant and water as disclosed on page 5, lines 27-29 of the English version of the paper.

Candidates who filed an excessive number of dependent claims did not gain all of the marks reserved for the dependent claims.

Candidates who restricted the process claim to one employing a corrosion inhibitor containing the alkylalkoxysilane lost a considerable number of marks. A process employing this silane should have been a dependent claim.

A considerable number of points was deducted for any independent claim that was clearly not allowable.

Claims limited to compositions of specific examples were considered not to be valuable and could not attract marks.

Some candidates realised that a divisional application could be filed for a 1:1 mixture of calcium nitrite and triethanolamine. D1 does not disclose a mixture of a specific alkanolamine with a specific nitrite. D2 only discloses one such specific blend, i.e. that of sodium nitrite with 2-aminoethanol (see the example of D2). A 1:1 mixture of calcium nitrite and triethanolamine is very efficient as a corrosion inhibitor as was evident from example 1 and series A of example 2 (see the respective tables).

Some candidates filed claims which were so general that they lacked support in the application (Like “Use of ... in a restoration process.”).

Arguments

Conformity with Article 123(2) EPC:

Candidates were expected to indicate the basis of each and every feature of the amended claims in the application as filed. It is necessary when combinations of features from separate parts of the application are being claimed to justify the combination.

Novelty:

They should have discussed novelty by summarising the disclosures of D1 and D2 and defining the distinguishing feature(s) of the claims over the prior art.

Inventive Step:

When discussing inventive step, candidates should have argued why a certain document was considered to represent the closest prior art. Document D1 was deemed to be the closest prior art as it deals with the restoration of existing concrete structures. Candidates should have defined the distinguishing feature(s) of the claims over the closest prior art and the objective problem solved in view of said prior art. The objective problem solved was to provide a simpler corrosion-inhibiting restoration process and a highly effective corrosion-inhibiting composition suitable for use in this process. They should have set out based on the evidence presented in the application how the problem was solved. In particular they should have stressed the advantages of the claimed process (no concrete needs to be removed), pointed out that the composition surprisingly reduces the ingress of chloride ions and discussed present example 3. They should have argued why neither D1 nor D2 gave an indication as to the solution presented in the claims.
Several candidates presented arguments on novelty and inventive step both for a product claim and for a claim directed to the use of said product. This is unnecessary (see Guidelines C-IV, 9.12).

Mere statements (Like “Document X shares most of the features of present claim Y.” or “Neither D1 nor D2 render the subject-matter of the claim obvious”) were generally deemed to be irrelevant unless supported by arguments.

EXAMINATION COMMITTEE I Candidate No. .....

Paper B (Chemistry) 2004 - Schedule of marks

Category	Maximum Possible	Marks awarded	
		Marker	Marker
Claims	50		
Argumentation	50		
Total	100		

Sub-Committee for Chemistry agrees on ..... marks and recommends the following grade to the Examination Board:

☐ PASS
(50-100)

☐ FAIL
(0-49)
COMPENSABLE FAIL
(45-49, in case the candidate sits the examination for the first time)

Berne, 20 August 2004

Chairman of Examination Committee I