Examiners' report - Paper B 2006 (Electricity/Mechanics)

1 General considerations

Paper B is a test of skill in revising the claims to the extent that they fulfil the requirements of the EPC whilst at the same time taking into account the interests of the applicant, and in drafting a letter of response to the European Patent Office.
Account should be taken of the available prior art, the examiner's communication and the letter from the applicant.
In accordance with the "Instructions to Candidates for Preparing Their Answers", arguments in defence of the revised claims should be presented.
It should be noted that where specific references are made to the examination paper in this report, the line numbers indicated refer to the English text of the paper.

2 Claims (50 Points)

2.1 Independent Claims-General

Regarding the prior art, 4 documents are available. Document D1 discloses a seal for a doorframe made of intumescent material. When the seal is heated, for example due to a fire, the intumescent material of the seal expands to form a foam. In this way the seal is activated to fill a gap. However, the seal comprises no activating means of its own. Document D2 discloses a rubber tube door seal and a fire protection system comprising the seal. The seal is activated by forcing air into the tube, whereupon the tube inflates. The activating means are electric, namely a two-way electric air pump. Document D3 does not relate to a seal but to a fixing means for a window or door-frame comprising intumescent material. The fixing means further comprises an activating means in the form of a capsule containing a chemical heating agent. The fixing means can be remotely activated by pulling a cord which breaks the capsule. Document D4 is cited under Art. 54(3) EPC. D4 discloses a fire seal for a door comprising an elastic strip which is folded and held together by an adhesive layer. The seal further comprises an electrical heating means for activating the seal which is located in the adhesive layer.

When heated, the glue melts to release the strip from its folded state in order to seal a gap.

The description of the application refers to the intumescent seal of document D1, refers to a drawback of this seal and states that it is an object of the invention to overcome this drawback.

2.1.1 Example Solution

a. Independent Device Claim (30 Points)

A single independent device claim was expected. 30 points were available for the independent device claim. An example of a good solution for an independent device claim would be a combination of original claims 1,2 and 3 with the additional feature of including the electrical heating means **as part of the seal** and therefore within the scope of the claim. In combination, original claims 1 and 3 merely make a reference to the electrical heating means. Such a revised claim could for example be worded as follows:

A seal comprising a sealing element for sealing a gap,
the sealing element (3) comprising **intumescent** material, characterised in that the seal further **comprises** an **electrical heating means** (2) **for activating the intumescent material** to seal the gap.

In the above example claim, the two part form has been used with respect to D1.

Three important factors needed to be taken into account in constructing a device claim according to the example solution. These factors are as follows:

1.In the originally filed claim 1 it was claimed that a sealing element can be activated by an activating means. In the communication part 3, second paragraph, it was pointed out that the intumescent seal of D1 can in principle be activated by any suitable heat source.

Therefore original claim 1 was rendered not new with respect to D1. The objection relies on the fact that in the original claim 1, the activating means itself does not form part of the seal claimed but is merely referred to in the claim. In the communication, a parallel novelty objection, again using D1, was raised with respect to the electrical heating means referred to in the original claim 3 (see part 5 of the communication, second paragraph). In order to arrive at a good solution it was necessary to formulate a new independent device claim in which the **activating means** was claimed as a **feature** of the seal.

2. From the description of the application it should have been clear that the invention relates to seals comprising **intumescent** material. It was therefore expected that "intumescent" be included in the new independent device claim. Including this feature achieves novelty with respect to the document D4.

3. The general concept of a seal having an associated activating means is known for example from D2. Intumescent material having an activating means is known from D3. The combination of a seal comprising intumescent material, as disclosed in D1, and an activating means (based on original claims 1 and 2) is considered to lack inventive step with respect to D1 and D3 (for another example, see part 2.1.6 of this report). The activating means must therefore be restricted to exclude the kind of activating means used in D3. The only basis in the application as originally filed for such a restriction is an "**electrical heating means**", see for example claim 3.

The first factor leads to a seal **comprising** an activating means.
The second factor leads to a seal comprising **intumescent material**,
The third factor leads to the activating means being an **electrical heating means**.
Lastly, there should be a **functional relationship** between the **electrical heating means** and the **sealing element** such that it is stated for example that the electrical heating means is for activating the sealing element or that the electrical heating means is arranged for heating the sealing element/intumescent material.

Because intumescent material (as is clear in the application) always requires heat for its activation (see for example the application, page 1, lines 14-17) activation and heating have been considered as equivalent for the purpose of the invention. Therefore claims which were considered to be equivalent to the above claim could have the same pre-characterising portion and characterising portions as follows:

characterised in that the seal further comprises an electrical heating means **arranged /positioned to heat** the sealing element.

characterised in that the seal further comprises an electrical heating means **arranged/positioned to heat** the intumescent material.

It is noted that there are several different equivalent ways of expressing these features in the independent claims.

b. Independent Method Claim (10 Points)

This year, although in the originally filed claims only a single independent claim was given (device claim 1), the applicant also requested the protection of an **activity** in the new claim set to be filed. A single independent **method** claim was therefore expected in addition to the single independent device claim. 10 points were available for an independent method claim. There is an indication that the method is part of the invention in the description, last paragraph.

The following is an example of a possible method claim.

Method of improving an existing sealing element that comprises intumescent material, the method comprising the step of adding an electrical heating means to the sealing element, such that the heating means is arranged to be able to heat the sealing element.

Alternatively or additionally to the last clause of the claim, wording for example as follows could be used: such that the heating means is arranged for activating the intumescent material. This clause does not have a direct basis in the description on page 3, but is considered to be implicit in the context of the application.

The method claim should have been based on the last paragraph of the description on page 3. The scope of the claim should at least have included the **improvement** or **modification** of an existing intumescent seal by adding an electrical heating means to it. The feature that the seal was an "**existing**" seal could have been explicitly or implicitly claimed. If this aspect was not present, then (depending on the exact claim wording) the claim ran the risk of not being compliant with Art. 123(2) EPC because there was only basis in the application for improving an existing intumescent seal.

As above with respect to the independent device claim, it was considered essential to include a **functional** relationship between the electrical heating means and the intumescent material from which it can be derived that the heating means is arranged so that it can heat the intumescent material or so that it can activate the intumescent material.

2.1.2 Inferior Solutions/Unnecessary Limitations

Points were deducted for unnecessary features that limited the scope of the independent claims. Deductions were made depending on the degree to which the potential scope of the independent claim had been restricted.

Independent Device claim

Independent device claims which were restricted to a specific embodiment of the invention, e.g. to one of the specific embodiments of an electrical heating means such as a resistive heating wire lost up to 15 points.

Claims formulated without the feature of “intumescent” but made novel with respect to document D4 by means of a disclaimer, for example “a fire seal not comprising an elastic strip further comprising an electrical heating means…..” generally resulted in a juxtaposition of features which did not involve an inventive step.

Claims drafted to a seal activating means did not offer the scope of protection which the applicant requested. Most of these claims were also not new.

Independent Method Claim

Some method claims were directed to activities other than that of the example solution, e.g. a method of activating intumescent material. Other claims were drafted to a “use” of a seal instead of a method (activity) as the applicant requested. Both types of claim go against the clients wishes so attracted considerably fewer points.

2.1.3 Amendments not Supported by the Application as originally Filed, Art. 123(2) EPC.

As a general comment, amendments to a particular claim that were considered to be not recoverable in post grant proceedings (Art. 123(2) and (3) EPC trap) lost about 2/3 of the points available for that particular claim.

A claim which was considered not to fulfil the requirements of Art. 123(2) EPC, but which could later have been amended without extending the scope of protection, lost 1/5th of the points available for that particular claim.

Any independent claims which did not include **any** functional link between the sealing element and the activating means contravened Art. 123(2) EPC. Some such claims claimed all the physical elements of the expected solution but did not include any feature which either indicated that the electrical heating means is arranged/so located/positioned etc.…**to be able to heat** the sealing element **or** that the electrical heating means is **for activating the intumescent material** of the sealing element**.**

The following generalisations were also considered to contravene Art. 123(2) EPC (non-trap):

Generalisations of the feature "electrical heating means" such as the following:
"...an electrical seal activating means..." (heating means omitted);
"...heating means for activating the seal..." (electrical or resistive omitted).

It is noted that, in the context of the application, an electrical heating effect is considered to be implicit in the feature of "electrically resistive" or, merely “resistive”. Therefore where such a formulation was used, no points were lost under Art. 123(2) EPC in respect of this formulation alone.
It is also generally noted that where an amended claim included a generalisation of a feature, arguments giving a basis for the generalisation were expected in the letter of reply.

2.1.4 Clarity

As in previous years, the clarity of the independent claim was considered to be important. An independent claim that was unclear lost up to half of the points available for it, depending on the degree of lack of clarity.

Some independent device claims defined a sealing element (which) can be activated by an electrical heating means, and then went on to define a relative position of the sealing element and the electrical heating means. The electrical heating means were not claimed as being within the scope of the claim, whereas features relating to the relative position of these means appeared to contradict this. The result is that it is unclear whether the feature of the electrical heating means is within the scope of the claim or not. Such claims lost half of the points available (see Guidelines for Examination C III 4.8a).

Other independent device claims claimed a seal which was defined in terms of a method step relating to the activation, thereby rendering the claim unclear. E.g. claims to a seal which were claimed in the moment of activation. Such independent device claims lost 6 points.

Some claims included unnecessary details, for example claims which included the definition of intumescent material from the description page 1, lines 14-17. Whilst such details were considered to be **unnecessary,** where they were considered not to **limit** the scope of the claim unduly, they were treated as minor clarity issues. A few points were lost in such cases, for example 3 points per issue in the case of an independent device claim.

2.1.5 Novelty

Claims that were considered to lack novelty against any of the available prior art documents lost a considerable number of points available for the claim, e.g. 20 points were lost for an independent device claim.
For example, an independent device claim which merely combined the original claims 1, 2 and 3, without change to the "can" feature lacked novelty with respect to D1.

2.1.6 Inventive Step

Claims that were considered to lack inventive step were also penalised, e.g. 15 points were lost for an independent device claim.

For example, an independent device claim having a preamble according to D1 and characterised merely in that it further comprises a **remote** activation means, is considered to lack inventive step. The combination of D1 and D3 would also lead to a seal with a remote activating means, the cords of D3 providing a form of remote activation that can be manually operated. It should furthermore be noted that it can also be argued that such a claim adds subject matter beyond that which was originally filed.

However, in this case a deduction was **only** made in the inventive step section and not under Art. 123(2) section.

2.1.7 Formal Matters

This year 1 point was deducted where the two-part form of the independent device claim was incorrectly applied with respect to the closest prior art chosen in the answer and 1 point was also deducted where appropriate reference signs were missing or incorrect.

2.1.8 Lack of Unity

Any claim set which was considered not to fulfil the unity requirements of Art. 82 EPC lost 10 points. Nearly all claim sets were however unitary.

2.2 Dependent Claims

10 points were available for dependent claims. Points in this section were awarded for the content of the dependent claims per se and for a logical claim structure.
It was expected to retain any appropriate dependent claims from the originally filed claims and to draft new dependent claims where good fallback positions could be identified.

The original claim 4 was objected to in the communication on the grounds of lack of clarity. In order to make the claim clear it was expected that this claim was formulated as "a fire protection system (7) having a control unit (9) etc", rather than "In a fire protection system having a control unit (9) etc."

Some further examples of dependent claims are:

Claims detailing the electrical heating means i.e. as resistive wire, as resistive paint, or as resistive foil;
Claims detailing the relative positions of the electrical heating means and the sealing element i.e. the electrical heating means being embedded in the sealing element or being adjacent to the sealing element.

Claims which only added details which were implicit in the independent claim, such as that intumescent material has a threshold temperature at which it forms a foam did not attract any points.

3 Argumentation (50 Points)

3.1 General Remark

As a method claim was part of the expected solution, 11 of the points available for argumentation were allocated to aspects of the argumentation in respect of the method claim. An example argumentation based on the example solution is set out below.

3.2 Source of Amendments (11 Points)

This year, 11 points were available for the source of amendments, 4 points each for independent device and method claims and 3 for dependent claims.

Amendments were marked for correct references to the disclosure of the application as filed. Where features were not directly derivable from the citations given, arguments justifying the wording used in the claim should have been provided.

3.3 Novelty (5 Points)

This year, 5 points were available for argumentation relating to novelty, of which 1 was for the independent method claim.

It was sufficient to identify a feature that was not present in a prior art document in order to prove novelty of a claim over that document. This year, for the example solution, it was sufficient to identify, for example, that documents D1, D2 and D3 did not disclose an electrical heating means and that D4 did not disclose intumescent material.

3.4 Inventive Step (32 Points)

This year, 32 points were available for inventive step argumentation. Of these, 27 points were for the independent device claim and 5 points for the independent method claim.

Document D4 was cited under Art. 54(3) EPC and was therefore not relevant for arguments relating to inventive step. Other than a statement to this effect, which was expected, references to D4 received no points.

3.4.1 Inventive Step of the Independent Device Claim

It was appropriate to provide arguments which were structured to follow the problem-solution approach (see the Guidelines C IV 9.8). To achieve a high number of points, it was necessary to provide an argumentation which was logical and convincing to the reader, both from the structure of the arguments and their factual basis in the documents.

Identifying the Closest Prior Art

This year, 2 points were available for identifying the closest prior art.

The preferred choice was D1 because it relates to a **seal** which uses **intumescent** material and therefore most closely resembled the embodiments of the application and is therefore the logical starting point for the example solution.

The remaining documents were not considered as being the closest prior art for the following reasons: D2 relates to a seal but differs from the seals of the application in that it operates by filling a tube with air, rather than by activating intumescent material. Although D3 includes intumescent material, it does not relate to a seal for sealing a gap but rather to a way of fixing a window.

Solutions were expected to include a justification of the choice of the closest prior art.

Derivation of the Objective Problem

This year, 9 points were available for deriving the objective problem. It is noted that when applying the problem-solution approach, the objective technical problem is not necessarily the same as that stated in the originally filed application.

Inconsistencies in applying the problem-solution approach lead to a loss of points. For example, where the problem chosen was inconsistent with the closest prior art selected or where the derivation of the problem was based on features not found in the amended claim.

For the example solution, the following arguments could have been used:

a. The **difference** between the claim and D1 is that the seal claimed comprises an electrical heating means for activating the intumescent material of the sealing element.

b. The **technical effect** of this difference is that using an electrical heating means enables **direct heating** of the intumescent material of the sealing element independent of the ambient temperature around the seal.

c. An **objective problem** is therefore to provide a seal using an intumescent sealing element that can be **activated to seal a gap** in a **controlled** and **reliable** way.

Arguments as to Why the Prior Art Does Not Lead to the Invention as Claimed

Convincing arguments relating to the substance of the case were expected. General statements that were not related to the technical aspects of the case, were awarded few points. The argumentation should have addressed all of the documents D1,D2 and D3. In analysing combinations of documents, it was appropriate to consider whether the person skilled in the art would have considered the documents D2 and D3 to be relevant, and whether the combined teachings of D1 and D2 and/or D3 would lead to the features of the claim.

Possible arguments are as follows:

D1 taken in isolation

There is nothing in D1 which would suggest a modification of the intumescent seal disclosed.

D1 in combination with D2

Firstly, to the question of whether the skilled person would consider D2 to be relevant in solving the objective problem, it could be argued that although D2 discloses a seal which offers a solution to the objective problem, the technologies of D1 and D2 are so different that the skilled person would not look to D2 for providing teaching relating to a controlled and reliable activation of an intumescent seal.

Secondly, even if the skilled person were to combine D1 and D2, the teaching of D2 would not motivate the skilled person to modify the intumescent seal but rather to provide the juxtaposition of the two technologies, i.e. an intumescent material seal and an air filled rubber tube door seal side by side.

D1 in Combination with D3

A main argument here is that the skilled person would not look in D3 for a solution to the objective technical problem because D3 is not from the technical field of **seals for sealing a gap** but from the field of **fixing** of doors and windows.

If however the skilled person were to combine D1 and D3, the combination would not lead to the features of the claimed invention. Although D3 does provide a form of controlled activation of intumescent material, the combination of D1 and D3 would lead to an intumescent sealing element having a **chemical** activation.

Replacing the chemical heating element with an **electrical heating means** would involve a **further step** that is not disclosed in the available prior art.

D1 in combination with D2 and D3.

The **combination of D1 and D2 and D3** would be **ex post facto analysis.**
It would be artificial for the skilled person to consider such a combination given the significant differences between the documents as explained above.

Even if such a combination were to be made, the **electrical heating means** would still be missing from such a combination, requiring a **further step**.

3.4.2 Inventive Step of the Independent Method Claim

Since none of the prior art contained any reference to a method of modifying an existing seal comprising intumescent material, it was considered sufficient to provide very brief arguments regarding the inventive step of the independent method claim.

3.5 Unity of Invention and Change to Unsearched Subject-matter (2 Points)

This year, as the expected solution included the addition of an independent method claim, a brief justification for unity was expected for which 1 point was available.
A further point was available this year for explaining that the application did not offend against Rule 86(4) EPC.

3.6 Presentation

As in previous years, answers that were muddled or illogical in presentation of the arguments, received fewer points than those that were clear and logically presented.

EXAMINATION COMMITTEE I Candidate No. .....

Paper B (Electricity/Mechanics) 2006 - Schedule of marks

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

Sub-Committee for Electricity/Mechanics 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)

14 July 2006

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Chairman of Examination Committee I