Examiners' report - Paper A 2024

1. GENERAL CONSIDERATIONS

The Examiners' report sets out the expected solution, explains why this solution was expected, and shows how the marks were distributed. In addition, it highlights the most common mistakes and explains which deductions were made for these mistakes.
The purpose of the Examiners' report is to enable candidates to prepare for future examinations (cf. Article 6(6) of the Regulation on the European qualifying examination for professional representatives).

1.1. Introduction

This year's paper related to devices used in wells.

In the letter, the client first introduces the known use of a very high pressure container for driving out and expelling fluids in a well. The client wishes to overcome the dangers of handling such a very high pressure container.

The client has designed an arrangement which takes advantage of the higher pressure in the well to drive fluids from a container. D2 however uses higher pressure in the well to generate power.

1.2. The Marking scheme

In summary, answer papers were awarded marks on a scale of 0 to 100 marks:
up to **40 marks** were available for an independent device claim,
up to **15 marks** were available for an independent method claim,
up to **30 marks** were available for a set of dependent claims, and
up to **15 marks** were available for the introductory part of a description.

1.3. Challenges of the Paper

1.3.1. The device claim

The main embodiment describes a device with different chambers arranged to be able to deploy liquids into a well without requiring high pressure inside the device. The arrangement of the device itself is patentable over the art, even without the in-use conditions. Whilst maximising protection for the client is inherently part of the exam, it is also noted explicitly in paragraph [006] that the client wants to protect the device *per se*.

The candidate was expected to draft a single independent device claim without claiming in-use states or method steps. A suitable independent device claim which would gain full marks is set out below:

1. A device (D) for deploying liquids in a well having:
- a container (11) divided into a first entry chamber (21), a second chamber (22) for liquid and a third chamber (23) for gas;
- a static disc (17) separating the second chamber (22) from the third chamber (23);
a moveable piston comprising a piston head (14) and a piston column (15), the piston head (14) separating and sealing the first entry chamber (21) from the second chamber (22), the piston column (15) being attached to the piston head (14) and extending through the static disc (17);
- a first valve (19) provided between the inside of the first entry chamber (21) and the outside of the container (11);
- a second valve (29) provided between the inside of the second chamber (22) and the outside of the container (11);
- characterised in that the piston column (15) engages in the static disc (17) and seals it.

The challenges in drafting claim 1 relies mainly in the identification of those features that are essential for the purpose of the invention. And without unduly restricting the scope of protection by, for example, essentially claiming a method or use. The features noted in claim 1 above were considered essential and their absence was generally penalised.

Omission of a piston head separating and sealing the first and second chambers resulted in a 20-point deduction.

Omission of a static disc resulted in a 10-point deduction. This deduction was reduced to 5 points if the static disc was claimed but the arrangement of separating the second and third chamber was absent from the claim.

The valves are explicitly noted as “necessary” (paragraph [010]). Omission of each valve resulted in a 10-point deduction per missing valve. To avoid such deductions, it was also necessary to define the position of the valves, as this was necessary for the function of the device.

Leaving out the phrase “…for deploying liquids in a well…” was not penalised.

Distinction with Prior art

Patentability over D1 was established by a variety of features, such as the three chambers, a static disc and a piston column extending from the piston head.

The model solution requires that the piston column 15 engages in the static disc 17 and seals it. More general descriptions of seals were ineffective to establish novelty in view of the valve 143 which seals the second and third chambers in D2 when closed. Optionally a concise functional addition may be added, for example, “such that in use liquid cannot move from the second chamber to the first chamber”. In D2 the rod 115 is expressly noted as loose fitting in the neck 142 of the static disc 117. It is also noted that the rod extends through the valve to “ensure it remains open” and it is later described as being necessary to depressurise the former low-pressure chamber 123 as the device is retrieved. Accordingly, the rod 115 does not at any time seal the static disc 117. In contrast, the inventor notes that the “column 15 engages in the static disc 17 and seals it” (paragraph [008]). Especially because providing a seal by the rod 115 in D2 would go against the teaching of D2 (allow depressurisation when being retrieved to surface), and so this feature is considered inventive.

Attempts to rely on a valve 19 for novelty did not work since D2 discloses such an option in paragraph [009].

Non-novel claims lost all available marks.

Relying on a nozzle as the sole distinction over D2 was considered novel but not inventive in view of its presence in D1, and no suggestion on why it may be inventive, and was penalised accordingly (-25 marks). D2 does disclose deploying fluids whilst it is being retrieved, and given there is motivation to deploy fluids more purposely from D1, it is considered obvious to do so with a nozzle.

Features which were considered an unnecessary limitation:

Claiming the in-use contents of the chambers in the independent device claim, such as “a chamber containing liquid” was an unnecessary limitation. The client instructions (para [006]) emphasise that they seek to protect the device *per se*, not just the method of treating a well. At manufacture, the device will not include the liquid to be deployed into the well or the relative pressures used onsite, as these are only present during use, as per paragraph [011]). Limiting to such features allows for an easier workaround by the client’s competitors.

Claiming a device containing liquid resulted in a deduction of 30 marks. Likewise, claiming a gas pressure difference with the well had the same deduction (-30).

Claiming a third chamber containing gas resulted in a 10-mark deduction. The deduction for claiming gas in the third chamber at 100kPa +/- 10% resulted in an additional 20-mark deduction. Whilst devices may by default be manufactured with gas at ambient atmospheric pressure (~100kPa), such a limitation offers an easier workaround for the client's competitor to produce devices filled with liquid or with different pressures. Moreover, the client indicates the pressure in use is not especially important, and so such a limitation also opened up an in-use workaround for the client's competitors, such as evacuating the chamber 23 to less than 90 kPa – see para [013].

A line in the independent device claim was considered a major unnecessary limitation – it is only presented in the paper in the context of using the device. Such a limitation incurred a deduction of 15 marks.
The total deductions for such fundamental in-use limitations in claim 1 was capped at 30 marks. Further unnecessary limitations could result in more deductions.

For example, a nozzle was preferable but not essential (para [010]) and its inclusion was penalised by 10 marks.

The device comprising glue or "glue or acid" resulted in further deductions (-10, -5 respectively) because as well as limiting to in-use conditions against client instructions, the client (paragraph [015]) indicated they want it to be used for other fluids.

The diameter range of the column was also an unnecessary limitation and incurred a 10-mark deduction.

Functional features were generally tolerated without deduction unless they unnecessarily limited the scope.

In line with Rule 43 (1) the 2-part form should be used whenever appropriate. A 2-mark deduction resulted if the 2-part form was incorrectly applied. Candidates could choose either D1 (similar purpose) or D2 (most features in common) as the closest prior art.

Clarity

As usual, unclear claims were penalised. For example, the use of undefined relative terms (e.g. upper or lower) resulted in a 5-point deduction, especially in view of paragraph [014] which states that the device may be deployed in an inverted orientation.

Claiming "a valve" twice in the independent device claim was not penalised if they were distinguished by their position or in another way. However, later reference in the claims to "the valve" was penalised (-2) if it was not clear which valve was being referenced.

Other minor clarity issues also resulted in a 5-mark deduction (or 2-mark deduction for very minor issues).

Reference numerals were expected throughout the claims and their absence resulted in a 2-mark deduction. Incorrect or incomplete use of reference numerals resulted in a 1-mark deduction.

Features which were not considered an unnecessary limitation

Adopting terminology for the chambers using intended-use terms was acceptable. For example, “a chamber for liquid” which was interpreted as “a chamber suitable for liquid”. This was not penalised so long as the combination with liquid is not claimed, since the chamber 22 does need to be suitable for liquid.

The paper also states that the container is made of metal to cope with well conditions, and whilst this feature was not expected in the claim, including such a limitation was not penalised. Similarly, only cylindrical containers are disclosed, and so such a limitation was not penalised.

Further functional features were generally tolerated without deduction unless they were unclear or inconcise or amounted to claiming a result to be achieved, in which case they resulted in a 5-mark clarity deduction. In this paper, there were enough tangible features to establish patentability without relying on functional features.

Using the term “static element” instead of “static disc” was acceptable.

Method Claim

It is conceivable that more prior art may be cited at a later date for a different purpose and used in a different way, which would nonetheless anticipate the device claims. A method claim was therefore expected to provide the client with an option to later distinguish their invention from such art using the method steps. Whilst paragraph [006] explicitly seeks a device claim, it also suggests including a method claim as well.

The method steps are largely set out in paragraph 11, however paragraph [013] notes that a pressure difference of at least 500kPa was necessary. This was expected (with adaptation – see below) in the independent method claim. A suitable independent method claim which would gain full marks is set out below:

X. A method of deploying liquid in a well using the device as claimed in any preceding claim, the method comprising:

- sealing gas in the third chamber (23) at a given pressure;
- adding a deployment liquid to the second chamber (22);

- deploying the device to a deployment location in a well, the deployment location having a pressure of at least 500 kPa higher than the pressure of the gas in the third chamber (23);

- opening the first and second valves (19,29).

Lacking essential feature was penalised. For example, candidates incurred a deduction (-5) where the pressure between the deployment location and the pressure in the third chamber was a difference of 500 kPa, rather than being 500kPa higher in the deployment location. Whilst paragraph [013] refers to a difference, in the overall context of the paper, a higher pressure in the deployment location was clearly required.

A method claim to using the device of earlier claims without the necessary method steps gained no marks (see GL F-IV 3.8). In such a situation, a further independent method claim including such steps also gained no marks. It is for candidates to assess and decide on the best claim, and not to include multiple independent method claims and hope one meets the solution. In general, where multiple independent claims in the same category were given, marks were awarded for the worse claim.

An independent method claim without reference back to the first device claim, or otherwise not including the necessary device features (as per claim 1), was penalised for lacking essential features.

In this paper, a use claim with the same steps as the independent method claim was acceptable. However, including both on this occasion resulted in marks only for the worse claim.

Unnecessary limitations

Limiting to 100kPa +/- 10% (one atmosphere) pressure in the chamber for gas was penalised 10 marks as the client notes that other pressures may be used, for example by reducing the pressure in the third chamber (paragraph [013]).

Likewise, limiting to glue (or “glue or acid”) was also penalised 10 marks and 5 marks respectively given client’s comments in para [015].

Candidates were not double penalised for an unnecessary limitation present in both independent claims.

Treating a fracture or a feature to this effect (e.g. movement whilst deploying liquid) resulted in a 10-mark deduction since this is a specific embodiment related to glue, and the client explicitly wants to use the device for deploying other liquids and not necessarily moving the device in this way during deployment. This deduction was not applied cumulatively with the deduction for explicit limitation to glue.

Limiting the gas in the third chamber to being air resulted in a 5-mark deduction. Other major and minor limitations resulted in 10- or 5-mark deductions.

The use of a line in the independent method claim was not penalised.

Clarity – general

Candidate are expected to use SI units in the claims without a client prompt. Nevertheless, the client explained in paragraph [023] that kPa is an SI unit for pressure (unlike atmospheres). A 5-point deduction was applied for not using such SI units.

Dependent claims

Dependent claims were expected for a variety of preferred or optional features. In line with the client instructions to seek to protect the device per se (paragraph [006]), for full marks candidates should have presented such claims depending from the more appropriate independent claim – device features from the independent device claim and method or in-use features from the independent method claim.

Suitable dependent device claims:

Feature	**Marks Available**	**Notes**
Nozzle at second valve	2	-1 if position of nozzle not defined
Container made from Metal/Metal alloy	1	
Cylindrical container	1	
Total volume of container is 15 - 50 litres	2	
Column has a diameter of 5 to 15cm	2	
The liquid capacity of the second chamber (22) for liquid when the moveable piston is in its starting position is 5-10 litres	3	-2 if starting position not mentioned

Suitable dependent method claims:

Feature	**Marks Available**	**Notes**
Gas comprises air	2	
Gas at a pressure of 100kPa +/- 10%	2	"About 100 kPa" lost a mark because if error margins are specified in the application, they must be used in the claims (see GL F-IV 4.7.1).

Liquid is glue	2	A dependent method claim towards glue per se was expected as this was the client's main embodiment.
Glue or acid in same claim or acid only	1	
Gas at a pressure of 700kPa - 900 kPa higher	2	-1 if not limited to glue by dependency or otherwise.
Glue composition claim	6	(see below)
Phenolic additive	2	- 1 if any referenced claim consisted of 100% of other components and therefore didn't allow an additive
The sulfone polymer has a weight average molecular weight of 60 000-90 000 g/mol	1	
The device is positioned at the top or bottom end of a vertically extending fracture, and moved towards the other end of the fracture by rolling out or pulling in the line L.	3	-1 if only one direction claimed

Each dependent claim depending from the less appropriate independent claim resulted in a 1-point deduction (if the claim otherwise gained marks). However, where the dependent claim refined the scope for a feature already present in an independent claim (such as pressure in the independent device claim) a further deduction was not applied to such dependent claims.

Any other dependent claim deemed reasonably useful to the client was awarded marks. However, no marks were awarded for a dependent claim for a column having a diameter of 10cm, as the scope is so narrow such a claim would be of very limited value.
Claiming two or more features that were awarded marks in separate dependent claims, attracted marks for the worse of the two or more features when presented in a single dependent claim.

In line with normal practise, missing essential features from the independent claims presented in the dependent claims did not gain any marks.

Dependent claim including glue

A dependent method claim including the glue composition was expected and was worth 6 marks.

The glue composition is largely set out in paragraph 16 of the client's letter. For full marks, candidates should also have stated in the claim that the average molecular weight was the ***weight*** average molecular weight. Without this distinction the claim was considered

unclear (-2), especially in light of the client's explicit guidance in paragraph [023] that the term is easily confused with a different metric if the type of average is left unstated.

It was also necessary to include the given ASTM standard method in the claim or refer to the method of the description, and its absence incurred a deduction (-2).

Features in claims presented in parenthesis are non-limiting, so the given weight proportions must be claimed without such brackets, otherwise a 2-mark deduction was applied.

Independent glue composition claims

An independent glue composition claim was not expected. The glue is described as known and the phenolic antioxidant additive is also described as well known. Accordingly, in the absence of any other pointer, a glue composition claim should be considered unpatentable and would lack unity with the other claims.

An independent use of glue claim was not expected but had more patentable merit. However, it was considered ununified with the other claims and so not allocated any marks. As usual the client notes in paragraph [024] that they do not have budget for further patent applications.

1.3.2. Description

The candidates were expected to draft the introductory part of the application, including the citation of prior art according to the requirements of Rule 42(1)(b) EPC, an indication of the problem to be solved, and an explanation of how the claimed invention solves the technical problem.

Candidates were expected to demonstrate understanding of the invention and technical problem/solution and not merely copy passages from the client's letter.

Aspect of Description	**Allocated Marks**
Description of prior art (D1 and D2)	6
Discussion of technical problem	4
Solution of technical problem	5

To receive all the marks available, the solution has to be consistent with the independent claim of the answer paper. Arguments pertaining to problems that are not solved by the independent claim of an answer paper were not awarded marks.

Candidates should note that merely repeating the claim set in the description was not necessary and was not awarded marks.