



**EN**

**EUROPEAN QUALIFYING EXAMINATION 2026**

# **PAPER M1**

Part 1

## M1 2026 – Part 1

Company X develops and manufactures metallic hand planes in Denmark. Hand planes are used in traditional woodworking.

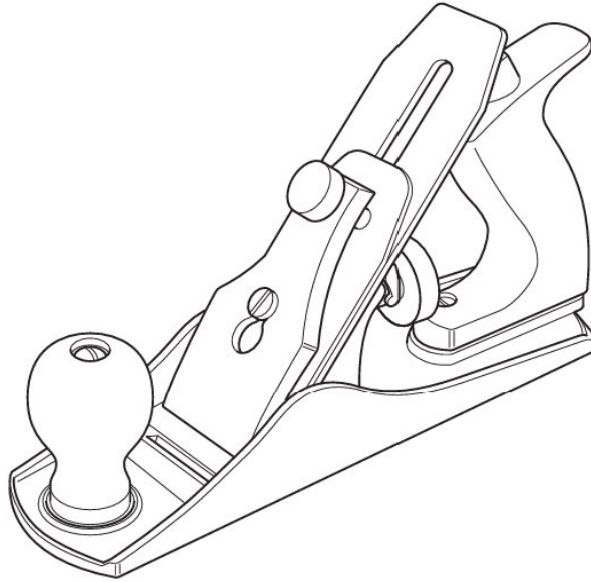


Figure 1: Metallic hand plane

**Company X filed a Danish patent application DK-1 on 1 January 2025.**

### **DK-1 description:**

Metallic hand planes are used in traditional woodworking. A hand plane comprises a plane body and a cutting knife. It is known from D1 to coat metallic hand plane bodies with a polymeric material to reduce friction when in use on a wooden work-piece.

PTFE (polytetrafluoroethylene) has been known and used as a polymeric material for the coating. The coating may be applied to the metallic plane body by a spray coating process. Such spray coating processes and other coating processes are well known in the art.

However, it has been found that the polymeric coating may separate from the metallic plane body over time and with use. The plane thus becomes defective in terms of reduction of friction. This is a very serious problem.

As a solution to the mentioned problem, it has been found that the polymeric coating adhesion can be made longer lasting by treating the metallic plane body with an acid before applying the polymeric coating. Of all the acids tested, only strong acids have proven effective. There are seven strong acids: chloric, hydrobromic, hydrochloric (HCl), hydroiodic, nitric, perchloric and sulphuric. The acid treatment can be conducted by known methods, such as by dipping the metallic plane body into a bath of strong acid or by bringing the body into contact with a cloth soaked in the strong acid.

As a specific combination, acid treatment of the metallic plane body with hydrochloric acid (HCl) is optimally effective when there is a treatment time below 60 seconds combined with acid temperature at or above 50 degrees Celsius.

As an option, conducting the process employing any of the seven aforementioned strong acids at elevated pressure above 2 bars makes the process more effective. This result is achieved regardless of acid type, treatment times, and temperatures.

**DK-1 claims:**

A process for coating a metallic surface with a polymeric material characterised in that the metallic surface is treated with an acid prior to coating.

**Company X filed a European patent application EP-1 on 31 December 2025.  
EP-1 claims priority from DK-1.**

EP-1 includes the same description as DK-1.

**EP-1 claims:**

1. A process for coating a metallic surface with a polymeric material characterised in that the metallic surface is treated with an acid prior to coating.
2. The process of claim 1, further characterised in that the acid is a strong acid, preferably hydrochloric acid (HCl).
3. The process of claim 2, further characterised in that the metallic surface is on a metallic hand plane body.
4. A metallic hand plane body obtainable by the process of claim 3.
5. The process of any of claims 1-3, further characterised in that the treatment time is below 60 seconds combined with acid temperature at or above 50 degrees Celsius and that the process is conducted at elevated pressure above 2 bars.

**D1: Publication in “Woodworking” magazine, 1 January 2020**

Company X has developed and now markets metallic hand planes having a body coated with a polymeric material to reduce friction. In particular, PTFE has been used as polymeric material for the coating. The polymeric coating can be applied to the metallic plane body by well-known spray coating processes.

**D2: Publication in “Chemical Engineers” monthly magazine, 1 January 2020**

In industrial applications, strong acids are often utilised in various ways as chemical reagents and oxidisers. Among the countless acids that have been discovered or synthesised, there are strong acids and weak acids. The definition of a strong acid is one that completely dissociates in water, meaning it splits into its principal ions. There are seven strong acids: chloric, hydrobromic, hydrochloric (HCl), hydroiodic, nitric, perchloric and sulphuric.

Metallic surfaces of jewellery can be effectively treated with strong acids, such as hydrochloric acid (HCl), as pretreatment before applying a metal coating like gold or silver. The changed and enhanced surface quality of the metallic surface following the strong acid treatment is clearly visible using an electron microscope. All seven strong acids leave exactly the same visible characteristics on the metallic surface.

**D3:**

European patent application filed on 1 January 2024 and published by the EPO on 1 July 2025 along with an extended European search report. The applicant is Mr Artisan.

**Description:**

Hydrochloric acid (HCl) has a large number of uses.

The present invention is directed to a surface treatment to remove impurities on metals before applying a polymeric material by e.g. spray coating. Hydrochloric acid (HCl) requires little time, works at low temperatures and achieves high surface quality .

The treatment process can be used for hand tools, such as bodies of metallic hand planes for woodworking.

Acid treatment time with hydrochloric acid (HCl) can be effective below 60 seconds. The temperature of the acid can be in the range of 40-60 degrees Celsius.

**Claims:**

1. A process for treating a metallic surface characterised in that the metallic surface is brought into contact with hydrochloric acid (HCl) for a determined period of time.
2. The process of claim 1, characterised in that a metallic surface of a hand tool for woodworking is treated before applying a polymeric coating.

D1 and D2 are mentioned in the search report of D3.

**Company X would like to file amended claims for EP-1.**

1. A process for coating a metallic surface with a polymeric material characterised in that the metallic surface is treated with a strong acid in the form of chloric, hydrobromic, hydroiodic, nitric, perchloric or sulphuric acid prior to coating.
2. The process of claim 1 further characterised in that the treatment time is below 60 seconds combined with acid temperature at or above 50 degrees Celsius.
3. The process of claim 1 further characterised in that the process is conducted at elevated pressure above 2 bars.
4. The process of claim 1 further characterised in that the metallic surface is on a metallic hand plane body.
5. A metallic hand plane body obtainable by the process of claim 4.

## **M1-1 2026 - EN**

### **Question 1**

*Is claim 1 of EP-1 in conformity with Article 84 EPC?*

*Select all correct statements from this list:*

- No, the category is obscure.
- No, at least one term is unclear.
- No, it is formulated as a result to be achieved.
- No, at least one essential feature is missing.
- Yes, it is in conformity with Article 84 EPC.

### **Question 2**

*Is claim 4 of EP-1 in conformity with Article 84 EPC?*

*Select all correct statements from this list:*

- No, it uses at least one unknown exotic parameter.
- No, at least one term is unclear.
- No, it is formulated as a result to be achieved.
- No, at least one essential feature is missing.
- Yes, it is in conformity with Article 84 EPC.

### **Question 3**

*What is the category of claim 4 of EP-1?*

- Physical entity
- Activity

*Is claim 4 of EP-1 an independent claim?*

- Yes
- No

## Question 4

Is the subject-matter of each of claims 1, 2 and 3 of EP-1 novel over each of D1, D2 and D3 (Articles 52 and 54 EPC)?

Select the box if the claim is novel over the document.

	D1	D2	D3
Claim 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Claim 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Claim 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Question 5

	Yes	No
Is the subject matter of claim 4 of EP-1 novel over D1 (Articles 52 and 54 EPC)?	<input type="checkbox"/>	<input type="checkbox"/>
Is the subject matter of claim 4 of EP-1 novel over D2 (Articles 52 and 54 EPC)?	<input type="checkbox"/>	<input type="checkbox"/>
Is the subject matter of claim 4 of EP-1 novel over D3 (Articles 52 and 54 EPC)?	<input type="checkbox"/>	<input type="checkbox"/>

## Question 6

	Yes	No
Is the subject matter of claim 5 of EP-1 novel over D1 (Articles 52 and 54 EPC)?	<input type="checkbox"/>	<input type="checkbox"/>
Is the subject matter of claim 5 of EP-1 novel over D2 (Articles 52 and 54 EPC)?	<input type="checkbox"/>	<input type="checkbox"/>
Is the subject matter of claim 5 of EP-1 novel over D3 (Articles 52 and 54 EPC)?	<input type="checkbox"/>	<input type="checkbox"/>

## Question 7

*Is priority from DK-1 validly claimed across the full claim scope in respect of:*

	Yes	No
Claim 1 of EP-1?	<input type="checkbox"/>	<input type="checkbox"/>
Claim 2 of EP-1?	<input type="checkbox"/>	<input type="checkbox"/>
Claim 3 of EP-1?	<input type="checkbox"/>	<input type="checkbox"/>
Claim 4 of EP-1?	<input type="checkbox"/>	<input type="checkbox"/>
Claim 5 of EP-1?	<input type="checkbox"/>	<input type="checkbox"/>

## Question 8

*Is the subject matter of each of claims 1 and 2 of D3 novel over each of D1 and D2 (Articles 52 and 54 EPC)?*

*Select the box if the claim is novel over the document.*

	D1	D2
Claim 1 of D3	<input type="checkbox"/>	<input type="checkbox"/>
Claim 2 of D3	<input type="checkbox"/>	<input type="checkbox"/>

## Question 9

*Is it possible to amend the claims of EP-1 at this point in time, i.e. before the EPO draws up the European search report?*

- Yes
- No

## Question 10

*Is the subject-matter of each of amended claims 1, 2, 3 and 4 of EP-1 novel over each of D2 and D3 (Articles 52 and 54 EPC)?*

*Select the box if the claim is novel over the document.*

	D2	D3
Amended claim 1	<input type="checkbox"/>	<input type="checkbox"/>
Amended claim 2	<input type="checkbox"/>	<input type="checkbox"/>
Amended claim 3	<input type="checkbox"/>	<input type="checkbox"/>
Amended claim 4	<input type="checkbox"/>	<input type="checkbox"/>

## Question 11

*Is the subject-matter of amended claim 5 of EP-1 novel over each of D1, D2 and D3 (Articles 52 and 54 EPC)?*

	True	False
Amended claim 5 is novel over D1	<input type="checkbox"/>	<input type="checkbox"/>
Amended claim 5 is novel over D2	<input type="checkbox"/>	<input type="checkbox"/>
Amended claim 5 is novel over D3	<input type="checkbox"/>	<input type="checkbox"/>

## Question 12

*Are amended claims 1, 2 and 3 in conformity with Article 123(2) EPC?*

	Yes	No
Amended claim 1	<input type="checkbox"/>	<input type="checkbox"/>
Amended claim 2	<input type="checkbox"/>	<input type="checkbox"/>
Amended claim 3	<input type="checkbox"/>	<input type="checkbox"/>

## Question 13

*Drag and drop the correct response.*

*Assuming D1 is the closest prior art, the objective technical problem of amended claim 1 of EP-1 can best be formulated as:*

- Reducing friction between a metallic hand plane and the wooden workpiece
- Providing a longer-lasting reduction in friction between a metallic hand plane and the wooden workpiece
- Providing a suitable process of acid treatment to enhance a polymeric coating adhesion to the hand plane body

*Assuming again that D1 is the closest prior art, which documents can formally be used in combination with D1 to argue the lack of inventive step of the subject-matter of amended claim 1 of EP-1, irrespective of the chance of actually proving obviousness?*

*Select the correct documents, if any:*

- D2
- D3

## Question 14

*What would be valid arguments as to low or no relevance of D2 when discussing inventive step of the subject-matter of amended claim 1 of EP-1 with D1 as closest prior art?*

*Select all correct statements from this list:*

- D2 is not a patent application publication.
- D2 does not mention coating metallic objects with polymeric materials such as PTFE.
- D2 only mentions coating jewellery. This technical area is very remote from coating woodworking hand tools let alone metallic hand plane bodies.
- D2 gives absolutely no indication of any technical effect of strong acid treatments of a metallic surface.

## Question 15

You see today in EPO online file inspection for D3 that amended claims were filed by Mr Artisan during substantive examination as follows:

*D3 amended claims:*

*A process for treating the body of a metallic hand plane before spray coating a polymeric coating onto the surface of the hand plane body characterised in that the metallic surface is brought into contact with hydrochloric acid (HCl) or another strong acid for a determined period of time.*

*The process of claim 1, further characterised in that the acid is hydrochloric acid (HCl).*

*A metallic hand plane body obtainable by the process of claim 2.*

*Drag and drop all correct statements regarding the amended claims of D3 from the list below:*

- The subject-matter of claim 1 is novel over D2.
- Claim 1 is in conformity with Article 123(2) EPC.
- Claim 2 is in conformity with Article 123(2) EPC.

	True	False
Claim 3 of D3, if granted and validated in Europe, will constitute a risk of infringement for the business of company X when selling hand planes in Europe that have bodies produced according to the process of amended claim 1 of EP-1.	<input type="checkbox"/>	<input type="checkbox"/>
If EP-1 is granted with the amended claim 1, company X has the right to manufacture and market hand planes in Europe that have bodies produced according to the process of amended claim 1 of EP-1.	<input type="checkbox"/>	<input type="checkbox"/>