

## Examiners' Report Paper A 2017

This paper concerns a dishwashing product. The products are used in automatic dishwashers. The paper describes the several steps of the dishwashing cycle and what happens during these steps. It is clear, that dishwashing components are needed at different steps of the dishwashing cycle.

The paper goes on to describe prior art dishwashing tablets. The client's letter describes a number of problems with respect to the stability and the handling of these tablets. As different components are merely glued or pressed together, they often fall apart in the package, rendering them unusable. The tablets also lose their activity due to contact with moisture. The tablets can disintegrate by rubbing against each other in the packaging and users need to touch the tablets, which many find uncomfortable.

Finally, it is mentioned that the solubility of the tablets is difficult to control. Some components should be dissolved during the main wash, whereas others should only dissolve near the final rinse. This is very difficult to control with known dishwashing products.

The invention described is a dishwashing product, where the dishwashing components are packed into a water-soluble film of polyvinyl alcohol (PVA). It is mentioned that, in order to dissolve in time, the PVA film should have a thickness of 50  $\mu\text{m}$  or less. To have sufficient strength the thickness should be at least 10  $\mu\text{m}$ . These features are, therefore, considered essential.

Several embodiments are described. The simplest embodiment is a commercial dishwashing tablet packaged in the PVA film. More complex embodiments have different dishwashing components packaged in different films. These can be of the same thickness, but by choosing the thicknesses of the different films, the solubility of the films can also be varied. The release of the different components of the composition can thus be tailored.

In the experimental part, it is shown that with a PVA film of 40 µm thickness the storage stability increases when compared to the non-packaged tablet. The second experiment shows a dishwashing product comprising three pouches, each pouch having a film of different thickness. It is shown that the components in the different pouches are released during different steps of the dishwashing process.

Finally, the last experiment shows an efficient process for making a product with three pouches of three different film thicknesses. This process is a special rolling process in which the different thicknesses are achieved using different rolling intensity or rolling time. Because fewer seals are needed in these products when comparing them to products in which three separate films are used, these products have a better quality.

The client's letter describes two prior art documents, documents D1 and D2.

Document D1 describes a general dishwashing tablet, which contains all components necessary for the dishwashing process. A tablet with two layers is shown, both layers being pressed compositions. One layer contains the main detergent. The layers are said to have different solubility.

Document D2 discloses a dishwashing tablet packaged in a pouch. The pouch is made of a polymer and should be relatively thick so that the pouches remain stable in a moist environment. The thickness of the film should be around 100 µm. Preferred polymers for the pouch are polyacrylates, polyvinyl alcohol (PVA), polyethers or polyesters. The dishwashing product is sold as a strip or a row of tablets. The strip has perforations between the tablets so they can easily be separated. In the last paragraph of D2 it is disclosed that research is being effected on water-soluble pouches. Tests are being performed with PVA films having a thickness of 40 µm.

Candidates were expected to draft a claim to a dishwashing product. This claim should solve the problem of releasing dishwashing components at different steps of a dishwashing cycle. Such a claim could have the following wording:

*Dishwashing product (1) comprising dishwashing components packaged into at least two pouches (2, 3, 4) made from polyvinyl alcohol film having a thickness of from 10  $\mu\text{m}$  to 50  $\mu\text{m}$ , wherein at least two of the pouches (2, 3, 4) have a different film thickness to each other.*

Such a claim is worth 36 marks.

Not novel claims did not attract any marks. Claims that were clearly not inventive lost 25 marks.

From paragraph [010] it is clear that it is essential that the polymer is PVA.

Other polymers are stated to be unsuitable for the use in dishwashers.

Candidates who failed to include this essential feature lost 16 marks. These marks were lost even if the claim specified that the film was water soluble or if the polymer was defined by the result to be achieved. An example of such a formulation is to specify that the film dissolves at a certain temperature.

It is essential that the PVA film has a thickness of from 10 to 50  $\mu\text{m}$ . This is clear from paragraph [011], where it is disclosed that films having a thickness of more than 50  $\mu\text{m}$  are not sufficiently water-soluble, whereas a thickness of at least 10  $\mu\text{m}$  is essential for the strength of the film. Candidates who did not include these features lost 8 marks for each missing feature. When the claimed range did not include the end points, for example less than 50  $\mu\text{m}$  and more than 10  $\mu\text{m}$ , candidates lost 2 marks.

It was not necessary to limit the claim to different compositions in each pouch. Novelty and inventive step is established by two pouches having different film thicknesses. Candidates who did so lost 5 marks.

It was also not necessary that the thicknesses of all films are different. Only two need to be different. Candidates who had all films of different thickness lost 5 marks.

A single pouch having PVA film of the correct thickness would not be novel over document D2. This document discloses in the last paragraph that they are testing dishwashing products with PVA films having a thickness of 40  $\mu\text{m}$ . Candidates who did claim this product received no marks. Some candidates drafted a claim specifically excluding the value of 40  $\mu\text{m}$ , for example using a disclaimer. Such claims, though formally novel, had a deduction of 30 marks.

Also, a claim in which two (or more) connected PVA pouches but no differing film thicknesses are claimed, is considered not novel over D2. Paragraph [003] of D2 discloses strips in which pouches of two adjacent tablets are connected to each other.

It is not necessary to limit the claim to pouches that are connected together. A dishwashing product in which the pouches are separate also solves the problem. Both of these options could attract full marks.

A claim directed to different components in the pouches and not specifying the different film thicknesses was considered not to solve the problem of releasing dishwashing components at different steps of the dishwashing cycle. Such a claim lost 25 marks.

Minor clarity problems resulted in a deduction of 3 marks for each clarity problem.

Candidates who defined their product using two or more independent product claims lost 20 marks for not complying with Rule 43(2) EPC or Article 82 EPC. Candidates should not just draft several independent claims hoping that the good claim is in there.

Candidates who did not have the reference numerals in the claim lost 1 mark.

In addition to product claims, process claims directed to the process of making the dishwashing product should also be formulated. A process, based on the process described in D2 using films of different thicknesses, and a process using one film having parts of different thicknesses should both be claimed. A total of 32 marks could be obtained for these two processes. Full marks could be obtained by drafting a main independent process claim with dependent claims or, this year, using two independent claims. It was clearly defensible under Rule 43(2) EPC to have two independent process claims. Drafting the process claim in the form of one independent claim with dependent claims covering the two processes could be drafted as follows:

10. Process for making the dishwashing product of any of claims 1-9 comprising

- (i) providing parts of polyvinyl alcohol film;
- (ii) placing components of the dishwashing product on each part of the film
- (iii) sealing the parts of polyvinyl alcohol film with components inside to form pouches;

wherein the parts of polyvinyl alcohol film have a thickness of from 10 to 50  $\mu\text{m}$ , and

wherein at least two of the pouches have a different film thickness to each other.

11. Process for making the dishwashing product of claim 10, wherein the parts of polyvinyl alcohol film are provided:

- either by multiple polyvinyl alcohol films of at least two different thicknesses,
- or by rolling a single polyvinyl alcohol film into parts having at least two different thicknesses.

32 marks are available for covering both processes. These marks are divided as follows. 10 marks are available for the general process, 22 marks for the rolling process. The marking is explained by looking at the possible two independent claims, because this shows more easily how the marking was done.

The general process claim could be worded as follows:

*Process for making a dishwashing product comprising*

- (i) providing a polyvinyl alcohol film with a thickness of from 10  $\mu\text{m}$  to 50  $\mu\text{m}$*
- (ii) placing a dishwashing component onto the film;*
- (iii) sealing the film to enclose the components to form a pouch;*
- (iv) repeat steps (i) to (iii) until two or more pouches are formed, wherein at least two of the pouches have a film of different thickness.*

As mentioned above, 10 marks are available for this embodiment. This claim is the general process claim for making the simplest product claimed.

Although the process of sealing in a pouch is known from D2, the process is new because the resulting product is new. It is important that the process steps really lead to a product according to the invention. This can be achieved *inter alia* by referring to a previous product claim or by repeating all the product features. If the process claim does not lead to the claimed product 6 marks are lost.

If the claim is not inventive 7 marks are lost.

If the claim merely defines that the pouches are closed, no marks are lost.

Candidates who limited their claim to the thicknesses of the example lost 7 marks.

A further unnecessary limitation resulted in a deduction of 5 marks. An example of such an unnecessary limitation is joining the pouches together by heat sealing.

The claim directed to the second process embodiment can be worded as follows:

*Process for making a dishwashing product comprising the following steps:*

- (i) providing a film of polyvinyl alcohol*
- (ii) rolling the film into at least two parts having different thicknesses, the at least two parts having a film thickness of from 10  $\mu\text{m}$  to 50  $\mu\text{m}$ ;*
- (iii) placing a dishwashing component on each part of the film*
- (iv) sealing the parts to enclose the components to form pouches, thereby obtaining the dishwashing product.*

22 marks are available for this embodiment. This is the preferred process. This process results in fewer seals and, therefore, in a more stable product. It is important that the process steps really lead to a product according to the invention. If this is not the case, 12 marks are lost.

If the claim is not inventive 15 marks are lost.

If the claim merely defines that the pouches are closed, no marks are lost

Candidates who limited their claim to the thicknesses of the example lost 15 marks.

A further unnecessary limitation resulted in a deduction of 5 marks.

Candidates who had three or more independent process claims lost 15 marks. Candidates should not just draft several independent claims hoping that the good claim is in there.

A use claim was also expected.

*Use of the product of claim 1 in a dishwashing process. (2 marks)*

The following dependent claims could be formulated.

2. Dishwashing product according to claim 1, which contains at least three pouches of three different thicknesses. **[2 marks]**
3. Dishwashing product according to claims 1 to 2 in which the films of the pouches have a thickness of from 20 to 40  $\mu\text{m}$ . **[2 marks]**
4. Dishwashing product according to claims 1 to 3, in which the pouches are filled with different dishwashing ingredients. **[2 marks]**
5. Dishwashing product according to claims 1 to 4 in which the pouches are heat sealed together. **[2 marks]**
6. Dishwashing product according to claims 1 to 5 in which at least one of the dishwashing components is liquid and at least one of the components is solid. **[2 marks]**
7. Dishwashing product according to claims 1 to 6 wherein the polyvinyl alcohol has an average molecular weight of between 10 000 and 300 000 g/mol, more preferred 20 000 to 150 000 g/mol. **[1 mark]**
8. Dishwashing product according to claims 1 to 7 in which the dishwashing component is selected from a detergent, rinse aid or salt. **[2 marks]**
9. Dishwashing product according to claims 1 to 8 in which the pouches are arranged on top of each other or next to each other. **[1 mark]**



**Candidates who had a feature missing from the independent claim could gain 3 marks for having that feature in a dependent claim.**

**A maximum of 15 marks could be obtained for the dependent claims.**

Candidates were also expected to draft the introductory part of a description. For this description 15 marks are available. 5 marks are available for describing the two prior art documents. A detailed description of the prior art was expected. In case a candidate used the two-part form correctly a shorter description of the prior art serving as basis for the preamble was allowed. 5 marks were available for defining the problem. In view of D1 the objective problem can be defined as the provision of a dishwashing product that releases dishwashing components at different steps of a dishwashing cycle. In view of D2 the objective problem can be defined as the provision of a dishwashing product having controlled release of dishwashing components at different steps of the dishwashing process. Finally, 5 marks were available for making the client's letter into a description. Candidates should know the requirements of Rule 23(4) IPRE when drafting their descriptions.

Claims:

1. *Dishwashing product (1) comprising dishwashing components packaged into pouches (2, 3, 4) made from polyvinyl alcohol film having a thickness of from 10  $\mu$ m to 50  $\mu$ m, wherein at least two of the pouches have a different film thickness to each other.*
2. Dishwashing product according to claim 1, which contains at least three pouches, each having a different film thickness.
3. Dishwashing product according to claims 1 to 2 in which the films of the pouches have a thickness of from 20 to 40  $\mu$ m.
4. Dishwashing product according to claims 1 to 3, in which the pouches are filled with different dishwashing ingredients.
5. Dishwashing product according to claims 1 to 4 in which the pouches are heat sealed together.

6. Dishwashing product according to claims 1 to 5 in which at least one of the dishwashing components is liquid and at least one of the components is solid.
7. Dishwashing product according to claims 1 to 6 wherein the polyvinyl alcohol has an average molecular weight of between 10 000 and 300 000 g/mol, more preferred 20 000 to 150 000 g/mol.
8. Dishwashing product according to claims 1 to 7 in which the dishwashing component is selected from a detergent, rinse aid or salt.
9. Dishwashing product according to claims 1 to 8 in which the pouches are arranged on top of each other or next to each other.
10. Process for making the dishwashing product of any of claims 1-9 comprising
  - (i) providing parts of polyvinyl alcohol film;
  - (ii) placing components of the dishwashing product on each part of the film
  - (iii) sealing the parts of polyvinyl alcohol film with components inside to form pouches;  
wherein the parts of polyvinyl alcohol film have a different thickness of from 10 to 50  $\mu\text{m}$ , and  
wherein at least two of the pouches have a different film thickness to each other.
11. Process for making the dishwashing product according to claim 10, wherein the parts of polyvinyl alcohol film are provided by multiple polyvinyl alcohol films of at least two different thicknesses,
12. Process for making the dishwashing product according to claim 10, wherein the parts of polyvinyl alcohol film are provided by rolling a single polyvinyl alcohol film into at least two different thicknesses.

**Examination Committee I: Paper A - Marking Details - Candidate No**

Category		Max. possible	Marks	
			Marker 1	Marker 2
Claims	Independent claims - Product claim	36		
Claims	Independent claims - Method claims	32		
Claims	Independent claims - Use claim	2		
Claims	Dependent claims	15		
Description	Description	15		
<b>Total</b>				