

Filter for preparing coffee or infusion.

The present invention relates to a filter for preparing
5 coffee or an infusion.

In particular the invention relates to filters that can be placed on a cup and subsequently are filled with boiling or hot water, or whereby the water or the oil passes through
10 the coffee or herb containing filter and a freshly brewed coffee or an infusion ends up in the cup.

Such filters are known. A special type of such filter is the filter for single use for preparing coffee as specified in
15 GB 914678. Such filter is provided with a tub for pouring liquid, with, when considered in use position, a compartment at the bottom of the tub which is provided at the top and bottom with a permeable layer with coffee or herbs in between. The tub is made of an essentially cylindrical or
20 conical jacket, the lower edge of which is provided with an inwardly oriented edge which transitions into a cylindrical part with perforated base, whereby the inwardly oriented edge serves as a supporting edge for the filter when said filter is placed on a cup.

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The supporting edge with this known filter is parallel with the base of the filter, and in use is placed on the edge of the underlying cup, after which the tub is filled with hot water. The water passes through the coffee compartment, and
30 fills the cup with fresh coffee.

As the level of the fresh coffee rises, a corresponding volume of air from the cup needs to be discharged outside the cup. However, the air passage is impeded by the filter, the supporting edge of which is closely fitting on the edge
5 of the cup. In addition, the weight of the water in the filter presses this filter on the cup.

The water that filters through produces rising vapours which partly condense on the level of the contact surface between
10 filter and cup, and strengthen the sealing of the cup more.

To obtain the flavour of the coffee or the infusion using such filter, the filter time of the amount of water in the tub is very important. Too short a filter time results in a
15 weak coffee or infusion, and too long a filter time results in cold and less tasty coffee or infusion. The filter time of the water must therefore be controlled within strict limits.

20 A possible solution for the problem is providing spacers between the edge of the cup and the supporting edge of the coffee filter, the disadvantage being that in the space between the spacers unwanted air bubbles may form.

25 Research has shown that this problem can be solved by executing the underside of the supporting edge as a continuous surface with a microroughness Ra between 10 and 200 μm , and even more preferable between 10 and 100 μm , such that between the supporting edge and the edge of the cup
30 micro channels stay open, through which the air can flow

such that the water can still pass through the coffee filter within the anticipated timeframe.

According to a special embodiment variant, a wide band around
5 the intended supporting edge, or even the whole outside of the filter is executed with a microroughness Ra between 10 and 200 μm , and even more preferable between 10 and 100 μm , such that the filter time remains guaranteed, also with unintended occasional use.

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The filter time can also be further guaranteed by executing the inside of the filter as a smooth surface with a limited microroughness between 0 and 10 μm , to allow the water to flow smoothly from the tub wall to the compartment with
15 coffee or herbs.

Obviously, the form of the filter is preferably circular because most cups that the filter has to fit on are also circular, but deviating geometries can also be applied
20 whereby the tub and/or the coffee or herb compartment are not perfectly cylindrical or conical, but can have an irregular form.

With the intention of better showing the characteristics of
25 the invention, a preferred embodiment of a filter for coffee or an infusion with a microroughened contact surface according to the invention is described hereinafter, by way of an example without any limiting nature, with reference to the accompanying drawings wherein:

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figure 1 schematically and in side view shows a filter according to the invention placed on a cup;

figure 2 shows the filter in top view according to figure 1.

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Figure 1 shows a filter 1 for preparing coffee or an infusion consisting of a circular base 2 which is connected to an ascending wall 3 which forms a compartment 4 intended for storing a dose of ground coffee or herbs for single use and
10 fitting on a supporting edge 5 which connects the compartment 4 for coffee or herbs to a tub 6 for pouring a liquid over, usually water, surrounded by an essentially cylindrical or conical jacket 6' above which an edge 7 is located which is provided with a ring-shaped collar 8. The compartment 4
15 provided at the bottom of the tub 6 is partly delimited by means of water-permeable layers in which coffee or herbs are provided, and is provided at the bottom with an inwardly oriented supporting edge 5 which transitions into a cylindrical compartment 4 with a base 2 with perforations 9.

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For this, the inwardly oriented supporting edge 5 serves as a support for the filter when said filter is placed on a cup 11, whereby at least the outside surface of the supporting edge 5, is provided with a microroughness Ra between 10 and
25 200 μm . Also, a wider band around the intended supporting edge 5 or even the whole outside of the filter 1 can be provided with a microroughness Ra between 10 and 200 μm .

Figure 2 shows a top view of figure 1, on which the
30 perforations 9 cut away or punched out in the base 2 are clearly visible. The ring-shaped collar 8 of the filter 1

transitions into the surrounding essentially cylindrical or conical wall 6' of the tub 6 which transitions into the supporting edge 5 after which the supporting edge transitions into the wall 3 of the cylindrical compartment 4 for coffee or herbs which in turn transitions into the circular base 2.

The operation of the coffee filter 1 with its supporting edge 5 with microroughened contact surface 10 is very simple and as follows.

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A coffee-filled filter 1 is placed on an empty cup 11 and subsequently filled with boiling or very hot water up to the notch under the edge 7.

15 The hot water will filter through the perforations 9 in the base 2 of the filter 1 into the cup placed under it in a controlled filter time. In this filter time a volume of air needs to be discharged from the cup which corresponds with the volume of coffee currently in the cup 11. This air displacement is made possible by micro channels, formed between the microroughened bottom surface 10 of the supporting edge 5, and the edge of the cup 11 on which the filter 1 is resting.

25 Obviously the tub 6 of the filter 1 does not have to be perfectly circular or cylindrical, but can deviate from this, such that the filter can be universally used on practically all circular cups.

30 The present invention is by no means limited to the embodiments described as an example and shown in the figures,

but a filter according to the invention can be realised in all kinds of forms and dimensions without departing from the scope of the invention, as is described in the following claims.

Claims.

- 1.- Filter (1) for preparing coffee or an infusion for single
5 use, of the type that comprises a tub (6) for pouring a
liquid over, usually water, and whereby, when considered in
use position, a compartment (4) is provided at the bottom of
the tub (6) which is partly delimited by means of water-
permeable layers and in which coffee or herbs are provided,
10 whereby the tub (6) is made of an essentially cylindrical or
conical jacket (6') the lower edge of which is provided with
an inwardly oriented supporting edge (5) which transitions
into a cylindrical compartment (4) with perforated base,
whereby the inwardly oriented supporting edge (5) serves as
15 a supporting edge for the filter (1) when said filter is
placed on a cup (11), characterised in that at least the
outside surface of the supporting edge is provided with a
microroughness Ra between 10 and 200 μm .
- 20 2.- Filter (1) according to claim 1, characterised in that
the outside surface of the supporting edge is provided with
a microroughness Ra between 10 and 100 μm .
- 3.- Filter (1) according to claim 1, characterised in that
25 the whole outside of the filter (1) is executed with a
microroughness Ra between 10 and 200 μm .
- 4.- Filter (1) according to claim 1, characterised in that
the whole outside of the filter (1) is executed with a
30 microroughness Ra between 10 and 100 μm .

5.- Filter (1) according to one or more of the previous claims, characterised in that the whole inside of the filter is executed as a smooth surface with a microroughness between 5 0 and 10 μm is.