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**Datasheet for the decision  
of 29 August 2018**

**Case Number:** T 1754/13 - 3.2.04

**Application Number:** 06015331.9

**Publication Number:** 1882432

**IPC:** A47J31/40, A23F5/08

**Language of the proceedings:** EN

**Title of invention:**

Method for delivering faster a short coffee extract from capsule

**Patent Proprietor:**

Nestec S.A.

**Opponent:**

MacLean, Martin Robert

**Headword:**

**Relevant legal provisions:**

EPC Art. 56

**Keyword:**

Inventive step - (yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
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Case Number: T 1754/13 - 3.2.04

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.04**  
**of 29 August 2018**

**Appellant:** MacLean, Martin Robert  
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**Representative:** MacLean, Martin Robert  
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**Respondent:** Nestec S.A.  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 28 May 2013  
rejecting the opposition filed against European  
patent No. 1882432 pursuant to Article 101(2)  
EPC.**

**Composition of the Board:**

<b>Chairman</b>	W. Van der Eijk
<b>Members:</b>	G. Martin Gonzalez
	J. Wright

## Summary of Facts and Submissions

- I. The appellant-opponent lodged an appeal, received on 7 August 2013, against the decision of the Opposition Division of the European Patent Office posted on 28 May 2013 rejecting the opposition filed against European patent No. 1882432 pursuant to Article 101(2) EPC, and simultaneously paid the appeal fee. The statement setting out the grounds of appeal was received on 4 October 2013.
- II. Opposition was filed under Article 100(a) EPC based on lack of novelty and lack of inventive step and under Article 100(b), insufficiency of disclosure.

In their written decision, the Division held that the grounds for opposition mentioned in Article 100(a) and (b) EPC did not prejudice the maintenance of the patent unamended, having regard *inter alia* to the following documents

- (D3) EP 1 566 127 A2
- (D5) EP 0 844 195 B1 (granted patent)
- (D11) EP 0 844 195 A1 (patent application)

- III. Oral proceedings before the Board were duly held on 29 August 2018.
- IV. The appellant-opponent requests that the decision under appeal be set aside and that the European patent No. 1 882 432 be revoked.

The respondent-proprietor requests that the patent be maintained on the basis of claims 1 to 17 of the main request, originally filed as subsidiary request 3A with letter dated 6 February 2014, description consisting of

pages 2, 3 and 6 as filed at the oral proceedings before the Board and pages 4, 5, 7, 8 and 9 of the published patent specification and figures 1 to 9 of the published patent specification.

- V. The wording of claim 1 of the main request (filed as subsidiary request 3A with letter dated 6 February 2014) reads as follows:

"Method for delivering a short coffee extract containing less than 50 grams of coffee liquid extract in a cup, faster from a closed capsule (2) containing ground coffee by injecting water under pressure within the capsule, wherein the capsule is filled with ground coffee and has a delivery membrane;  
wherein the capsule is extracted in a coffee extraction device (D) and pressurized water is injected in the capsule under pressure;  
wherein the coffee beverage is released through the beverage delivery membrane of the capsule with engaging means engaging (13) in and/or against the membrane;  
wherein the capsule (2) is filled with a coffee grinding having an average particle size comprised between 190 and 300 microns,  
wherein the pressure loss is reduced in the coffee bed by providing in the capsule ground coffee having fines (F) being coffee particles having a diameter of less than 88.91 microns when measured by the Malvern® laser diffraction method, the fines being present in a controlled percentage depending on the average particle size ( $D_{4,3}$ ) within the following limits:  
F is lower than 16% when  $D_{4,3}$  is measured at 300 microns,  
F is lower than 18% when  $D_{4,3}$  is between 250 and 299 microns,

F is lower than 21% when  $D_{4,3}$  is measured between 200 and 249 microns,  
F is lower than 28% when  $D_{4,3}$  is measured between 190 and 199 microns,  
and wherein the extraction yield is maintained between 15 and 30%;  
wherein a coffee extract of 25 or 40 grams is delivered in a flow time of less than 20 seconds."

VI. The appellant-opponent argues as follows:

The subject-matter of claim 1 lacks an inventive step having regard to D3 and D11/D5.

VII. The respondent-proprietor argues as follows:

Claim 1 according to the main request is inventive considering the teachings of the prior art disclosed in D3 and D11/D5.

### **Reasons for the Decision**

1. The appeal is admissible.
2. Background
3. The invention relates to a method for delivering a short coffee extract from capsules designed to be extracted under pressure. According to the patent specification, see description paragraph [0004], known methods deliver a short coffee extract, under high pressure extraction conditions, within a flow time of between 20 and 45 seconds, providing the desired short coffee quality attributes in terms of body, taste, flavour and crema. A main aim of the claimed invention is to reduce the flow time while maintaining or even

improving the quality attributes of the short coffee (typically "ristretto" or "espresso"), in particular a desirable strength (e.g. expressed by its "extraction yield"), see patent specification paragraphs [0007]-[0009]. To this end the claimed method calls *inter alia* for a controlled percentages of fines - particles of less than 88.91 microns - in the ground coffee, together with a limited flow time of less than 20 seconds. The invention is based on the principle that reducing the level of fines in the coffee ground provides a reduction in the pressure loss and as a consequence a faster flow while not significantly affecting the extraction yield, see specification paragraphs [0010]-[0011]. The claimed level of fines is adapted to different average particle sizes of the coffee grinding, defining thereby four different limiting ranges of percentage of fines for four different ranges of average particle size of the coffee bed.

4. Main request - inventive step, Article 56 EPC.

Only lack of inventive step is raised against the subject-matter of amended claim 1.

4.1 The claimed method is restricted to preparing short coffee extract with a coffee grinding having an average particle size  $D_{4,3}$  between 190 and 300 microns. It is common ground that the general description of short coffee extract of D3 (see D3, paragraphs [0028] and [0053]) represents the closest prior art. According to D3, a short coffee extract is defined as the liquid extract with a weight of from 25 to 40 grams of liquid, as obtained from a cartridge filled with ground coffee with an average particle size  $D_{4,3}$  lying between 200 and 400 microns. This  $D_{4,3}$  range overlaps the claimed



range of the main request in the region of 200-300 microns.

4.2 Document D3 is silent in respect of the percentage of fines present in the coffee grinding. In contrast, the claimed method calls for the presence of fines in the coffee ground in specific controlled percentages (F), namely

F is lower than 16% when  $D_{4,3}$  is measured at 300 microns,

F is lower than 18% when  $D_{4,3}$  is between 250 and 299 microns,

F is lower than 21% when  $D_{4,3}$  is measured between 200 and 249 microns,

F is lower than 28% when  $D_{4,3}$  is measured between 190 and 199 microns.

A flow time for the region 200-300 microns is also not described in D3. Conversely, the contested claim 1 requires a flow time of 20 seconds or less.

4.3 The differentiating feature of controlling the level of fines in the coffee ground has a dual effect. Firstly a reduction in the pressure loss through the capsule is achieved. Consequently a faster liquid flow through the capsule is obtained. A second effect is that coffee extract quality is maintained by not significantly affecting the extraction yield, see specification paragraphs [0010]-[0011]. As a consequence of this dual effect, consumer waiting time is reduced for a short cup of coffee (25 or 40 grams) while quality of the liquid extract for short coffee is maintained. The corresponding objective technical problem can then be formulated as how to deliver a short coffee extract, namely 40 grams or 25 grams, in a reduced flow time while not affecting coffee quality.

- 4.4 Only cited documents D11 and D5 are relevant in this respect. D5 is the granted version of document D11 (patent application). As compared to D11, the granted patent D5 merely restricts its teachings to narrower ranges of fines percentage and of average particle size  $D_{4,3}$ . As otherwise the rest of the disclosure is the same, document D5 appears to be of less relevance.
- 4.5 The respondent-proprietor contends that the teachings in D11 are restricted to the type of ground coffee (characterized by their average particle size) and extract type described therein and that the skilled person would not, as a matter of obviousness, apply those teachings to the type of coffee prepared by the method of the contested claim, irrespective of whether or not such combination would lead the skilled person to the subject-matter of the disputed claim. This contention is analysed in the following. The invention in D11 discloses coffee extraction under pressure from coffee grinding having a controlled percentage of fines between 5-15% for improving flow time while maintaining the same level of extraction yield, i.e. coffee quality. Document D11 describes ground coffee with average particle sizes  $D_{4,3}$  between 300 and 650 microns, see D11, abstract. In contrast, claim 1 of the main request is restricted to short coffee with  $D_{4,3}$  between 190-300 microns.
- 4.6 Thus the only common value is the lower limit of the range analysed by D11, namely  $D_{4,3}$  of 300 microns. It appears consequently necessary to explore the teaching of D11 around this value. D11 teaches, in general, the advantages obtained by a new grinding process with a controlled level of fines - grinder Matsubo, corresponding to the filled squares in figure 1 plot -

compared to the results obtained by a known conventional grinding process - grinder Probat, corresponding to the unfilled circles in the figure 1 plot. The area for coffee ground sizes of 330 microns and larger sizes in figure 1 of D11, thus outside the area of interest for the present patent of 190-300 microns and of the 300 microns average particle size, is populated with results for the improved grinding type Matsubo - i.e. filled squares. These values fall below the limit of 15% of fines required by D11 to provide the advantageous effect. In contrast, around the  $D_{4,3}$  critical value of 300 microns only one measurement of the "improved" grinding process - i.e. one filled square - is plotted. Aside from being the only result of the "improved" type in that region, it is clearly above the limit of 15% of fines. It would therefore not bring the positive effect. Certainly, according to D11 a percentage of fines between 5-15%, i.e. lower than 15%, is needed for achieving faster coffee delivery while maintaining extract quality, see D11, column 1, lines 22-33. In sum, D11 only describes one result in the area of interest for the contested patent - 300 microns average particle size -, and there a reduction in flow time is not obtained.

Additionally, the results for the two types of grinding processes Matsubo and Probat depicted in figure 1 of D11 - converging from larger to smaller values of  $D_{4,3}$  - further teach, in the Board's view, that 330 microns is the lower average size limit for which the skilled person can still obtain satisfactory flow time reductions with the improved grinding method taught by D11, i.e. a level of fines below 15%.

From the above, the Board concludes that D11 would not prompt the skilled person to consider applying the

teachings of D11 below 330 microns, let alone in the yet lower range of coffee ground of 300 microns average particle size or less, as claimed.

4.7 There is also no indication in D11 that the pursued (faster flow) effect could also be achieved by method steps requiring less strict limits of the fines percentage, as in the contested method claim (16%, 18%, 21% or 28%). These are outside the 15% limit taught by D11. In the Board's view, to realise that also relaxed upper limits of fines percentage would bring the desired effect when applied to particle sizes outside the scope of the ones discussed in D11 would require more than mere routine skills of the skilled person.

4.8 The appellant-opponent argues, relying on the two curves on the graph of figure 1 of D11, that the teachings of D11 are applicable, at least, to the upper limit point  $D_{4,3}$  equal to 300 microns of the claimed range. However, in the Board's understanding those curves, being mathematical extrapolations, cannot have more significance than the real measured values, from which the Board derives the above conclusions. In detail, the curve for the lower "improved" milling process - grinder Matsubo - is a best fit curve to a field of discrete experimental data points - the filled squares. The area below 330 microns is populated with merely two plotted results, in contrast the area above 330 microns is very densely populated. Those two results carry therefore negligible weight in the best fit calculation of the plotted continuous curve. The area of the curve below 330 microns is thus rather a mere extrapolation of a curve almost exclusively derived from the results lying above 330 microns than a representation of the actual results in that region. With this in mind, the skilled person would not

contemplate working in this area of the curve. He would instead use the actual experimental results. The Board is thus not convinced by the appellant-opponent's argument based on the curve values in the area of  $D_{4,3}$  of 300 microns.

- 4.9 The Board thus concludes that the subject-matter of claim 1 according to the main request involves an inventive step in the light of D3 and D11. As already discussed, D5 is less relevant than D11, thus the same conclusion holds for the combination of D3 and D5.
5. For the above reasons the Board holds that the claims as amended according to the main request meet the requirements of the EPC. The Board is furthermore satisfied that the consequential amendments to the description bringing it into line with the amended claims are unobjectionable. These were also not objected to by the appellant-opponent. The Board concludes that the patent can be maintained as amended pursuant to Article 101(3)(a) EPC.

## Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain European patent No. 1882432 in amended form as follows:
  - Claims: claims 1 to 17 of the main request, originally filed as subsidiary request 3A with letter dated 6 February 2014,
  - Description: pages 2, 3 and 6 as filed at the oral proceedings before the Board and pages 4, 5, 7, 8 and 9 of the published patent specification and
  - Drawings: figures 1 to 9 of the published patent specification.

The Registrar:

The Chairman:



G. Magouliotis

W. Van der Eijk

Decision electronically authenticated