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**Datasheet for the decision
of 1 October 2009**

Case Number: T 1663/06 - 3.2.07

Application Number: 01202008.7

Publication Number: 1151940

IPC: B65D 83/14

Language of the proceedings: EN

Title of invention:
Aerosol can containing cream

Applicant:
Friesland Brands B.V.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step - (no, all requests)"

Decisions cited:
G 0006/88

Catchword:
-



Case Number: T 1663/06 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 1 October 2009

Appellant: Friesland Brands B.V.
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 6 April 2006
refusing European application No. 01202008.7
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: H. Meinders
Members: P. O'Reilly
E. Lachacinski

Summary of Facts and Submissions

- I. The examining division refused the European application No. 01 202 008.

The examining division decided that the subject-matter of claims 1 and 6 of the only request did not involve an inventive step.

- II. The appellant (applicant) filed an appeal against that decision.

- III. The appellant requested that the decision under appeal be set aside and that a patent be granted based on the basis of claims 1 to 7 of the main request, or alternatively on the basis of claims 1 to 5 of the first auxiliary request or claims 1 and 2 of the second auxiliary request, all requests filed with letter of 15 August 2006.

- IV. The independent claims of the **main request**, which are the same as those on which the examining division took its decision, read as follows:

"1. An aerosol can comprising a viscous food having a viscosity of at least 20 mPa.s at a shearing rate of less than 400 s⁻¹, said viscous food being cream; and a propellant, the propellant being formed for at least 15 percent by weight, based on the total propellant, of a first gas selected from nitrogen gas and/or compressed air, which propellant further contains a second gas being acceptable from the viewpoint of food technology, which substantially dissolves in the food, which

aerosol can has an initial pressure of at least 5 atmospheres."

"6. Use of nitrogen gas in a viscous food having a viscosity of at least 20 mPa.s at a shearing rate of less than 400 s⁻¹, said viscous food being cream; packed in an aerosol can having an initial pressure of at least 5 atmospheres, in an amount of at least 15 percent by weight, based on the total propellant, as a propellant producing a stable cream foam."

Claim 1 of the **first auxiliary request** reads as follows, whereby claim 6 of the main request is unchanged apart from being renumbered (amendments to claim 1 when compared to claim 1 of the **main** request are struck through or in bold):

"1. An aerosol can comprising a viscous food having a viscosity of at least 20 mPa.s at a shearing rate of less than 400 s⁻¹, said viscous food being cream; and a propellant, the propellant being formed for at least 15 percent by weight, based on the total propellant, of a first gas ~~selected from~~ **being** nitrogen gas ~~and/or compressed air~~, which propellant further contains a second gas being acceptable from the viewpoint of food technology, which substantially dissolves in the food, **being laughing gas** which aerosol can has an initial pressure of at least 5 atmospheres."

Claim 1 of the **second auxiliary request** corresponds to claim 6 of the main request.

V. The documents cited in the present decision are the following:

D2: EP-A-0 257 336,

D4: Pressurized Packaging (Aerosols), Butterworths 1961, A. Herzka and J. Pickthall, pages 76 to 79 and 177 to 183.

VI. The arguments of the examining division may be summarised as follows:

- (i) The subject-matter of claim 1 does not involve an inventive step.

The closest prior art document is D4. The subject-matter of claim 1 is distinguished over the disclosure of D4 by the features that the propellant is formed from at least 15 percent by weight, based on the total propellant, of a first gas selected from nitrogen gas and/or compressed air, which propellant further contains a second gas being acceptable from the viewpoint of food technology, which substantially dissolves in the food.

The problem to be solved is to avoid too high an overrun (see page 2, line 18 of the application as originally filed).

The skilled person is aware from D4 that nitrogen may be used as an insoluble propellant and that an insoluble propellant reduces overrun. The skilled person would not reduce the pressure as this could mean that a complete emptying of the container

could not be guaranteed. The skilled person knows that he is not restricted either to a soluble or to an insoluble propellant, but that they can be used in combination. The required percentage of nitrogen can be determined by simple tests.

Similar arguments apply to claim 6. The fact that there may be an advantageous side effect of a stable foam does not alter the fact that the subject-matter of the claim is obvious considering the problem of reducing the overrun. Also, there are no test results for 100% nitrogen or compressed air, i.e. no dissolved gas present to help in forming foam.

VII. The arguments of the appellant may be summarised as follows:

- (i) The subject-matter of claim 1 of the main request involves an inventive step.

D4 is the closest prior art document. The subject-matter of claim 1 is distinguished over the disclosure of D4 by the features that the aerosol can comprises in addition to a soluble gas at least 15 percent by weight, based on the total propellant, of an insoluble gas selected from nitrogen gas and/or compressed air.

The problem to be solved is how to control the overrun of a food cream expelled from an aerosol can such that the overrun is not too high and that it remains more constant when dosing several portions of cream foam in combination with both

providing a more stable foam after dosing and a sufficient emptying of the can.

The solution suggested in D4 to an overrun problem is to reduce the pressure since D4 indicates that pressure determines the overrun. There is no indication in D4 to combine an insoluble with a soluble gas in order to solve the problem. The test results filed with fax of 16 March 2007 show that the presence of nitrogen in the propellant improves the overrun and the foam stability. D2 is not relevant as it suggests that improvement in foam stability will come from the composition of the product not from that of the propellant.

- (ii) The subject-matter of claim 1 of the first auxiliary request involves an inventive step.

The arguments made with respect to the main request essentially apply *mutatis mutandis* to the first auxiliary request.

- (iii) The subject-matter of claim 1 of the second auxiliary request involves an inventive step.

This claim is set out in the form of a second non-medical use claim directed to the use of a previously unknown property of nitrogen as part of a propellant producing a stable cream foam. This property is proven by the above mentioned test reports.

Reasons for the Decision

Main request

The claims of this request correspond to the claims considered by the examining division in its decision.

1. *Inventive step*

1.1 The appellant and the examining division considered that the closest prior art is D4 and the Board agrees with this view.

1.2 The subject-matter of claim 1 is distinguished over the disclosure of D4 by the features that the propellant is formed from at least 15 percent by weight, based on the total propellant, of a first gas selected from nitrogen gas and/or compressed air, which propellant further contains a second gas being acceptable from the viewpoint of food technology, which substantially dissolves in the food.

This was the conclusion reached by the examining division (see point 3.1 of the decision grounds, fourth paragraph) and the appellant has not challenged that conclusion. This is also the view of the Board.

1.3.1 The examining division considered that the problem to be solved is avoiding too high an overrun (see point 3.3 of the decision grounds). In this respect the examining division referred to page 2, line 18 of the application as originally filed, which indeed mentions that laughing gas (nitrous oxide) and carbon dioxide can give too high an overrun.

1.3.2 The appellant argued that the problem to be solved is "How to control the overrun of a food cream expelled from an aerosol can such that the overrun is not too high and that the overrun remains more constant when dosing several portions of food cream in combination with both providing a more stable food foam after dosing and a sufficient emptying of the can." (see appeal grounds, page 4, first paragraph).

The Board cannot agree with the reference to providing a more stable food foam as part of the problem. With its letter dated 16 March 2007 the appellant submitted test results which it argues are intended to show "the stability increasing effects of nitrogen gas". The test results show a series of photographs of a blob of discharged cream foam taken at 1 second, 1 minute, 2 minute, 5 minute, 10 minute, 15 minute, 30 minute and 60 minute intervals. No numerical measurements were presented and in the photographs only an outline of the blob is discernible. The reference example uses a propellant of 100% nitrous oxide and the examples of the invention have 15%, 25%, 50% and 75% nitrogen respectively with the other gas being either nitrous oxide or a mixture of nitrous oxide and carbon dioxide. As noted in the provisional opinion of the Board, which was communicated to the appellant along with the summons to oral proceedings, it seems that only the examples with 50% nitrogen might show some improvement over the reference example as concerns maintaining the form and even they do not appear to be better at all time intervals. The example with 75% nitrogen appears to be worse than the reference example.

1.3.3 In the oral proceedings before the Board the appellant for the first time in the proceedings argued that foam stability means **volume** stability (in terms of "maintaining nitrogen bubbles in the foam") and not **form** stability and that in this respect the examples, including the example with 75% nitrogen, showed this stability though the appellant admitted that this was not discernible from the photographs.

The application itself gives little indication as to what is meant by foam stability. The only indication is on page 13, lines 15 to 16 which is with reference to Example 1 and states that: "The foam is very stable and has not yet collapsed after half an hour." This indication seems to speak for a definition in the direction of **form** stability though there is no indication of what form may be considered to be "collapsed".

1.3.4 The Board considers therefore that there is no reliable definition of foam stability and that it has not been demonstrated that foam stability is present over the claimed range, irrespective of whether it is volume or form stability.

The Board therefore concludes that achieving foam stability cannot be part of the objective problem and that the problem proposed by the examining division (see point 1.3.1 above) is the objective problem to be considered for the assessment of inventive step.

1.4 In D4 four propellants are mentioned for use in food; carbon dioxide, nitrous oxide, nitrogen and argon. The first two of these are soluble and the second two are

insoluble. Reference is made to overrun in the discussion of nitrous oxide and carbon dioxide. Nitrogen and argon are mentioned with respect to low solubility and minimum aeration. In the discussion of packing procedure starting on page 179 it is explained in the context of soluble propellants how whipped creams are packed. In this respect it is mentioned that the headspace is flushed before sealing the can with an inert gas which the appellant indicated would probably be nitrogen, with which the Board agrees.

- 1.4.1 The appellant suggested that the reference to "whipped cream" might mean that the cream was already whipped before being charged into the can and hence did not need whipping on discharge.

However, the reference at the end of the first paragraph on page 180 to the usual pressure of "whipping cream" makes it clear that the container holds **whipping** cream which is formed into **whipped** cream upon discharge.

In the second paragraph on page 180 it is noted that for an insoluble gas no agitation is necessary so that this reference indicates the use of an insoluble gas as a propellant for cream. This view is reinforced with the following paragraphs concerning a "Sterile Pack" and a "Novel Method of Packing" wherein reference is consistently made to cream. The Board concludes therefore that the skilled person is informed from D4 that insoluble propellants can be used with cream.

According to the last paragraph on page 182 of D4 "overrun" indicates the degree of aeration and is defined with respect to the amount of expansion from

liquid cream to whipped cream, i.e. the expansion on discharge from the can. It is indicated that the overrun depends upon the pressure in the context of soluble propellants since that determines how much of the propellant has been dissolved.

- 1.4.2 In order to solve the problem of too high an overrun the skilled person could consider reducing the pressure. However, as noted by the examining division, if the pressure is reduced then there may be problems with completely emptying the can and the appellant when proposing the problem as solved by its invention included a requirement of sufficient emptying. The requirement of sufficient emptying is indeed a requirement which would have to be fulfilled when solving the objective problem since insufficient emptying would not be acceptable to a user. The skilled person must therefore consider ways of reducing overrun without reducing pressure.

On page 178 of D4 in the paragraph headed "Nitrogen and Argon" it is noted that the degree of aeration, i.e. overrun, is less with these gases. Also, as explained above, D4 refers to the use of an insoluble gas as a propellant for cream. The skilled person is therefore incited from D4 to turn to an insoluble propellant when wishing to reduce the overrun.

Since the skilled person is aware that more of a soluble propellant produces more overrun and more of an insoluble propellant produces less overrun he would consider introducing an insoluble propellant when a reduction in the overrun is required. In this respect it

is known from D4 that nitrogen is an insoluble propellant.

- 1.4.3 There is nothing in D4 which suggests that it is not possible to mix soluble and insoluble propellants to achieve a desired degree of overrun.

D2 indicates that for foamable creams nitrous oxide is the preferred gas, i.e. a soluble gas, but gives examples of mixtures of gases which include a mixture of nitrous oxide and nitrogen in the ratios 1 : 0.5-1, i.e. approximately 33 to 50% nitrogen. There is thus no prejudice for the skilled person against mixing soluble and insoluble gases as propellants.

- 1.4.4 The appellant argued first of all that the technical area of D2 being cosmetic creams is different to that of food cream and secondly that according to D2 the question of cream stability is to be solved by the composition of the cream itself.

The Board cannot agree with the appellant in this respect. Whilst D2 is directed to creams for the skin (see page 2, lines 1 to 2) this technical area is subject to health requirements, as are foodstuffs, so that the skilled person dealing with foaming (dairy) cream considering which other technical areas deal with the problem of cream stability would not be prejudiced against considering the art available in this area. Although D2 indicates the cream composition as the primary mover regarding foam stability, it also indicates that also the choice of the propellant can give gradual improvements in this respect (see page 2,

lines 14 to 15). This means that the choice of the propellant can influence the stability.

Claim 1 encompasses a broad range of 15% to almost 100% nitrogen as propellant. The description discloses only one example relating to a cream propellant which comprises 100% nitrogen respectively and a statement that the foam had not collapsed after 30 minutes. There is thus no evidence of any special effect being present throughout the above-mentioned claimed range. As already explained (see point 1.3.2 above) the Board does not accept that the experimental results filed by the appellant prove that a stable cream foam is achieved by the propellant claimed and in particular it is not proven throughout the claimed range.

- 1.4 Therefore, the subject-matter of claim 1 of the main request does not involve an inventive step in the sense of Article 56 EPC.

First auxiliary request

2. *Inventive step*

- 2.1 The subject-matter of claim 1 of this request differs from that of claim 1 of the main request in that the alternative of compressed air for the first gas is deleted and the second gas is specified to be laughing gas, i.e. nitrous oxide.

- 2.2 In the discussion of inventive step of claim 1 of the main request it was pointed out that nitrogen is known from D4 as an insoluble propellant gas and nitrous oxide as a soluble propellant gas. Also in D2 where it is

indicated that the propellant gas can be a mixture, one of the disclosed mixtures can be nitrogen and nitrous oxide. Therefore the selection of these gases for the propellant would have been obvious to the skilled person.

- 2.3 Therefore, the subject-matter of claim 1 of the first auxiliary request does not involve an inventive step in the sense of Article 56 EPC.

Second auxiliary request

3. *Inventive step*

- 3.1 Claim 1 of this request is formulated as a second non-medical use claim in the sense of Enlarged Board of Appeal Decision G 6/88. The claim is directed to the use of the alleged property of nitrogen of forming a stable cream foam. The novelty of this feature and its support for the presence of an inventive step in the subject-matter of the claim depends upon nitrogen actually having this property. However, as already explained above with respect to the main request (see point 1.3.2) the Board is not satisfied that nitrogen has been demonstrated to possess this property and in particular throughout the claimed range. In the absence of this proof and hence that this property is a technical feature of nitrogen the alleged property cannot be taken into account for the assessment of inventive step.

- 3.2 The claim does not have any further feature beyond those of claim 1 of the first auxiliary request.

Therefore, the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step in the sense of Article 56 EPC for the same reasons as explained with respect to claim 1 of the first auxiliary request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

G. Nachtigall

H. Meinders