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**Datasheet for the decision
of 12 July 2023**

Case Number: T 2705/19 - 3.3.10

Application Number: 12184233.0

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A61K8/81, A61K8/87, A61Q5/06,
B05B1/34, B65D83/14

Language of the proceedings: EN

Title of invention:
Aerosol hairspray product for styling and/or shaping hair

Patent Proprietor:
The Procter & Gamble Company

Opponent:
Nouryon Chemicals International B.V.

Headword:

Relevant legal provisions:
EPC Art. 100(a), 100(b), 100(c)

Keyword:

Decisions cited:

Catchword:



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Case Number: T 2705/19 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 12 July 2023

Appellant: Nouryon Chemicals International B.V.
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 12 July 2019
rejecting the opposition filed against European
patent No. 2570110 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chair M. Kollmannsberger
Members: R. Pérez Carlón
T. Bokor

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the opposition division's decision rejecting the opposition against European patent No. 2 570 110.

II. Notice of opposition had been filed on the grounds of added subject-matter (Article 100(c) EPC), insufficiency of disclosure (Article 100(b) EPC), and lack of novelty and inventive step (Article 100(a) EPC).

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

D1 US 7,740,832 B1

D2 US 6,165,446

D5 Ultimate hold alcohol-free aerosol hair spray
8757:118-7AA [http://www.personalcarepolymers.com:
80/Doc/EN/FORMULATION/87571187AA.pdf](http://www.personalcarepolymers.com:80/Doc/EN/FORMULATION/87571187AA.pdf)
27 December 2005

D6 D. Howard and M. Pfaffernoschke, Flexible Hold
Hairsprays with Long-lasting Performance,
ASAP, 2004

D14 US 5,968,494

D19 Experimental report by Nouryon Chemicals dated
November 2019

IV. With its reply to the grounds of appeal, the respondent (patent proprietor) filed as its main request the claims of the patent as granted. Claim 1 reads as follows:

*"An aerosol hairspray product for styling and/or
shaping hair wherein the product comprises:*

i. a container comprising a container wall which encloses a reservoir for storing a hairstyling formulation and a propellant;

ii. the hairstyling formulation comprising:

(a) at least 50% water by total weight of the hairstyling formulation and propellant; and

(b) from 0.01% to 20% of a hairstyling polymer by total weight of the hairstyling formulation and propellant, wherein the hairstyling polymer is a mixture of hairstyling polymers the mixture comprising a hard hairstyling polymer and a soft hairstyling polymer, wherein

the hard styling polymer is selected from the group consisting of: acrylates copolymers of two or more monomers of (meth)acrylic acid or one of their simple esters; acrylates/hydroxyesters acrylates copolymers of butyl acrylate, methyl methacrylate, methacrylic acid, ethyl acrylate and hydroxyethyl methacrylate; and mixtures thereof;

the soft hairstyling polymer is selected from the group consisting of: a polyurethane-14/AMP-acrylates polymer blend; latex hairstyling polymers; polyesters; and mixtures thereof, and preferably comprises a polyurethane-14/AMP-acrylates polymer blend; and

wherein the hard hairstyling polymer has a glass transition temperature of greater than or equal to 10°C and a M.Wt. of from 90 thousand g/mol to 200 thousand g/mol, and the soft hairstyling polymer has a glass transition temperature of less than 10°C and a M.Wt. of from about 10 thousand g/mol to about 90 thousand g/mol; and

wherein the weight ratio of hard hairstyling polymer to soft hairstyling polymer in the mixture is from 10:1 to 1:10;

iii. a propellant, which is selected from the group consisting of compressed gas propellants, liquefied gas propellants, and mixtures thereof; and

iv. a spraying device attached to the container for dispensing the hairstyling formulation from the reservoir of the container;

and wherein the product comprises 2% or less alcohol by total weight of the hairstyling formulation and propellant, or less than 1%."

Independent claim 14 relates to a method for styling hair comprising applying to hair a composition ejected from the hairspray product according to claim 1 and drying the ejected composition on the hair.

V. The opposition division concluded that the features of claim 1 of the patent as granted had the required basis in the application as originally filed and that the claimed invention was sufficiently disclosed for it to be carried out by a skilled person. The claimed aerosol hairspray product was novel over that of Example 2 of document D1. Document D5 was the closest prior art. It disclosed an aerosol hairspray product which lacked a soft hairstyling polymer. The opposition division defined two technical problems starting from D5. The embodiment of claim 1 requiring a polyurethane "soft" hairstyling polymer credibly solved the problem of providing an improved hairspray composition. As the claimed solution would not have been obvious for a skilled person, it was inventive. The embodiments of claim 1 requiring other types of "soft" styling polymers only solved the problem of providing an alternative. As the prior art did not disclose suitable polyester or latex hairstyling polymers, the claimed solution was also inventive.

VI. The appellant's arguments were as follows.

Although all features of claim 1 of the main request could be found word for word in the application as originally filed, they had not been disclosed in combination. Claim 1 of the patent as granted thus contained added subject-matter.

The patent did not provide sufficient information for a skilled reader to identify polymers suitable for the claimed aerosol hairspray product. Although the patent disclosed a number of polymers, it did not disclose whether they had the properties required by claim 1. The glass transition temperature of the polymers was to be measured using a standard for isolating materials, not hairstyling polymers. The standard, furthermore, contained different measurement methods which could not be directly compared. For these reasons, the claimed invention was not sufficiently disclosed for it to be carried out by a skilled person.

Example 2 of document D1 disclosed an aerosol hairspray product having all features of claim 1. The claimed product was thus not novel.

Either D2 or D5 could be the closest prior art. Both disclosed an aerosol hairspray product lacking a "soft" hairstyling polymer. The sole problem which could be considered solved by the claimed subject-matter was providing an alternative. The claimed solution, characterised by including a "soft" polymer, would have been obvious for a skilled person in view of D1, D6 or D14. The claimed aerosol hairspray product was thus not inventive.

VII. The respondent's arguments were as follows.

The application as originally filed disclosed two embodiments of the polymers of the aerosol hairspray product. One embodiment required the presence of a "hard" polymer; the other required, like claim 1, both a "hard" and a "soft" polymer. The second embodiment provided a basis for claim 1 of the patent as granted.

A skilled reader would have no difficulty in finding polymers having the chemical nature, glass transition temperature and molecular weight defined in claim 1. The claimed invention was thus sufficiently disclosed so that it could be carried out by a skilled person.

There was no evidence on file that the polymers of Example 2 of D1 had the required glass transition temperature and molecular weight. The claimed product was novel for this reason alone.

Starting from either D2 or D5 and even if the problem underlying the claimed invention were to be considered to be merely providing an alternative, the claimed solution, characterised by including a "soft" polymer in the defined proportions, would not have been obvious in view of the prior art. The claimed aerosol hairspray product was thus inventive.

VIII. The board informed the parties in a communication dated 24 November 2020 that it was likely to agree with the opposition division that none of the grounds of Article 100 EPC precluded the maintenance of the patent as granted. The board was of the preliminary view that the appeal should be dismissed.

IX. The appellant announced its non-attendance at the oral proceedings to which it had been summoned. The oral proceedings were cancelled.

X. The parties' requests were as follows.

The appellant requested that the decision under appeal be set aside and the patent revoked.

It also requested that document D14 and experimental evidence D19 be admitted into the proceedings.

The respondent requested that the appeal be dismissed or that the patent be maintained with the claims of auxiliary requests 1 to 7, filed with the reply to the grounds of appeal.

The respondent further requested that D14 and D19 not be admitted into the proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. Amendments

2.1 Claim 1 of the patent as granted relates to an aerosol hairspray product which contains a hairstyling formulation comprising 0.01 to 20% of a hairstyling polymer. Claim 1 further requires this polymer to be a mixture of 10:1 to 1:10 by weight of a "hard" hairstyling polymer and a "soft" hairstyling polymer. "Hard" and "soft" hairstyling polymers are defined in claim 1 by their chemical nature, glass transition temperature and molecular weight.

2.2 The appellant did not dispute that the features of claim 1 could be found word for word in the application. It argued, however, that they had not been disclosed in combination.

2.3 Page 10 of the application as originally filed discloses two different embodiments of the required hairstyling polymer. Page 10, lines 8 to 18 discloses a formulation having only one hairstyling polymer. According to page 10, lines 28 and 29, this polymer should be "hard" in the wording of claim 1.

Page 10, lines 19 to 27 discloses a further embodiment requiring a mixture of "hard" and "soft" polymers. The meaning of the terms "hard" and "soft" hairstyling polymers in view of their glass transition temperature and molecular weight is disclosed on page 11, lines 1 to 11 and correspond to those required by claim 1.

Page 11, lines 16 to 22 continues by disclosing the chemical nature of "soft" and "hard" polymers, which also correspond to those in claim 1.

Lastly, the required proportion of "hard" to "soft" polymers is disclosed on page 12, lines 11 and 12; 10:1 to 1:10 by weight is the broadest range disclosed.

2.4 Thus, to arrive at the claimed subject-matter, a skilled reader would only have needed to select the embodiment requiring the formulation to contain both "hard" and "soft" polymers. Once that choice is made, a skilled reader would have sought further information on the required "hard" and "soft" polymers. These types of polymers were defined in the application as originally filed by their glass transition temperature, molecular weight, chemical nature and proportions, as required by

claim 1.

2.5 The features of claim 1 of the patent as granted thus have the required basis in the application as originally filed. The ground for opposition in Article 100(c) EPC does not preclude the maintenance of the patent as granted.

3. Sufficiency of disclosure

3.1 Claim 1 relates to an aerosol hairspray product having a formulation which requires a mixture of a "hard" hairstyling polymer and a "soft" hairstyling polymer. The two types are defined by the chemical composition, glass transition temperature and molecular weight.

Paragraph [0042] of the patent discloses AcudyneTM, Balance[®]CR, Amphomer[®] and DynamX[®] H₂O as suitable polymers. The first three have the chemical nature of "hard" polymers; DynamX[®] H₂O is a "soft" polymer.

The patent discloses neither the glass transition temperature nor the molecular weight of these polymers.

3.2 The appellant argued that the types of polymers required by claim 1 were not clearly disclosed for the claimed invention to be reworked.

DynamX[®] H₂O was not a polymer but a blend whose glass transition temperature could not be easily established. The patent did not contain any example of a "soft" polymer as required by claim 1.

Of the polymers which could be "hard" in view of their chemical composition, Balance[®] CR did not have the required molecular weight.

The appellant argued that there were reasonable doubts if any disclosed polymer had the required properties.

Seeking further polymers having the sought properties, a skilled person would have needed to measure the glass transition temperature using the method in DIN EN 61006 following the patent's teaching. This standard, however, was for isolation materials, not hairstyling polymers. It included three methods whose results "should be compared with care". The neutralisation degree of a polymer was known to affect the glass transition temperature. The patent did not provide this parameter, either. For these reasons, it could not be determined whether a polymer had the glass transition temperature required by claim 1.

The appellant concluded that because the patent lacked an example of a polymer suitable for the claimed aerosol hairspray product and a reliable method for determining the properties of a polymer as claimed, the claimed invention was not sufficiently disclosed.

- 3.3 The appellant did not argue, let alone provide evidence, that polymers having the properties required by claim 1 were either not available or could not be prepared. The appellant's argument hinged on whether polymers suitable for the claimed invention could be reliably identified.

Acrylate and polyurethane polymers suitable for hairsprays are known from the prior art (see D6, page 1, "The Flexible Hold Challenge" section, lines 10 to 14 and 28 to 37). The glass transition temperature is a property frequently used for characterising polymers (D1, abstract; D2, column 3, lines 63 to 64), even if

determining it may arguably be linked to the measurement method and neutralisation degree. The same holds for a polymer's molecular weight.

Thus, even if the polymers cited in the description of the patent lacked the properties required by claim 1, the Board sees no reason why a skilled person could not have found suitable alternatives.

3.4 The claimed invention is thus sufficiently disclosed for it to be carried out by a skilled person. The ground for opposition under Article 100(b) EPC does not preclude the maintenance of the patent as granted.

4. Novelty

The appellant argued that Example 2 of D1 disclosed an aerosol spray having all features of claim 1.

There is, however, no evidence that the polymers in the aerosol spray of Example 2 of D1, AQ1350 and Uramol SC, have the required molecular weight.

For this reason alone, the claimed aerosol hairspray product is novel over that of Example 2 of D1.

5. Inventive step

5.1 Claim 1 as granted concerns an aerosol hairspray product comprising (i) a container, (ii) a hairstyling formulation, (iii) a propellant and (iv) a spraying device.

The hairspray product contains 2% or less alcohol by total weight of the hairstyling formulation (ii) and propellant (iii).

The hairstyling formulation (ii) of claim 1 contains at least 50% water. It further contains a mixture of hairstyling polymers.

The first one is a "hard" hairstyling polymer of a defined composition (acrylate), a glass transition temperature greater or equal to 10 °C and a molecular weight of 90 thousand g/mol to 200 thousand g/mol.

The second is a "soft" hairstyling polymer, selected from the group consisting of:

- polyurethane-14/AMP-acrylates blend
- latex hairstyling polymers
- polyesters
- mixtures of these

and having a glass transition temperature of less than 10 °C and a molecular weight of 10 thousand g/mol to 90 thousand g/mol.

"Hard" and "soft" polymers are to be present at a relative proportion of 10:1 to 1:10.

5.2 Closest prior art

5.2.1 In agreement with the parties' arguments presented at the oral proceedings before the opposition division, the division considered D5 to be the closest prior art.

5.2.2 On pages 9 and 10 of its statement of grounds of appeal, the appellant relied on D2, D5, D6, D7, D14 and D15 as the "most relevant prior art documents". However, they only provided a full inventive step analysis starting from D2 and D5 (page 13, ninth paragraph of the statement of grounds of appeal).

The board informed the parties in its communication in preparation for oral proceedings that the problem-solution approach would not seem to differ, regardless of whether D2 or D5 was taken as the starting point. None of the parties disagreed.

Since the appealed decision undisputedly held D5 to be the closest prior art, also the Board takes D5 as starting point for the examination in the following.

- 5.2.3 Document D5 discloses an alcohol-free aerosol hair spray containing 11% w/w Balance[®]CR, AMP, 55.30% water and 33.00% dimethyl ether as the propellant.

Balance[®]CR is an acrylates copolymer (D5, see column "INCI Designation") and thus has a composition matching that of the "hard" polymers required by claim 1 (see [0042] of the patent in suit). D5 is silent on its glass transition temperature and molecular weight.

From this it follows that the hairspray product of D5 does not contain a "soft" hairstyling polymer.

- 5.3 Problem underlying the claimed invention

In favour to the appellant, it is considered in the following that the sole problem solved by the claimed invention is the provision of an alternative aerosol hairspray product.

As a consequence, the board does not need to examine the admissibility or the content of the experimental evidence D19, which was filed by the appellant opponent to prove precisely this point.

Since the board concludes that the claimed hairspray

product is inventive even as an alternative, it needs not examine whether a more ambitious problem also could have been solved.

5.4 Solution

The problem of providing an alternative aerosol hairspray product is solved by the product of claim 1, characterised by containing a "soft" hairstyling polymer selected from the group of polyurethane 14/AMP-acrylates polymer blend, latex hairstyling polymers, polyesters and mixtures of these, having a glass transition temperature of less than 10 °C and a molecular weight of from about 10 thousand g/mol to about 90 thousand g/mol, in a proportion of 10:1 to 1:10 by weight with respect to the "hard" hairstyling polymer.

5.5 It remains to be examined whether the claimed solution would have been obvious for a skilled person in view of the prior art.

The appellant relied in this respect on the teaching of documents D1, D14 and D6.

5.5.1 D1 discloses cosmetic compositions comprising a fixing polymer and a tacky polymer. Example 2 of D1 discloses a mixture of a polyester (AQ 1350) and an acrylic polymer (SC-132). The prior art does not disclose, however, the molecular weight of any of these polymers and thus whether they are "hard" and/or "soft" in the wording of claim 1. For this reason, even if a skilled person were to have considered the polymer mixture disclosed in D1 in the context of the composition of D5, there is no proof that they would have arrived at a composition according to claim 1. Thus, D1 does not

teach the claimed solution.

- 5.5.2 The opposition division took no decision on the admissibility of D14 as the appellant did not rely on it during the oral proceedings (point 2.5 of the appealed decision). The respondent requested in appeal that D14 be not admitted.

D14 discloses polyurethanes having a glass transition temperature below 5 °C (column 4, lines 54 and 55) as hair fixatives which can be combined with acrylates (column 7, line 44).

The appellant argued that the glass transition temperature of the mixture of polyethylene and acrylates would not largely differ from that of the polyurethane alone and thus would be less than 5 °C. The polymer resulting from the combination of polyurethanes and acrylates thus corresponded to a "soft" polymer in the wording of claim 1.

Even if the appellant's argument that D14 disclosed a polyurethane/acrylates polymer that was "soft" in the wording of claim 1 were to be convincing, D14 does not hint at combining it with another polymer, let alone a "hard" one as defined in claim 1. Regardless of its admissibility, D14 does not hint at the claimed solution.

- 5.5.3 There is no evidence that the acrylic based polymer Amphomer is a "hard" polymer in the wording of claim 1. For this reason alone, D6 does not disclose a mixture of "hard" and "soft" polymers, contrary to the appellant's argument, and thus does not hint at the claimed solution, either.

- 5.5.4 Even seeking only an alternative, the skilled person would not have arrived at a hairspray containing the types of polymers required by claim 1, let alone in the required proportions.
- 5.6 The claimed hairspray is thus inventive (Article 56 EPC). For the same reasons, the aerosol hairspray product of dependent claims 2 to 13 and the method of styling hair of claim 14 using a composition ejected from the hairspray product of claim 1 are also inventive.
6. Thus the board concludes that the ground for opposition under Article 100(a) EPC also does not preclude the maintenance of the patent as granted.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



L. Malécot-Grob

M. Kollmannsberger

Decision electronically authenticated