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**Datasheet for the decision  
of 2 March 2023**

**Case Number:** T 1416/19 - 3.3.10

**Application Number:** 12759212.9

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A61K8/92

**Language of the proceedings:** EN

**Title of invention:**  
ECO-COMPATIBLE SUNSCREEN COMPOSITIONS

**Patent Proprietor:**  
Aethic Ltd.

**Opponent:**  
Beiersdorf AG

**Headword:**

**Relevant legal provisions:**

**Keyword:**

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**

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**Case Number: T 1416/19 - 3.3.10**

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.10**  
**of 2 March 2023**

**Appellant:** Beiersdorf AG  
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**Representative:** Beiersdorf Aktiengesellschaft  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
21 March 2019 concerning maintenance of the  
European Patent No. 2736482 in amended form.**

**Composition of the Board:**

**Chair** P. Gryczka  
**Members:** R. Pérez Carlón  
L. Basterreix

## Summary of Facts and Submissions

I. The appellant (opponent) appealed against the opposition division's decision concerning maintenance of European patent No. 2 736 482 in the form of the first auxiliary request then pending, which is the respondent's (patent proprietor) main request in the present appeal proceedings.

II. The main request contains four independent claims. Claim 1 reads as follows:

*"An eco-compatible sunscreen composition comprising:*

- *the UV filters 2,2'-methylene-bis-(6-(2H-benzotriazole-2-yl)-4-(1,1,3,3-tetramethylbutyl)-phenol, 2-[4-diethylamine-2-hydroxybenzoyl]hexyl benzoate and ethylhexyl triazone;*
- *one or more antioxidants selected from tocopheryl acetate, tocopherol, retinol, polyphenolic compounds extracted from green tea;*
- *one or more carriers selected from propylene glycol dicaprylate/dicaprate, olive oil, beeswax.*

*and free from:*

- *preservatives belonging to the paraben family;*
- *ascorbic acid derivatives;*
- *UV filters selected from bis ethylhexyloxyphenol methoxyphenyl triazine, cinnamates, benzophenones,*

*camphor derivatives, titanium oxide;*

- *fragrances selected from melaleuca essential oil, ylang ylang flower extracts, Bambousa Arundinacea extracts, Karitè;*
- *carriers selected from animal-derives fats and argan oil."*

Independent claim 2 differs from claim 1 by requiring one or more of the UV filters of the composition of claim 1 instead of all of them. It requires in addition:

*"one or more fragrances selected from orange, lavender, grapefruit, guava and coconut."*

Independent claim 3 differs from claim 1 by requiring one or more of the three UV filters required by claim 1 and, in addition, sorbic acid.

Lastly, independent claim 11 relates to an eco-compatible sunscreen composition which differs from that of claim 1 by requiring only one or more of the UV filters required by claim 1 and by the feature *"as a sunscreen not harmful to the coral reef"*.

III. Notice of opposition had been filed on the grounds of insufficiency of disclosure (Article 100(b) EPC) and lack of novelty and inventive step (Article 100(a) EPC).

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

D1 EP 2 087 521 A1

- D3 EP 1 179 339 A2
- D4 DE 10 2008 018 788 A1
- D5 <http://orangenoeel.info/>, as retrieved on  
23 August 2017
- D6 WO 2007/083174 A1
- D11 R. Danovaro *et al.*, "Sunscreens cause coral bleaching by promoting viral infections", *Environmental Health Perspectives*, 116(4), 2008, 441-7
- D15 DE 197 26 783 A1
- D16 Fey, Otte "Wörterbuch der Kosmetik", 3rd edn., 1991, Wissenschaftliche Verlagsgesellschaft, Stuttgart, 190, "Olivenöl"
- D17 International Cosmetic Ingredient Dictionary and Handbook, 9th edn., Volume 2, 2002, The cosmetic, Toiletry and Fragrance Association, "Propylene Glycole Dicaprylate/Dicaprate"
- D18 J. Pino *et al.*, "Chemical composition of orange oil concentrates", *Die Nahrung*, **36**, 1992, 539-42
- D19 J.D. Vora *et al.*, "Preparation and chemical composition of orange oil concentrates", *Journal of Food Science*, 48(4), 1983, 1197-8

V. The opposition division concluded for the first auxiliary request before it that the claimed invention was sufficiently disclosed for it to be carried out by a skilled person. The claims had a basis in the application as originally filed and were clear. The claimed sunscreen was novel and document D11 was the closest prior art as D1 did not address coral reef damage. The problem underlying the claimed invention was to provide a sunscreen composition that ensured preservation of coral and their reefs. The solution, characterised by having the required components and by lacking a number of other components, would not have been obvious to a skilled person and was thus

inventive. Even if D1 were considered a suitable starting point, it did not indicate what chemicals could be compatible with coral protection.

VI. The appellant's arguments were as follows.

The composition of claim 2 of the main request required a fragrance, which could be orange, and excluded ascorbic acid (vitamin C). Orange oil inevitably contained ascorbic acid. Both conditions could thus not be fulfilled at the same time. For that reason, the claimed invention was not sufficiently disclosed for it to be carried out by a skilled person.

Not only document D11 but also D1 were suitable starting points for examining inventive step. The latter disclosed sunscreen compositions which were eco-compatible in view of D11: they lacked any component harmful to coral reefs. In addition, the patent relied on a formulation of the technical problem which was not clear as there was no definition of "eco-compatibility" or any information of how to determine it. Example 3 of paragraph [0036] of D1 disclosed all the features of claim 2 with the exception of the required fragrance. Example 10 of paragraph [0039] differed from the composition of claim 1 by lacking any of the required carriers. As the claimed compositions were not limited to containing only marine friendly components, the sole problem which could be seen as solved was that of providing alternative sunscreen compositions. The carriers and fragrances required by claims 1 and 2 were known to be suitable for sunscreen compositions, and the claimed solution would thus have been obvious to a skilled person. The claimed compositions were thus not inventive.

If D11 were considered to come closest to the claimed invention, D1, D3, D4, D6 or D15 would have taught the skilled person the claimed solution. These documents disclosed compositions lacking the compounds known to be harmful to coral reefs. The claimed solution was thus not inventive.

VII. The respondent's arguments were as follows.

Orange oil did not inevitably contain ascorbic acid. Ascorbic acid was water-soluble and not likely to be found in an oil phase such as orange oil. For that reason alone, the appellant's objection that the claimed invention was not sufficiently disclosed should be rejected. In addition, there were orange fragrances other than orange oil.

D1 did not address the problem of damage to coral reefs and was thus not a suitable starting point for examining inventive step. Only D11 related to that problem.

The problem underlying the claimed invention was to provide sunscreen compositions which did not damage coral reefs. Even if it were concluded that the claimed compositions could also include components harmful for the coral reefs so that the technical problem to be solved by the invention would need to be reformulated in a less ambitious manner, this problem would not be the provision of a mere alternative. By requiring specific components to be present and others to be absent, the claimed compositions would inevitably have low toxicity. Since only D11 addressed the problem of toxicity to coral reefs and was silent on the components required by the claimed compositions, the claimed solution would not have been obvious to a



skilled person and was thus inventive.

VIII. Oral proceedings before the board took place on 2 March 2023.

IX. The parties' final requests were as follows.

The appellant requested that the decision under appeal be set aside and that European patent No. 2 736 482 be revoked. It also requested that auxiliary requests 2 to 6 and documents D18 and D19 not be admitted into the appeal proceedings.

The respondent requested that the appeal be dismissed and that the patent be maintained with the claims filed as the first auxiliary request during the oral proceedings before the opposition division (main request) or, alternatively, that the patent be maintained with the claims of the first auxiliary request filed under the heading "main request" with its reply to the grounds of appeal; with the claims of auxiliary requests 2 to 4, filed with a letter dated 10 February 2021; or with the claims of auxiliary requests 5 or 6, filed with a letter dated 22 February 2023. The respondent also requested that documents D16 and D17 not be admitted into the appeal proceedings. Should the board admit documents D16 and D17, the respondent requested that D18 and D19 also be admitted into the appeal proceedings.

X. At the end of the oral proceedings, the decision was announced.

### **Reasons for the Decision**

1. The appeal is admissible.
2. Sufficiency of disclosure
  - 2.1 Claim 2 of the main request relates to an eco-compatible sunscreen composition. The composition is free from ascorbic acid and can comprise "orange" as a fragrance.
  - 2.2 The appellant argued that D5 showed (second page, "Inhaltsstoffe") that orange oil inevitably contained vitamin C (ascorbic acid). Both conditions required by claim 2 could thus not be fulfilled at the same time.
  - 2.3 However, even if it the appellant's argument were correct and orange oil inevitably contained ascorbic acid, the skilled person could carry out the claimed invention by choosing a different fragrance from the list in claim 2, which also includes lavender, grapefruit, guava and coconut.
  - 2.4 In addition, claim 2 does not require orange oil but orange fragrance. D5 discloses that octyl- and neryl-acetate are responsible for the orange oil smell (see last bullet point in "Inhaltsstoffe von Orangenöl"). There is thus no need to add orange oil to the claimed composition to have an orange fragrance, as required by claim 2.
  - 2.5 The claimed invention is thus sufficiently disclosed for it to be carried out by a skilled person.
3. Inventive step
  - 3.1 The claimed invention relates to sunscreen compositions which are not harmful to the marine environment and in

particular coral reefs (see [0001] of the patent).

- 3.2 The main request contains four independent claims, each relating to an eco-compatible sunscreen composition.

All the independent claims require the presence of specific UV filters, antioxidants and carriers and the absence of paraben preservatives, ascorbic acid derivatives, specific fragrances, animal-derived fats and argan oil.

Claim 1 requires all of the following UV filters:

- 2,2'-methylene-bis-(6-(2H-benzotriazole-2-yl)-4-(1,1,3,3-tetramethylbutyl)-phenol (MBBT)
- 2-[4-diethylamine-2-hydroxybenzoyl]hexyl benzoate (DHHB)
- ethylhexyl triazone (ETH)

Claims 2, 3 and 11 require at least one of these UV filters.

Claim 2 requires one or more fragrances selected from orange, lavender, grapefruit, guava and coconut.

Claim 3 requires sorbic acid.

Lastly, claim 11 requires the sunscreen not to be harmful to the coral reef.

- 3.3 Closest prior art

- 3.3.1 The opposition division and the respondent considered that document D11 was the closest prior art.

The appellant considered not only D11 but also D1 as a

suitable starting point for examining inventive step.

### 3.3.2 Document D1

The appellant argued that the sunscreen compositions of example 3 in paragraph [0036] and example 10 in paragraph [0039] of D1 were closest to those of claims 1, 2, 3 and 11 in terms of the components required. The composition of example 3 only differs from that of claim 2 by lacking a fragrance; the sunscreen of example 10 differed from that of claim 1 only by the type of carrier.

However, document D1 does not address damage to marine life or coral reefs. For this reason alone, it is not a suitable starting point for examining inventive step.

The appellant argued that the compositions of D1 were inevitably not harmful to coral reefs as they lacked any of the deleterious compounds known to induce coral bleaching (parabens, cinnamates, benzophenones and camphor derivatives, see D11, page 445, middle column, lines 3 to 7).

Although D1 discloses compositions close to that of the claimed invention, it also discloses others containing bis-ethylhexyloxyphenol methoxyphenyl triazine (BEMT), excluded from the claimed compositions, whose toxicity was not known from the prior art (see examples 1, 5 and 6 in paragraph [0036]). The choice of the starting point within D1 selected by the appellant among the large number of compositions disclosed in D1 could only have been made with knowledge of the claimed invention.

The appellant argued that the meaning of the feature "eco-compatible" was not clear and that no method for

determining such compatibility was disclosed in the patent or known from the prior art. In view of this lack of clarity, a document such as D1, which did not explicitly relate to an eco-compatible composition, was also a suitable starting point for examining inventive step.

However, the aim of the claimed invention is to provide compositions which do not damage coral reefs (see paragraph [0001] of the patent). The skilled person would thus start from a piece of prior art which also relates to that problem, whether the feature of "eco-compatible" is clear or not.

For completeness, even if a skilled person were to start from examples 3 in paragraph [0036] or 10 in paragraph [0029] of D1, they would have found no teaching on how to modify these compositions while keeping them safe for coral reefs. Among the available prior art, only D11 addresses damage to coral reefs. D11 is, however, silent on the UV filters required by the claimed invention.

### 3.3.3 Document D11

D11 is a scientific publication which addresses the effect of a number of components of sunscreen compositions on coral bleaching. D11 also discloses the mechanism underlying the bleaching: viral infection.

Although D11 does not disclose any complete formulation, it informs the reader of harmful and harmless components in sunscreens (Tables 1 and 3). D11 is thus a suitable starting point for examining inventive step.

D11 discloses parabens and some of the UV filters excluded from the claimed compositions (cinnamates, benzophenones and camphor derivatives) as harmful.

D11 is silent on the other two UV filters excluded from the claimed compositions (titanium oxide and BEMT). It does not refer to ascorbic acid or any fragrance or carrier.

D11 is silent on the UV filters, antioxidants and carriers required by the claimed compositions.

#### 3.4 Technical problem underlying the invention

The parties had different views on the formulation of the technical problem effectively solved by the claimed invention.

The use of the open wording "comprising" allows the presence in the claimed compositions of components not safe for coral reefs.

The appellant argued that, for this reason, the sole problem which could be considered solved was merely the provision of further sunscreen compositions.

The respondent considered that if the problem of providing totally safe compositions were to be seen as not solved, the problem should not be reformulated as merely to provide further sunscreen compositions but as to provide sunscreen compositions with low toxicity to coral reefs.

In the following, it is examined whether the claimed compositions are inventive under the assumption that the technical problem underlying the claimed invention

is the less ambitious one formulated by the respondent. Since the claimed solution to this problem is inventive, there is no need to decide whether a more ambitious problem could also have been solved.

### 3.5 Solution

The solution to this technical problem are the claimed compositions, characterised in that:

- they contain:
  - UV filters selected from MBBT, DHHB and ETH
  - specific antioxidants
  - specific carriers
- they lack ascorbic acid derivatives, parabens, animal fats, argan oil, specific fragrances and a number of UV filters

These characterising features are common to all the independent claims. Each of them includes additional differences, namely the need for all three UV filters, specific fragrances, sorbic acid or not being harmful to the coral reef.

### 3.6 Success

Table 9 of the patent summarises the experimental evidence provided in the patent on coral damage. It discloses the bleaching induced by a number of substances in coral, measured as the change in four different colours. The nature of the substances tested is disclosed in Table 2 of the patent.

#### 3.6.1 Components required by claim 1

The UV filters required by the claimed compositions are labelled D22, D24 and D25 in Table 9. All of them

induced "no significant" (NS) colour change. The fragrance "guava and coconut", tocopheryl acetate and tocopherol led to no significant change either.

All other components required by the claimed compositions led to changes only in one of the four colours tested.

The patent thus shows that the components required by the claimed compositions have no or little deleterious effect on coral reefs.

### 3.6.2 Components excluded from claim 1

Of the UV filters excluded, camphor derivatives and cinnamates were known to be harmful from D11 (entries BMC and OCM in Tables 1 and 3 of D11). BEMT is shown to be harmful in the patent (see Table 9, entry D23).

Table 9 of the patent further shows that an ascorbic acid derivative induces changes in all the colours tested (entry D18). Argan oil induces large colour changes too (entry D06).

Document D11 discloses parabens as deleterious for coral reefs (Tables 1 and 2, entry BP).

Lastly, the effect of the fragrances excluded from the claimed compositions is shown in entries D02, D03, D08 and D09 of Table 9. Bamboo, karite and ylang-ylang fragrances induce changes in at least two colour channels (D03, D08 and D09). Melaleuca fragrance induces change in one (D02).

### 3.6.3 Thus, the available evidence shows that the components required by the claimed compositions are less harmful



to coral reefs than those excluded.

- 3.6.4 The claimed compositions do not completely exclude every harmful component due to the open wording "comprising". However, the mandatory presence of a number of innocuous components and the mandatory absence of a number of harmful ones inevitably leads to compositions with low toxicity to coral reefs.

The less ambitious problem formulated by the respondent is thus credibly solved by the claimed compositions.

- 3.7 It remains to be decided whether the proposed solution to the objective problem defined above would have been obvious to a skilled person in view of the prior art.

It was known that sunscreens caused coral bleaching in touristic areas, to the extent that they had been banned from some tourist destinations (D11, page 1, middle column, lines 1 to 3).

D11 studied the effect of a number of components on viral infection and coral bleaching.

According to D11, two UV filters do not induce bleaching (entries OCT and EHS in Table 1). Neither of them is required by claim 1, though. In fact, none of the components known to be safe from D11 are included in the claimed compositions (see page 445, sentence bridging the left and middle columns).

Not only do the claimed compositions exclude all the components disclosed as deleterious in D11 (parabens, cinnamates, benzophenones and camphor derivatives, see page 445, first sentence in the middle column), they also exclude others whose toxicity was not known from

the prior art.

Seeking a composition with low toxicity against coral reefs, the skilled person would not have found any prompt towards the UV filters required by the claimed invention. Neither would they find any guidance on the required carriers and antioxidants or many of the compounds to be excluded.

The claimed solution would thus not have been obvious to a skilled person and is inventive.

- 3.8 The appellant argued that none of the components of composition 3 in paragraph [0036] or composition 10 in paragraph [0039] of D1 was harmful for coral reefs. For this reason, these compositions would have been an obvious solution to the claimed problem.

However, this information is only provided by the opposed patent. Without this information, the skilled person would have no reason to select precisely composition 3 in paragraph [0036] and composition 10 in paragraph [0039] from the large number disclosed in D1 or turn to a document such as D1 at all.

- 3.9 The appellant further argued that D6 would have taught a skilled person the claimed solution. Example 4 of D6 (page 16) disclosed a cream containing DHHB as a UV-filter in combination with beeswax and lacking all the components known to be harmful from D11. Analogous argument could be made with compositions in documents D15, D4 or D3.

However, D11 only provides information on some but not all the components excluded from the claimed compositions. D11 is further silent on the effect of

all the components required by the claims. Seeking compositions with low toxicity to coral reefs, the skilled person would not have found any teaching which indicated that the composition in example 4 of D6 or those in D15, D4 or D3 were not harmful for coral reef. This information has only been made available by the patent's disclosure.

These arguments are thus not convincing.

4. Other issues

The respondent requested that documents D16 and D17 not be admitted into the proceedings.

D16 and D17 were filed by the appellant to show that olive oil and propylene glycol dicaprylate/dicaprate were known ingredients of sunscreen compositions (statement of grounds of appeal, page 6, penultimate paragraph). At the oral proceedings, the appellant has not relied on the content of these documents, and the issue of whether these substances were known carriers in sunscreen compositions is not relevant for the present decision. The admissibility of D16 and D17 into the proceedings can thus be left unanswered.

As the respondent's request to admit D18 and D19 into the proceedings was conditional on the admission of D16 and D17, this issue can be left unanswered, too.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chair:



C. Rodríguez Rodríguez

P. Gryczka

Decision electronically authenticated