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**Datasheet for the decision  
of 23 September 2024**

**Case Number:** T 0708/21 - 3.5.01

**Application Number:** 19305337.8

**Publication Number:** 3553732

**IPC:** G06Q30/06, G06Q30/02, G01J3/00,  
G06K9/62

**Language of the proceedings:** EN

**Title of invention:**

A METHOD FOR SELECTING A COSMETIC PRODUCT FOR AN INTENDED USER

**Applicant:**

Chanel Parfums Beauté

**Headword:**

Matching foundation colours to a person's skin tone/CHANEL

**Relevant legal provisions:**

EPC Art. 56

**Keyword:**

Inventive step - using only lightness and hue for colour matching (no - obvious from prior art) - additional technical effect taken into account (no - not derivable from the application as filed and merely a "bonus effect")



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

Boards of Appeal of the  
European Patent Office  
Richard-Reitzner-Allee 8  
85540 Haar  
GERMANY  
Tel. +49 (0)89 2399-0

Case Number: T 0708/21 - 3.5.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.5.01**  
**of 23 September 2024**

**Appellant:** Chanel Parfums Beauté  
(Applicant) 135 avenue Charles de Gaulle  
92200 Neuilly-sur-Seine (FR)

**Representative:** Plasseraud IP  
104 Rue de Richelieu  
CS92104  
75080 Paris Cedex 02 (FR)

**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 11 January 2021  
refusing European patent application No.  
19305337.8 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairwoman** A. Wahrenberg  
**Members:** I. Kürten  
L. Basterreix

## **Summary of Facts and Submissions**

- I. The appeal is against the decision of the examining division to refuse the European patent application No. 19305337.8 for lack of inventive step (Article 56 EPC). It concerns a method for selecting make-up foundations that match a person's skin tone.
- II. The decision refers to, *inter alia*, the following documents:
- D1: US 7 522 768 B2,  
D2: US 2015/356661 A1,  
D5: US 9 442 973 B1.
- III. The examining division held that claim 1 of the main and first to third auxiliary requests then on file did not involve an inventive step starting from D1. They considered that the distinguishing features were either obvious or non-technical.
- IV. With the statement setting out the grounds of appeal, the appellant filed a main and four auxiliary requests and requested the grant of a patent based on one of these requests. The main, second, and fourth auxiliary requests corresponded to the refused second and third auxiliary requests, and the refused main request. The first and third auxiliary requests were new on appeal. The appellant also requested oral proceedings if the Board intended to reject the main request.
- V. The Board summoned the appellant to oral proceedings. In the accompanying communication, the Board tended to agree as to the distinguishing features identified by the examining division. The Board considered that these

differences lacked synergy and that they were either obvious in light of the prior art cited in the appealed decision or concerned choices without particular technical effects.

VI. In a reply, the appellant argued that the Board improperly combined features from different embodiments of D1 and that the distinguishing features produced a synergistic effect. They emphasised that excluding saturation and using only lightness and hue to represent skin tones and foundation shades improved the foundation matching accuracy. Since the prior art did not suggest using lightness and hue to improve accuracy, claim 1 involved an inventive step.

VII. Oral proceedings were held via videoconference on 23 September 2024. The appellant confirmed the requests filed with the statement setting out the grounds of appeal. They also presented experimental data demonstrating that colour matching based on lightness and hue, while excluding saturation, led to better foundation recommendations. After considering the appellant's oral and written arguments, the Chairwoman announced the Board's decision.

VIII. Claim 1 of the main request reads:

*Method for selecting a foundation intended for a person, comprising the steps of:*

*- acquiring (100) an image of a complete view of a person's face in a controlled lighting environment, and measuring and recording the colorimetric coordinates of part or all of the face of that person;*

- processing said image by standardized means in order to determine (200) an absolute value of the skin tone of said person, the determination (200) of the absolute value comprising the analysis (210) of colorimetric parameters of lightness  $L_i$  and [sic] hue  $h_i$ , by means of digital processing, of each of some or all of the pixels  $I$  of the face, and using the average of each of the  $L_i$  and  $h_i$  to determine the absolute value of the color of said face designated by  $L_m$ ,  $h_m$ ;

- correlating said absolute value of the skin tone of said person with a usage color map established for each of a plurality of foundations of a database by measuring the color of each foundation under its conditions of use, to determine (300) a personalized color matrix (MTP);

- extracting (410), from said database, the foundation(s) whose color measurement is part of the personalized color matrix;

- using an information medium selected among a paper document and a digital interface, presenting (420) to the person the foundation(s) comprised in the personalized color matrix,

wherein the usage color map is obtained for each foundation, by

- spreading (910) a homogeneous film of constant thickness of the foundation on a reference medium,

- drying (920) each resulting film at a temperature between 20°C and 45°C, and

*- measuring (930) the colorimetric parameters  $L_f$  and  $h_f$  of each film obtained in the preceding step, by means of a spectrophotometer and under standardized lighting conditions identical or almost identical to those used in the step of acquiring an image of the person.*

IX. Claim 1 of the first auxiliary request deletes the steps directed to obtaining the "usage color map" and adds the following features at the end:

*"and wherein the step of correlating (300) the absolute value of the person's skin tone with the usage color map comprises the following steps:*

*- positioning (310) the values  $L_m$  and  $h_m$  [sic] of the absolute value of the person's skin tone within the color space of the usage color map defined by the set of  $L_f/h_f$  pairs measured for each foundation;*

*- selecting (320) the  $L_f/h_f$  pairs for which the  $\Delta L$  absolute difference between  $L_m$  and each  $L_f$  is equal to  $\pm 10$ , and the  $\Delta h$  absolute difference between  $h_m$  and each  $h_f$  is between  $0^\circ$  and  $90^\circ$ ,*

*- determining (330) the person's personalized color matrix that is within the color space in the  $L$  and  $h$  coordinates resulting from the previous selection step."*

X. Claim 1 of the second auxiliary request combines the features of claim 1 of the main and first auxiliary requests.

XI. Claim 1 of the third auxiliary request adds to the preamble of claim 1 of the second auxiliary request the following features:

*"the method being implemented by a system comprising a setup for acquiring images in a controlled lighting environment, a computer for processing the acquired images, and a memory storing code instructions executed by the computer."*

XII. Claim 1 of the fourth auxiliary request replaces "*foundation(s)*" in claim 1 of the main request with the broader term "*cosmetic product(s)*" and deletes the steps directed to obtaining the "*usage color map*".

## **Reasons for the Decision**

### 1. *The invention*

The invention is about recommending make-up foundations that match a person's skin tone, [0002] and [0003] of the published application.

The skin tone is determined by averaging the lightness and hue of pixels in an image of the person's face, acquired in a controlled lighting environment. These average values are then correlated with the lightness and hue measurements of foundations stored in a database. The foundations with the closest match are presented to the person, [0017].

Each foundation's lightness and hue ("usage color map" in claim 1) are measured using a spectrophotometer under the same lighting conditions as those used to capture the person's face image. The measurements are taken on a film of the foundation, applied to a reference surface and dried at a temperature between 20°C and 45°C, [0038].

2. *Second auxiliary request - inventive step*

2.1 The Board finds it convenient to analyse the more specific second auxiliary request first, before turning to the higher-ranking requests. This request corresponds to the third auxiliary request in the decision under appeal.

2.2 It is common ground that D1 is a suitable starting point for assessing inventive step.

Similar to the present invention, D1 deals with recommending cosmetic products, such as foundations, that match a person's skin tone (e.g. abstract). Like claim 1, the method of D1 estimates the person's skin tone by analysing an image of their face, which may be taken in a controlled lighting environment (column 6, lines 54 to 59 and 65 to 67). In one embodiment (e.g. Figure 1), D1 suggests a two-step process. First, the estimated skin tone is assigned to a classification (or reference) colour, representing a subset of skin tones derived from test subjects (step 120, column 4, lines 35 to 44; column 19, lines 4 to 20). Second, the classification colour is correlated with one or more products (step 140, column 4, line 64 to column 5, line 9; column 18, lines 46 to 65). Another embodiment simplifies this to a single step, directly comparing the skin tone to cosmetic product colours (e.g. column

19, line 24 and column 20, lines 12 to 14). The Board takes this latter embodiment as basis for assessing inventive step.

- 2.3 The appellant argued that although D1 described acquiring an image of a person's face in a controlled lighting environment, it did so only in combination with product recommendations by a human consultant (column 8, line 63 to column 9, line 10). For automated recommendations, D1 required a "skin color estimate", which adjusted for variations in ambient lighting (e.g. column 18, third paragraph).

The Board acknowledges that D1 includes an embodiment involving recommendations by a human expert but disagrees that the use of a controlled lighting environment is limited to that embodiment. This is evident from the passages on column 6, lines 57 to 59 and column 11, lines 50 to 53, which state that embodiments of the invention may also be used in conjunction with controlled environments. Evidently, this possibility applies to both human and automated recommendations, as the lighting conditions affect only the skin tone estimate, not how it is compared to foundation shades. Using a controlled environment simply removes the need to correct for varying lighting conditions when determining the skin tone.

- 2.4 While the the Board agrees that D1 presents various methods for estimating skin tone and classification colours, as well as comparing the two, many of these methods are incompatible with the chosen embodiment. For example, capturing an image in a controlled lighting environment rules out skin tone estimates based on a "control reference color set" (column 18, lines 30 to 36), as this set is intended solely to

adjust for varying lighting and image acquisition conditions. Furthermore, directly comparing the skin tone to product colours excludes aggregate estimates from test subjects (column 4, lines 42 to 44 and column 19, lines 17 to 22). Ruling out these incompatible alternatives in D1 logically leads to the use of individual colour values for both skin tone and product colours, such as those averaged from pixel colour descriptions (column 6, lines 65 to 68 and column 8, lines 17 to 25) in the HSV (hue-saturation-value) or RGB (red-green-blue) colour space (column 9, lines 40 to 45; column 17, lines 64 to 67).

2.5 Thus, the method of claim 1 differs from D1 in that:

- 1) it uses lightness and hue to represent skin tones and foundation shades;
- 2) the colour of a foundation is measured by spectrophotometry of a film spread on a reference medium and dried at a temperature between 20°C and 45°C, whereby the measurements are taken under the same lighting conditions as those used during the acquisition of the person's image;
- 3) matching foundation colours are those with a lightness difference equal to  $\pm 10$  and a hue difference between 0° and 90°.

2.6 The appellant argued that the distinguishing features interacted synergistically to solve the problem of providing simple and reliable foundation recommendations. Specifically, the use of hue and lightness (feature 1) simplified both the foundation colour measurements (feature 2) and the comparison between skin tones and foundation colours (feature 3).

Moreover, measuring a foundation's colour under its conditions of use (feature 2) led to more precise shade measurements, which in turn improved the accuracy of the colour matching (feature 3).

The Board, however, considers that there is a lack of synergy between the differentiating features, apart from their inevitable chronological connection, namely that once a colour space has been chosen for representing the skin tone (feature 1), the relevant colour parameters have to be measured (feature 2), and the matching (feature 3) has to take place in this colour space. Analogously, the simplified measurements and processing are mere consequences of choosing a simplified colour space (feature 1). The remaining steps in features 2) and 3), e.g., spreading, drying, selecting shades within some range limits, even if contributing to simplicity or reliability individually, do not produce a combined effect greater than the sum of their individual contributions. It is not sufficient that the individual features solve the same technical problem or that their effects, though similar, merely add up to an increased but otherwise unchanged effect (Case Law of the Boards of Appeal, 10th edition, I.D. 9.3.1).

Therefore, the Board considers that the differences may be assessed separately for inventive step, as the examining division did in the decision under appeal.

2.6.1 Concerning feature 1), lightness and hue define a 2D colour space that is simpler than the 3D colour spaces mentioned in D1 (HSV and RGB), yet still suitable for representing human skin tones and foundation shades (see also page 10, first paragraph of the published application). Therefore, the Board considers that the

technical problem solved by this feature is to find a simpler colour space for representing skin tones and foundation shades.

D5, which also deals with matching foundation shades to skin tones, explicitly suggests a simplified 2D colour space as an alternative to other colour spaces like RGB and Munsell (column 9, line 49 to column 10, line 14). This space captures existing skin colours using two parameters: undertone and darkness. As illustrated in Figure 9 and explained in column 13, lines 39 to 41 and column 14, lines 42 to 57, these parameters correspond to hue (undertone) and lightness (darkness), with the undertone ranging from redder to yellower and the darkness from lighter to darker.

Hence, the skilled person seeking a simpler colour space would apply the teaching of D5 to the method of D1, and thereby arrive at feature 1) in an obvious manner.

- 2.6.2 The appellant argued that, in addition to providing a simplified colour scheme, using only lightness and hue to represent a skin tone improved the accuracy of the colour matching.

The appellant submitted that human skin appeared desaturated under illumination, while suitable foundations typically had higher saturation levels to create a more radiant effect. If saturation was taken into account in the matching process, the selected foundations would be less saturated, resulting in a duller appearance, which was undesirable. By ignoring the saturation from the colour matching, the invention eliminated unwanted noise and provided more relevant matches. During the oral proceedings, the appellant

supported this argument with experimental data showing significant differences between the saturation levels of skin and foundation measurements, and the impact of saturation on the recommended products.

Since D5 did not mention that using only lightness and hue improved the foundation matching accuracy, the skilled person would not have considered this document when seeking a solution to the problem of providing a simple AND more accurate foundation matching.

- 2.6.3 However, according to the jurisprudence of the Boards of Appeal, an alleged technical effect cannot be considered for inventive step unless it is at least hinted at in the original application, or can be deduced by the skilled person from the application as filed considered in relation to the nearest prior art (Case Law of the Boards of Appeal, I.D.4.4.3 b, second paragraph). This is not the case here since the application as filed does not suggest that saturation is a noise factor and that ignoring it leads to more accurate results. It merely states that lightness and hue are chosen for simplicity, and that saturation can be disregarded since it is less important for foundation colours (page 10, top). Simplifying a process by removing irrelevant data does not imply or suggest an improvement in accuracy.

Therefore, the Board holds that the effect of improved accuracy cannot be taken into account in the assessment of inventive step.

- 2.6.4 Furthermore, it is established jurisprudence that if a claim achieves one effect derivable from the distinguishing features in an obvious manner, this cannot be redressed by an extra ("bonus") effect (see

the Case Law of the Boards of Appeal, 10th edition, I.D.10.8).

As set out above, the Board considers that the skilled person looking for a simplified colour scheme for representing skin tones and foundation colours would arrive at a colour scheme comprising only lightness and hue in an obvious manner. Hence, the choice of these parameters does not involve an inventive step, regardless of any improved accuracy.

- 2.6.5 The appellant furthermore argued that the "undertone" in D5 was not equivalent to hue but also encompassed a notion of saturation. This is based on column 13, lines 49 to 51 of D5, which states "*[s]kin tone 1Y07 would be the same depth in skin [as 5Y07] but the saturation in color is the least yellow and closer to neutral*".

However, the Board notes that the term "saturation in color" in this passage is used to clarify the meaning of the first two characters in the colour code 1Y07. As explained earlier in the same paragraph, "*the first two characters represent a color (Y corresponds to yellow) and how strongly hued the customer is (1 corresponds to very light hue)*". Thus, in the Board's view, "saturation in color" refers informally to the visible prominence of a particular hue, e.g., whether it is more yellow or closer to neutral, rather than saturation in the technical sense used in colour space measurements. This interpretation aligns with the explanation of "undertone" in Figure 9 in column 14, lines 42 to 57.

- 2.6.6 Turning to feature 2), measuring a foundation's colour by spreading a film, drying it, and then using a spectrophotometer, is independent of the chosen colour

space (i.e. lightness and hue) or the colour matching algorithm (features 1 and 3). The Board sees no technical effect achieved by this features beyond finding a suitable method for measuring the colour of a foundation. Therefore, the technical problem solved is how to measure the colour of a foundation.

The Board agrees with the examining division that the claimed measurement process is obvious in view of D2. D2 teaches spreading a foundation on a substrate ([0035]) and measuring its colour with a spectrophotometer under controlled lighting conditions (claim 2, [0061]). Although D2 does not state that the foundation should dry before measurement, this is already implied by D1, which mentions that the colour of a wet foundation may differ significantly from that of the dried product on the skin (column 1, lines 65 to 67). The claimed temperature range of 20°C and 45°C merely reflects typical room temperature, so, in the Board's view, this is merely common sense (see also the decision under appeal, point 2.10).

2.6.7 Finally, feature 3) addresses the problem of finding a suitable match between the person's skin tone and available foundations. D1 already teaches evaluating the similarity between a skin tone and foundation shades by calculating the differences in their colour values (e.g. column 20, lines 33 to 36). Since exact matches are rarely possible, the skilled person would establish acceptable ranges for these differences. The appellant has not demonstrated any specific technical effect resulting from the claimed limits of  $\pm 10$  for the lightness difference and  $0^\circ$  to  $90^\circ$  for the hue difference, and the Board cannot identify any either. Therefore, the Board concludes that these ranges would

have been obvious and, hence, feature 3) does not involve an inventive step.

- 2.7 For the reasons set out above, the Board judges that claim 1 of the second auxiliary request does not involve an inventive step (Article 56 EPC).
3. Since claim 1 of the main, first, and fourth auxiliary requests is broader than claim 1 of the second auxiliary request, it lacks inventive step for the same reasons (Article 56 EPC).
4. Finally, the Board considers that the additional features in claim 1 of the third auxiliary request are already implicit in claim 1 of the second auxiliary request. The appellant did not argue that the third auxiliary request added any features of inventive significance. Therefore, claim 1 of the third auxiliary request lacks an inventive step (Article 56 EPC) for the same reasons.
5. As none of the appellant's requests is allowable, the appeal has to be dismissed.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairwoman:



U. Bultmann

A. Wahrenberg

Decision electronically authenticated