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Datasheet for the decision of 29 May 2024

Case Number: T 0193/22 - 3.3.06

Application Number: 12725363.1

Publication Number: 2714985

IPC: D06P1/00, C09B69/10, C11D3/40, C11D3/37

Language of the proceedings: EN

Title of invention:
LIQUID DETERGENT COMPOSITION CONTAINING DYE POLYMER

Patent Proprietors:
Unilever IP Holdings B.V.
Unilever Global IP Limited

Opponent:
THE PROCTER & GAMBLE COMPANY

Headword:
LIQUID DETERGENT CONTAINING DYE POLYMER / Unilever

Relevant legal provisions:
EPC 1973 Art. 56, 123(2)
RPBA 2020 Art. 12(4) sentence 3, 12(4) sentence 4, 12(6) sentence 2

Keyword:
Inventive step (main request) - no
Late-filed auxiliary requests (auxiliary request 1, 2, 4 and 5) - not admitted
Added subject-matter (auxiliary request 3) - yes

Decisions cited:
T 1791/16

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0193/22 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 29 May 2024

Appellant: (Opponent)	THE PROCTER & GAMBLE COMPANY One Procter & Gamble Plaza Cincinnati, Ohio 45202 (US)
Representative:	Gill Jennings & Every LLP The Broadgate Tower 20 Primrose Street London EC2A 2ES (GB)
Respondent: (Patent Proprietor 1)	Unilever IP Holdings B.V. Weena 455 3013 AL Rotterdam (NL)
Respondent: (Patent Proprietor 2)	Unilever Global IP Limited Port Sunlight Wirral, Merseyside CH62 4ZD (GB)
Representative:	Brooijmans, Rob Josephina Wilhelmus Unilever Patent Group Bronland 14 6708 WH Wageningen (NL)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 24 November 2021 rejecting the opposition filed against European patent No. 2714985 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	P. Ammendola
	R. Winkelhofer

Summary of Facts and Submissions

I. This appeal of the opponent lies from the decision of the opposition division to reject the opposition against European patent no. 2 714 985, claim 1 thereof reading:

"*1. A liquid laundry detergent composition comprising:*
(i) from 2 to 60 wt % of surfactant;
(ii) from 0.001 to 5 wt % of a dye polymer, wherein the dye polymer is obtainable by reacting a blue or violet dye containing an NH_2 group with a polymer to form a covalent bond via the reacted NH_2 group of the blue or violet dye and the dye polymer having at least 3 repeating same units of alkylene oxide in a chain; and,
(iii) up to 1 wt% of a blue and/or the violet unbound dye,
wherein the weight ratio of the dye polymer to unbound blue and/or the unbound violet dye in the liquid laundry detergent is from 10000:1 to 5:1, the unbound blue and/or the violet dye having from 0 to 2 repeating same units of alkylene oxide in a chain and the unbound dye having the same chromophore structure as covalently bound to the dye polymer."

II. In the contested decision, the opposition division concluded that the ground for opposition under Article 100(a) EPC in combination with Article 56 EPC did not prejudice the maintenance of the patent as granted. In particular, starting from the closest prior art disclosed in **D8** (US 2009/0286709 A1), the liquid laundry detergent composition (hereinafter **LLD**

composition) defined in granted claim 1 offered a non-obvious solution to the objective technical problem of providing a further LLD composition.

III. With its statement of grounds of appeal, the appellant contested the above conclusion and referred to **D17** (Second Data Report filed by the opponent) and **E2/D23** (submission of 13 April 2017 filed by the patent proprietors during examination of the application onto which the opposed patent is based), as already submitted in opposition.

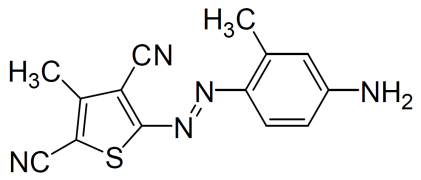
IV. With their reply, the patent proprietors (and respondents) submitted five sets of amended claims as auxiliary requests 1 to 5 and referred to **D10** (US 4,912,203 A), **D15** (Declaration of Stephan Batchelor), **D19** (Experimental Report by Stephan Batchelor) and **D22** (data report by G. Scott Miracle).

Claim 1 of **auxiliary request 1** differs from granted claim 1 in the following amendment (made apparent): "*wherein the weight ratio of the dye polymer to unbound blue and/or the unbound violet dye in the liquid laundry detergent is from ~~10000~~1000:1 to 5:1*".

The same amendment is present in each version of claim 1 in **auxiliary requests 2, 4 and 5**.

Claim 1 of **auxiliary request 3** differs from granted claim 1 for the following amendments (made apparent): "*wherein the weight ratio of the dye polymer to unbound blue and/or the unbound violet dye in the liquid laundry detergent is from 10~~000~~:1 to 5:1, the unbound blue and/or the violet dye having from 0 to 2 repeating same units of alkylene oxide in a chain and the unbound*

dye having the same chromophore structure as covalently bound to the dye polymer;
wherein the repeating units are ethylene oxide; and
wherein the dye is a mono-azo thiophene dye:



;
wherein the dye polymer gives a hue angle of 230 to 345 when provided to white bleached non-mercerised woven cotton sheeting;
with the proviso that the total amount of dye polymer is from 0.001 to 5 wt%."

V. At the oral proceedings, held before the board on 29 May 2024, the final parties' requests were as follows:

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

The respondents requested that the appeal be dismissed (main request) or, as an auxiliary measure, that the patent be maintained on the basis of auxiliary requests 1 to 5 filed with the reply to the appeal.

Reasons for the Decision

Procedural issues

1. Non-admittance of auxiliary requests 1, 2, 4 and 5

1.1 Auxiliary requests 1 to 5 have all been filed with the reply to the appeal (and, thus, in accordance with Article 12(3) RPBA). However, whereas auxiliary request

3 undisputedly corresponds to one of those already submitted in opposition (namely to auxiliary request 4), auxiliary requests 1, 2, 4 and 5 are new because of *inter alia* the amended upper limit of "*1000:1*" recited for the "***weight ratio** of the **d**ye **p**olymer to **u**nbound blue and/or the **u**nbound violet **d**ye in the liquid laundry detergent*" (hereinafter **the DP:UD weight ratio**) in each version of claim 1 in auxiliary requests 1, 2, 4 and 5. In all amended versions of claim 1 previously on file, this upper limit had instead been amended to "*10:1*".

Hence, each of auxiliary requests 1, 2, 4 and 5 constitutes an amendment of the respondents' case that may only be admitted under the board's discretion (Article 12(4) RPBA second sentence).

1.2 The reply to the appeal provides however no justification by the respondents for the filing of these requests only at the appeal stage, and the submissions in pars. [64] to [69] of the reply that relate to these auxiliary requests only refer to vaguely identified appellant's allegations or to objections that have already been raised in opposition.

Hence, the requirements of Article 12(4) RPBA third sentence have not been complied with.

1.3 At the oral proceedings, the respondents additionally argued that in particular the amendment to "*1000:1*" of the upper limit of the DP:UD weight ratio in these new auxiliary requests would be in reaction to the allegation in the statement of grounds of appeal and in D22 that it was possible to predict a DP:UD weight ratio of 195:1 for the Violet thiophene-10EO dye of D8.

However, this allegation was already present in the notice of opposition (see e.g. 1.3.2 on page 9), and D22 was already enclosed thereto. Moreover, the statement of grounds of appeal (to which the respondents replied also by filing these auxiliary requests) does not even mention D22.

Hence, the auxiliary requests 1, 2, 4 and 5 could and should have been filed already in opposition, and the respondents did not point to circumstances of the case that could justify their admission in the appeal stage. Thus, these requests could also not be admitted in view of Article 12(6) RPBA second sentence.

1.4 Finally, at least the fact that the reply to the appeal also does not provide the reasons why the amended upper limit of "*1000:1*" would overcome the objections raised renders these new auxiliary requests contrary to the requirements of Article 12(4) RPBA fourth sentence, as well.

1.5 Thus, under Article 12(4) RPBA second sentence, none of auxiliary requests 1, 2, 4 and 5 could be considered in the appeal proceedings.

2. Main request - Inventive step (Article 100(a) and 56 EPC)

2.1 Claim 1 as granted describes a LLD composition containing "*a blue or violet dye*" composed of "***d****ye* ***p****olymer*" (hereinafter also **DP**) and of blue and/or violet "***u****nbound* ***d****ye*" (hereinafter also **UD**), at the specified DP/UD weight ratio. It is self-evident to the skilled reader of granted claim 1 in the context of the whole disclosure of the granted patent that the DP and

UD components (hereinafter cumulatively referred to also as **the dye mixture**) are whitening agents.

2.2 The board confirms that the closest prior art is represented by the liquid detergent formulations of Examples 1a, 1c, 1d and 1f in Table 6A of D8, which comprise, as whitening agent, the "Violet thiophene-5EO" dye also mentioned as "Example 2" in Table 1A of D8, and whose "average structure" is described in paragraph [0156] of D8 (wherein the term "violet colorants" also manifestly refers to the whitening agents considered in this document).

2.2.1 The parties did not contest the opposition division's findings in the appealed decision that these liquid detergent formulations exemplified in D8 represent a suitable starting point for the assessment of inventive step of the LLD composition claim 1 at issue, and have all the features of the LLD composition described in this claim, with the sole exception of the DP:UD weight ratio of "*from 10000:1 to 5:1*".

2.2.2 The board sees no reason to come to a different conclusion, but notes that the opposition division explicitly acknowledged on page 13, lines 11 to 14, of the appealed decision, that the appellant had relied on the respondents' own deduction in E2/D23, that the "Violet thiophene-5EO" dye of D8 was a dye mixture with a DP:UD weight ratio of about "1.6:1". Furthermore the respondents had not disputed the plausibility of this prediction, and the opposition division saw no reason to disagree.

The respondents' deduction in E2/D23 is essentially based on the assumption that the distribution of ethylene oxide units (**EO**) actually occurring in the

"Violet thiophene-5EO" dye, would be at least comparable to the Poisson distribution known to occur in corresponding products - i.e. in similar mixtures of molecules with EO blocks of different lengths, wherein the average number of EO units per molecule is the same as that in the "Violet thiophene-5EO" dye, i.e. 5 EO - produced by "regular ethoxylation" (see in E2/D23 the whole section entitled "Novelty" and in particular the first, tenth and eleventh paragraphs therein).

However, since the respondents also disputed the plausibility of such assumption when they objected to the appellant's deduction of the DP:UD weight ratio of approximately 195:1 occurring in another example of the "violet colorants" of paragraph [0156] of D8 (namely in the "Violet thiophene-10EO" dye also mentioned as "Example 3" in Table 1A of D8), they inherently disputed the plausibility of their own deduction in E2/D23 as well.

Therefore, the question arises whether the respondents were right in disputing the plausibility of the assumption that the dyes used in D8, such as the "Violet thiophene-5EO" and the "Violet thiophene-10EO" dyes, would or not have a distribution of the EO units at least comparable to the Poisson distribution produced by "regular ethoxylation".

2.2.3 The relevant submissions of the respondents are based on the consideration that D8 explicitly states in paragraph [0156] that "*[a]ll violet colorants are synthesized according to the procedure disclosed in U.S. Pat. No. 4,912,203*" (i.e. D10).

In their view the "procedure" disclosed in D10 required, as apparent from Examples 1 to 3, the use of

a "coupler" carrying blocks of EO units of a single specific length (see e.g. the "M-toluidine-2EO" used in Example 1), so as to produce violet thiophene dyes that, as confirmed by the list of alternatives in Table 1 for the substituents "R_8" and "R_9" in the general formula of the violet thiophene dyes, had to carry two identical alkokylated blocks.

Hence, the procedure in D10 would only teach how to prepare, for instance, a "Violet thiophene-5EO" by separately preparing two violet thiophene derivatives, in which the two chains of EO units were either both exclusively made of 2 EO units, or both exclusively made of 3 EO units, and then mixing these derivatives. The procedure disclosed in D10 would therefore result inevitably in a distribution of EO units totally different from the Poisson distribution.

The respondents also submitted that, as allegedly already indicated in the penultimate paragraph on page 4 of D15, the purification stages of the procedure disclosed in the examples of D10 would selectively remove certain ethoxy chain lengths. In particular, they would selectively remove the "*unbound dye*". Hence, these purification stages would not only substantially alter any Poisson distribution of the EO units produced by the synthetic methods exemplified in D10, but also render the DP:UD weight ratio in the resulting product even superior to 10000:1.

The respondents finally submitted that even if the board were to conclude that the teachings in paragraph [0156] of D8 and in D10 would not necessarily exclude the occurrence of a Poisson distribution of EO units occurring in the "Violet thiophene-5EO" and "Violet thiophene-10EO" that can be prepared by the procedure

disclosed in D10, the burden of demonstrating the actual occurrence of a Poisson distribution of EO units in these dyes of D8 would still lay with the appellant, who relied on the DP:UD weight ratios that can be predicted assuming such distribution.

2.2.4 Firstly, D10 does not disclose how to produce specifically "Violet thiophene-5EO" (or "Violet thiophene-10EO"), and the absence of any statement of the respondents as to why D10 was not even mentioned in E2/D23.

2.2.5 Further, most of the respondents' submissions are based on what they considered necessarily implied by the referred passages of D10. However, these passages contain ambiguous terms and thus, also allow for more than one technically sound construction. In particular:

- each of the alternatives listed for the substituents "R_8" and "R_9" in Table 1 of D10 might as well denote (instead of a single specific chain of alkoxide units, identically present twice in all the molecules forming the dye, as apparently implied by the respondents) just a possible average formula of those substituents (for instance the alternative "2EO" in that list may be considered to only impose that the average number of EO units in the compounds is 2 and thus, to allow for "R_8" and "R_9" to also possibly be chains of 1(EO), 3(EO), 4(EO), etc., in the individual molecules); and
- similarly, also e.g. in the formula "M-toluidine-2EO" of the "coupler" of Example 1 of D10, "2EO" could just denote the average number of EO units present therein (and thus "M-toluidine-2EO" could also describe a mixture of ethoxylated m-toluidine molecules, with different numbers of EO units).

Moreover, some of the modifications of the procedure exemplified in Examples 1 to 3 of D10 hypothesised by the respondents, such as that of combining the products of two distinct synthetic procedures in order to produce a "violet colorant" of D8 with an average of 5 EO units, are merely speculative, and there is no evidence that the skilled person would routinely make similar modifications in this technical field.

Finally, since the immediate identification of the "procedure disclosed in D10" to which paragraph [0156] of D8 refers, is apparently hindered by the ambiguous terms in D10, a skilled person would - as submitted by the appellant and apparently also by the respondents in E2/D23 - rather resort to the common general knowledge on the "regular ethoxylation" of amines and thus, would use this conventional method, e.g. for preparing the specific ethoxylated derivative of violet thiophene dye, whose average structure is described in the penultimate sentence of the same paragraph [0156] (reading: *"[f]or example, the average structure for Violet thiophene-5EO consists of a thiophene chromophore with 2 chains on the nitrogen, one equal to 3EO and one equal to 2EO"*).

2.2.6 The respondents' submissions in this context relating to the alleged effects of the final purification steps used in each of Examples 1 to 3 of D10 are merely unsupported allegations. There was thus also no need to decide on the admission and consideration of these submissions, as disputed by the appellant.

As to the referred passage in the penultimate paragraph on page 4 of D15, it only contains a short and generic statement only relating to the purification steps after ethoxylation reaction, and does not mention at all D10.

Hence, no conclusion could be drawn as to what is removed from the reaction product of the examples of D10 in the purification steps.

2.2.7 As to the further submissions of the respondents that the appellant would still carry the burden of proof that the "violet colorants" disclosed in D8, actually possess the distribution of EO units that is necessary to assume for predicting the DP:UD weight ratios that have been relied upon by the appellant, the respondents themselves had been the first to deduce in E2/D23 a DP:UD weight ratio on the basis of such an assumption.

The appellant did not contest the respondents' deduction, and used the same assumption to arrive at a further similar deduction; it can therefore also assume that the respondents do not question their own assumption and deduction and thus, rely on them without any further evidence.

The appellant would have carried the burden of proving these assumptions and deductions only in case the respondents had no longer relied on their own submissions in E2/D23, and had presented explanations as to why, and starting from when, they no longer considered them correct.

2.2.8 Accordingly, the submissions of the respondents do not rebut the assumption that allows to approximately predict the DP:UD weight ratios in "Violet thiophene-5EO" and the "Violet thiophene-10EO" (as made in E2/D23 by the respondents, and by the appellant), namely that these "violet colorants" used in D8 have a distribution of the EO units at least comparable to the Poisson distribution produced by "regular ethoxylation".

Therefore, there is no reason to depart from the finding on page 13, lines 11 to 14 of the appealed decision that the DP/UD weight ratio in "Violet thiophene-5EO" is approximately 1.6:1. The appellant's deduction of a DP/UD weight ratio in "Violet thiophene-10EO" of approximately 195:1 has not been rebutted.

2.3 Technical problem solved

2.3.1 The patent in suit (see granted claim 1 in combination with e.g. paragraphs [0002] to [0005] of the patent and the example) addresses the technical problem of reducing the undesired staining of fabrics occurring when using, in particular in neat form, LLD compositions that include whitening agents (such as those containing violet or blue thiophene azo dyes bound to polyalkylene oxides also disclosed in e.g. WO 2008/087497, which belongs to the same patent family of D8).

According to the patent in suit ([0005]), this problem has been solved "*by lowering the level of small molecules comprising the same chromophore as present in the dye polymer*".

2.3.2 The respondents disputed the findings, implied in the reasoning of the opposition division in the last paragraph of 5.4.6 and in 5.4.7 of the appealed decision, that the data in D17 and D19 prove that the posed technical problem was not solved across the whole scope of granted claim 1 and thus, that the technical problem actually solved by the subject-matter of granted claim 1 over the prior was reformulated into the provision of "a further liquid laundry detergent

composition comprising a dye polymer", i.e. an alternative to the closest prior art.

2.3.3 The respondents argued in essence that the data in the patent Example 1 as well as those relating to the first two examples of dye mixtures in Table 4 of D19, would instead confirm the achievement of the aimed low level of staining in three examples of the patented LLD composition.

Indeed, the sole embodiment of the invention in the table of Example 1 on page 8 of the patent in suit (i.e. that in which the dye mixture comprises 10wt% UD, corresponding to a DP:UD weigth ratio of 9:1) causes lower staining in comparison to those reported in the same table for the comparative samples of dye mixtures with respectively 25wt% and 50wt% unbound dye (and thus with a DP:UD weigth ratio of less than 5:1); furthermore the "2.8" staining of the composition of the invention "8wt%[1.2]&92wt%[1.3]" in Table 4 of D19, is lower than the "4.5" staining of unbound dye "[1.2]" as the sole dye, in Table 3, and the "1.1" staining of the composition of the invention "8wt%[2.2]&92wt%[3.3]" in Table 4 of D19, is lower than the "2.5" staining of unbound dye [2.2] as the sole dye, in Table 2.

In the respondents' view, the third invention example described in Table 4 of D19 (since the "3.1" staining of the composition "8wt%[2.2]&92wt%[1.3]" reported in Table 4 of D19, was higher than the "2.5" staining for unbound dye "[2.2]" as the sole dye, in Table 2) represented a single accidental failure of the invention in achieving the aimed lower staining, occurring at the boundaries of granted claim 1.

Since this single failure was outnumbered by the mentioned three successful examples of the invention, the opposition division had erred in concluding that the technical problem addressed in the patent in suit was not solved by the patented subject-matter.

The respondents' also considered the data in D17 to be irrelevant as they would only compare the levels of staining obtained when using as sole dye either a dye polymer or an unbound dye, but no combination thereof.

2.3.4 However, in the board's view, already the skilled reader of the patent in suit *per se* would consider self-evident that at least the embodiments of the patented LLD composition in which the dye mixture is almost exclusively made of DP (according to granted claim 1 the DP:UD weight ratio can go as high as 10000:1) were likely to produce a level of staining substantially comparable to that observable when using as sole dye that DP.

The data provided in Example 1 of the patent in suit as well as in D19 confirm that the same also occurs already in dye mixtures that contain about 90wt% of DP (i.e. have a DP:UD weight ratio about of 9:1), as evidenced by the very close staining values in the first two rows of the Table of Example 1 on page 8 of the opposed patent, as well as the three pairs of very close staining values reported in Table 4 of D19).

Thus, the patent in suit and D19 demonstrate that already the embodiments of the patented LLD composition in which the DP:UD weight ratio of the used dye mixture is about 9:1 or more may be expected to cause substantially the same level of staining that is observed when using their DP component as sole dye.

2.3.5 D17 and D19 prove that certain DP may have such a high tendency to stain fabrics to also be superior in staining to certain UD.

In fact, D17 and D19 show that the specific "[1.3]" DP (when used as sole dye) produce significatively higher staining than a very a similar UD component (only differing from the former in the distribution of the 4 EO units along the two chains), i.e. the "[2.2]" UD.

Even though this evidence relates to just one among the DP/UD pairs possibly embraced by the definition of granted claim 1, there is no reason to expect marginal the number of other embodiments of the patented compositions in which it is the DP component of the dye mixture that shows the higher tendency to staining.

On the contrary, such expectation is manifestly at odds with the predictable very high variability of properties for the possible DP and UD components caused by the absence of any limitation in granted claim 1 as to the chemical formula of the chromophore and of alkylene oxides unit present in these components, combined with the fact that both the DP and the UD components can be mixtures of different molecules (rather than each being only made by identical molecules as in the case of the "[1.3]" "[2.2]" pair).

2.3.6 From the above considerations it is to conclude that the embodiments of the patented LLD composition in which the dye mixture has a DP:UD weight ratio of e.g. 9:1 or more, and the DP component thereof has a significantly lower tendency to stain fabrics than the UD component (i.e. the DP component is such that, if used as sole dye, produces substantially less staining then the UD component as sole dye), are very likely to

achieve the aimed low level of staining (i.e. to achieve a level of staining that is lower than that produced when the dye mixture has a DP:UD weight ratio of less than 5:1 or when the UD is the sole dye present).

Conversely, the same consideration also lead to the conclusion that the embodiments of the patented LLD composition in which the dye mixture has a DP:UD weight ratio of e.g. 9:1 or more, but the DP component thereof has a significantly higher tendency to stain fabrics than the UD component (i.e. the DP component is such that, if used as sole dye, produces substantially more staining then the UD component as sole dye), are very likely not to achieve the aimed low level of staining (i.e. to achieve a level of staining that is higher than that produced when the dye mixture has a DP:UD weight ratio of less than 5:1 or when the UD is the sole dye).

2.3.7 The experimental results reported D19 provide experimental validation of the above considerations, because the first two examples according to the invention ("8wt%[1,2]&92wt%[1,3]" and "8wt%[2,2]&92wt%[3,3]" in Table 4) in which the largely predominant DP component also has lower tendency to stain fabrics compared to the UD component, achieve the aimed low level of staining (lower than that observed when the UD is the sole dye), but the third example according to the invention ("8wt%[2.2]&92wt%[1.3]"), in which the largely predominant DP component has instead higher tendency to stain fabrics compared to the UD component, fails to achieve the aimed low level of staining (as it causes a level that is higher than that observed when the UD is the sole dye).

2.3.8 Accordingly, the third example in Table 4 of D19 cannot be seen as a single accidental failure of the invention, as maintained by the respondents, but rather just an example of a possibly relevant number of embodiments of the subject-matter of granted claim 1, which fail to solve the technical problem addressed in the patent.

2.3.9 Therefore the opposition division was correct in concluding that granted claim 1 embraces embodiments of the patented LLD composition that fail to solve the technical problem addressed in the patent in suit and thus, in reformulating the technical problem solved into the less ambitious one of providing "a further liquid laundry detergent composition comprising a dye polymer", i.e. an alternative to the closest prior art.

2.4 The solution and its obviousness

Granted claim 1 offers as solution to this technical problem an LLD composition comprising dye polymer and unbound dye at a DP:UD weight ratio from 10000:1 to 5:1.

2.4.1 According to the appellant, a skilled person would have considered obvious to solve the posed technical problem by using in any of Examples 1a, 1c, 1d and 1f of D8 (instead of the "Violet thiophene-5EO" dye, also mentioned *inter alia* in Table 1A of D8) another one of the "violet colorants" of similar structure disclosed in D8 and thus, to replace in these examples the "Violet thiophene-5EO" dye in particular with the "Violet thiophene-10EO" dye, also disclosed in Table 1A.

Since a DP:UD weight ratio of approximately 195:1 could be plausibly predicted for the "Violet thiophene-10EO" dye (assuming that the distribution of the EO units therein is comparable to the Poisson distribution observable in the corresponding products obtainable by "regular ethoxylation"), the skilled person would arrive in an obvious manner at the subject-matter of granted claim 1 upon considering D8 only.

2.4.2 The respondents too accepted that no inventive step would be required to solve the posed technical problem by replacing in the relevant examples of D8 the "Violet thiophene-5EO" dye by means of the "Violet thiophene-10EO" dye, also undisputedly disclosed in the same document among the suitable "violet colorants".

They however disputed the appellant's assumption that the distribution of the EO units in the "Violet thiophene-10EO" dye would be at least similar to the Poisson distribution observable in the corresponding products obtainable by "regular ethoxylation". Thus, also the predicted DP:UD weight ratio of about 195:1 in "Violet thiophene-10EO" would lack plausibility and thus, it could not be concluded that the obvious replacement of "Violet thiophene-5EO" by "Violet thiophene-10EO" in the prior art of departure would inevitably result in LLD compositions in accordance with granted claim 1.

2.4.3 However, the arguments that the respondents have submitted in support of the above objections are those already identified above, which have already been found unconvincing.

2.4.4 Hence, as likewise already established above, the appellant's deduction of a DP/UD weight ratio in

"Violet thiophene-10EO" of approximately 195:1 is plausible, and their line of reasoning resumed above is correct.

2.4.5 Thus, the subject-matter of granted claim 1 offers a solution to the posed technical problem that is obvious in view of D8. Accordingly, the grounds of opposition under Articles 100(a) and 56 EPC prejudice the maintenance of the patent as granted.

3. Auxiliary request 3 - Article 123(2) EPC

3.1 The appellant disputed the compliance of claim 1 of this request with Article 123(2) EPC, *inter alia* because the "proviso" therein (i.e. the passage reading "*with the proviso that the total amount of dye polymer is from 0.001 to 5 wt%*") imposed the recited range of weight percent of the claimed LLD composition, to the totality of "*dye polymer*"s possibly present therein, regardless of, for instance, their colour or their structure.

On the contrary, the same amount range was only disclosed on page 2, lines 4 to 7, of the original application and in the identically worded point "*(ii)*" of original claim 1, for those dye polymers that were, *inter alia*, also "*obtainable by reacting a blue or violet dye containing a NH2 group with a polymer to form a covalent bond....*".

3.2 The respondents did not dispute that if the "proviso" was interpreted by the skilled person as suggested by the appellant, then the claim at issue would contravene Article 123(2) EPC.

They submitted however that the skilled person "would" have construed differently the wording "*dye polymer*" in the "proviso", namely as referring to "*the dye polymer described above*".

Hence, and since the definition of the polymer dye in the passages of the original application identified by the appellant was also present in point "*(ii)*" of the claim under consideration (which recites: "*(ii) from 0.001 to 5 wt % of a dye polymer, wherein the dye polymer is obtainable by reacting a blue or violet dye containing an NH2 group with a polymer to form a covalent bond via the reacted NH2 group of the blue or violet dye and the dye polymer having at least 3 repeating same units of alkylene oxide in a chain*"), the respondents concluded that for the skilled reader of claim 1 the "*dye polymer*" mentioned in the proviso had to be that also defined in the preceding point "*(ii)*" of the same claim.

Accordingly, the "proviso" added in claim 1 of auxiliary request 3 was based on the passages of the original application identified by the appellant.

3.3 Firstly, the respondents have not presented any reasons as to why the skilled person "would" have considered the respondents' own interpretation of the wording "*dye polymer*" (in the "proviso" added in claim 1) and not that offered by the appellant.

The appellant did not even implicitly allege that their own construction was more plausible than that of the respondents. Hence, at least the appellant considered both interpretations to be technically reasonable.

3.4 The board too finds both of these constructions technically reasonable for the skilled person.

3.5 As already held in *inter alia* T 1791/16 (point 11 of the Reasons), when an amended claim allows for more than one technically reasonable interpretation, and one of those interpretations leads to the conclusion to contain matter that extends beyond the content of the application as originally filed, there is added subject-matter.

3.6 Accordingly, since the construction made by the appellant of the wording "*dye polymer*" in the "proviso" added in claim 1 at issue is technically reasonable, but undisputedly lacks a corresponding basis in the original patent application, this claim contravenes Article 123(2) EPC and thus, also auxiliary request 3 cannot be granted.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chair:

A. Pinna J.-M. Schwaller

Decision electronically authenticated