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**Datasheet for the decision
of 7 October 2021**

Case Number: T 1259/17 - 3.3.06

Application Number: 06110285.1

Publication Number: 1712610

IPC: C11D3/386, C11D3/12, C11D3/06

Language of the proceedings: EN

Title of invention:
Detergent Compositions

Patent Proprietor:
The Procter & Gamble Company

Opponents:
01) UNILEVER N.V. / UNILEVER PLC
02) Dalli-Werke GmbH & Co. KG
03) Henkel AG & Co. KGaA

Headword:
Lipolytic Detergent Compositions/Procter&Gamble

Relevant legal provisions:
EPC Art. 56, 83, 113(1), 123(2)
EPC R. 106
RPBA Art. 12(4), 13

Keyword:

Oral proceedings by Videoconference - violation of the right to be heard (no)

Late-filed main request and auxiliary requests 1 to 5 and 7-10 - admitted (no) - not clearly allowable

Amendments - added subject-matter (yes) - main request and auxiliary requests 1-5 and 7-10

Inventive step - auxiliary request 6 (no)

Decisions cited:

G 0001/21, T 1598/13, T 1188/00, T 1814/11, T 0653/07,
T 0097/00, T 0197/86, T 1660/19, T 2091/18, T 0950/16,
T 0715/16, T 1511/15, T 0032/16, T 1480/16, T 2243/18,
T 1792/19, T 1151/18, T 0494/18, T 1597/16, T 1439/16,
T 1224/15, T 0908/18, T 0682/16, T 0168/16

Catchword:



Beschwerdekammern

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Case Number: T 1259/17 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 7 October 2021

Appellant: The Procter & Gamble Company
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
11 April 2017 concerning maintenance of the
European Patent No. 1712610 in amended form.

Composition of the Board:

Chairman J.-M. Schwaller
Members: G. Santavicca
J. Hoppe

Summary of Facts and Submissions

I. The appeals of patent proprietor (PP) and opponents 1 to 3 (O1-O3) lie from the interlocutory decision of the opposition division (OD) to maintain European patent n° 1712610 in amended form (AR4A' of 28 February 2017), claim 1 thereof reading:

"1. A granular laundry detergent composition comprising a lipase which is a polypeptide having the amino acid sequence of positions 1-269 of SEQ ID NO:2 of US 5869438 with the mutations T231R and N233R with reference to said SEQ ID NO:2, the detergent composition comprising up to 10 wt% aluminosilicate (anhydrous basis) and/or phosphate builder, the composition having a reserve alkalinity of greater than 4."

II. In essence, OD decided that the ground under Article 100(c) EPC prejudiced the maintenance of the granted patent (MR) and that the subject-matter of its claim 1 was obvious from **D1** (WO 00/60063 A1), suggesting to apply a first wash lipase to composition 10 according to **D24** (WO 9707202 A1) to arrive at the subject-matter also of claim 1 of each AR1'-AR3'. The composition of AR4', which solved a more ambitious problem (PP's Experimental Report 4 proved reduced malodour) was however not obvious. PP's Experimental Report 5 filed just ahead of the oral proceedings was not admitted.

III. With their respective grounds of appeal,

O1 filed **D34** (Lipex® application in household detergents (2002)), **D39** (Bauer et al., *The evolution of detergent builders from phosphates to zeolites to*

silicates (1999)) and **D40** (Unilever Experiment Report 1 (August 2017)) as new items of evidence. Further they argued that it was incorrect to conclude that O3's counter-data was not relevant as a lipase outside upheld claim 1 was used, or could not be given as much weight as the data of the PP. Said counter-data did not reproduce PP's experiments but tested more compositions to provide greater insight into the performance of a composition of upheld claim 1 than PP's Experiment Report 4. Moreover upon accepting the validity of PP's and O3's counter-data and considering that also O1's Experimental Report proved no improved performance at low builder level, no improvement was achieved across upheld claim 1. Finally the upheld composition was obvious over the closest prior art **D2a** (Research Disclosure IP6553D filed by PP with letter of 25 March 2015) in combination with **D24** (WO 97/07202 A1). The skilled person starting from Formulation #6 or #8 (both having a measured reserve alkalinity (RA) >4) would reduce the level of phosphate (Formulation #6) or of zeolite (Formulation #8), as suggested in D2a (providing a general teaching of unbuilt or low built - as low as 1% builder such as phosphate, zeolite or SKS-6 - detergent compositions with a lipase as defined in claim 1 at issue) or in D39 (suggesting that phosphate or zeolite in detergents might conveniently be replaced with layered disilicates (SKS-6) for environmental reasons) and thus arrive at the composition of upheld claim 1.

O2 *inter alia* maintained that the composition of upheld claim 1 was neither directly and unambiguously originally disclosed nor inventive, as the difference between the examples of Table 1/page 5 of PP's Experimental Report 4 implied a marginal reduction of malodour, so that the composition of claim 1 was

obvious over D1 as closest prior art taken in combination with composition 10 (III-V) or 15 (IV, VI) of D24 (referred to in D1).

O3 filed new items of evidence **D33** (Statement of K. Borch on Lipex Evity 100T, 27. Juli 2017), **D34** (Brochure "Lipex application in household detergents", 2002-05192-02.pdf, 2002), **D35** (Statement of K. Borch on the identity of the enzyme Lipex, to which reference is made in D34, 28 April 2017), **D36** (Statement of D. Herbst on malodour data and measurement of RA, 1 August 2017) and **D37** (Experimental Report of D. Herbst on the removal of greasy stains by Lipase, 22 June 2017). O3 also announced the filing of **D38** (Experimental Report of Dr. D. Herbst on the determination of the RA of composition 4 of D8 filed with letter of 12 September 2017).

O3 further *inter alia* maintained that upheld claim 1 was not directly and unambiguously disclosed in the original application and that its composition was obvious over D2 as closest prior art in combination with D24/Compositions 10 or 15. D33 furthermore proved that Lipex Evity 100T of O3's counter-data had a sequence as claimed; D34 disclosed that Lipex led to better washing performance over Lipolase; D36 proved that no effect was causally linked to RA or phosphate level and D37 that a very low phosphate level did not improve performance across the whole claim 1. The technical problem was thus to provide an alternative laundry composition, so that the upheld composition was obvious, since D24 (cross-referred to in D2a) motivated the skilled person to formulate a Lipex lipase as in Compositions 10 or 15, having no phosphate.

The **PP** filed a new MR and AR1-12 as well as Experimental Report 6. Further, it *inter alia* maintained that the composition of upheld claim 1 maximised grease removal performance without leading to excessive malodour.

IV. In their respective reply to PP's grounds of appeal:

O1 submitted Experimental Report 2 (section 3) to prove that no unexpected performance in stain removal was achieved by combining a SRP with Lipex. Further, it argued that none of the requests did overcome the objections under Articles 123(2) and 56 EPC, and that no improvement was achieved across claim 1 for all the requests on file, so that the technical problem was to provide further compositions.

O2 requested to admit neither AR11 and 12 nor PP's Report 6. O3's counter-data were relevant and the improvement in wash performance sought to be proven by PP's Report 6, if any, was relevant for AR12 (zeolite), and AR7 or AR9 (soil release polymer (**SRP**)), the latter not having been substantiated in the grounds. The claimed composition was thus obvious over D1 and D24.

O3 objected that MR, AR1-2 and 4-12 were not admissible. It also argued that D37 and O1's data proved that no technical effect linked to RA or to the phosphate level was actually achieved.

V. In its reply to opponents' grounds of appeal, **PP** filed new MR and AR1-12 and Experimental Report 7. It *inter alia* argued that claim 1 of MR required the presence of 0.05-5% SRP, so its composition was novel over the cited art. Furthermore D36 proved that RA measure and malodour testing in O3's counter-data was unreliable

and D37 and D40 (the admittance of which was questioned) were not relevant either. The essential problem was that the opponents had not demonstrated that under the conditions chosen the effect of the lipase was measurable at all. The technical problem was therefore to provide a composition with first wash lipase in such a way as to maximise grease removal performance without excessive malodour; this problem was solved by the use of a low level of strong builder and a $RA > 4$, the effect being achieved also with compositions containing a SRP. Experimental Reports 6 (section 3) and 7 (section 2) supported improved grease removal of a composition with low level of phosphate/zeolite and with a SRP, evidencing that an increase in phosphate level decreased the lipase performance. D2a concerned the most preferred first wash lipase of the invention and could be taken as closest prior art. Although known prior art compositions contained low levels of strong builder and a $RA > 4$, there was no hint to apply the lipase according to D2a in these known compositions (let alone with a SRP) without hindsight. When starting from Formulation #6 or #8 of D2a, it was thus not obvious to reduce the phosphate or zeolite level to below 10wt%.

- VI. With letter of 22 January 2018, **O3** filed **D42** (Statement of A. Svendsen).
- VII. With letter of 10 July 2018, **O3** filed Experimental Report 8 of Dr. D. Herbst.
- VIII. With letter of 20 September 2019, **O2** filed Experimental Report 10 and requested not to admit AR11-12 nor PP's Experimental Report 7.
- IX. In their letter of 31 December 2019, **O1** enclosed

Unilever Experimental Reports 3 and 4, the former report to rebut PP's criticism that stain removal in O1's Experimental Report 1 did not consistently correlate with the level of lipase, suggesting the use of inappropriate wash conditions. The wash protocol now followed the "Lard First Wash Test". Experimental Report 4 responded to PP's data filed on 3 January 2018 and criticism against O3's earlier work. The report measured Lipex Stain Removal Performance against the same butter-stained swatches used in PP's experimental reports. The samples were not mangled before drying and stored in sealed bottles only for short time before assessment. The whole available opponents' data did not evidence a general synergistic cleaning boost across claim 1 linked to a lipase as claimed with SRP. Hence, none of the invoked effects backed up a more ambitious problem. Furthermore AR 11-12 of 3 January 2018 should not be admitted and in any case did not comply with Article 123(2) EPC.

- X. On 6 January 2020, **PP** filed Experimental Report 9 to respond to latest submissions of O1 and O3. It announced that O1's Experimental Reports 3 and 4 were under consideration and questioned the admittance of O3's Experimental Report 8 and O1's Experimental Report 2, as they attempted to show that no improvement in soil removal from the claimed composition was achieved, although it was clear from the opposition proceedings that such effects were important, so that there was ample opportunity to file these reports at first instance. Experimental Report 9 addressed the flaws in O1's Experimental Report 2 and showed why it could not cast doubts on the improved stain removal.

- XI. **O2** requested not to admit PP's Experimental Report 9 and, if admitted, to then consider O1's Experimental Reports 3 and 4.
- XII. With letters of 11 June and 20 July 2020, **PP** filed Experimental Reports 11 and 12, in reply to Experimental Reports 8 (O3), 3 and 4 (O1) and 10 (O2) and Experimental Report 13, addressing the lipase levels used in O1's Experimental Report 3.
- XIII. **O1** requested not to admit PP's Experimental Reports 11 and 13 because they did not add anything significant to the case.
- XIV. In its preliminary opinion the board *inter alia* held the MR and AR1-8 and AR10-12 not to comply with Article 123(2) EPC; claim 1 of each of MR and ARs comprising feature (b) with substitutions at positions 90 and 95 was furthermore not found allowable under Article 83 EPC in view of D42. Finally, the composition of claim 1 of AR9 was held obvious over formulation #6 of D2a, as PP's Experimental Reports 6 and 7 concerned a composition as that of claim 1 of AR9 but did not backup improved performance achieved across the whole scope of claim 1, so that a skilled person facing the problem of providing an alternative composition was motivated to replace the phosphate of D2a/formulation #6 with SKS-6 for environmental reasons (D39). SRP being a usual detergent component, its addition was obvious.
- XV. On 11 August 2021 O1 requested that oral proceedings be held by videoconference. In its letter dated 17 August 2021, PP requested postponement of the oral proceedings until such time when all parties can attend in person.

Moreover, PP denied its consent to oral proceedings being held by videoconference.

XVI. With communication of 20 September 2021 the board changed the venue of the oral proceedings to the format of a videoconference and rejected PP's request for postponement.

XVII. With letter of 24 September 2021 PP submitted new MR and AR1-10 replacing all requests then on file and commented on the preliminary opinion of the board.

XVIII. With letter dated 5 October 2021, PP confirmed its objection against oral proceedings being held by videoconference and raised an objection under Rule 106 EPC, arguing that its right to be heard and the right to present its case in a fair manner would not be met by holding oral proceedings by videoconference.

XIX. Oral proceedings took place by video conference on 7 October 2021. O2 objected that the requests filed with letter dated 24 September 2021 were late and O3 contested that no reasoning was given for the late-filing. After the objection under Rule 106 EPC and the issues concerning AR6 and AR3 were discussed, PP announced that it did not wish to discuss any further aspects or requests.

XX. The final requests were as follows:

The appellant (PP) requested that the decision under appeal be set aside and that the patent be maintained in amended form according to the main request

or, as an auxiliary measure, according to any of auxiliary requests 1 to 10, all filed with letter dated 24 September 2021.

The appellants (O1, O2 and O3) requested that the decision under appeal be set aside and that the European patent be revoked.

Reasons for the Decision

1. Objection under Rule 106 EPC against the holding of oral proceedings by videoconference

The board dismissed PP's objection under Rule 106 EPC because its right to be heard under Article 113(1) EPC was not infringed by the board's discretionary decision not to postpone but rather hold the oral proceedings by videoconference. The reasons for this are as follows:

- 1.1 In the present case, O1 requested to hold oral proceedings by videoconference because of impairments linked to the COVID-19 pandemic. PP also referred to impairments affecting the ability to travel to the EPO premises and therefore, in its letter dated 17 August 2021, requested postponement of the oral proceedings until such time when all parties can attend in person. In the same letter PP denied its consent to oral proceedings being held by videoconference.
- 1.2 According to Article 15a (1) RPBA 2020 the board may decide to hold oral proceedings by videoconference if the board considers it appropriate to do so, either upon request by a party or of its own motion.

1.3 In G 1/21, Reasons 44, the Enlarged Board of Appeal (EBA) concluded that oral proceedings by videoconference are oral proceedings within the meaning of Article 116 EPC. The EBA decided that during a general emergency impairing the parties' possibilities to attend in-person oral proceedings at the EPO premises, the conduct of oral proceedings before the Boards of Appeal in the form of a videoconference is compatible with the EPC, even if not all of the parties have given their consent to the conduct of oral proceedings in the form of a videoconference. According to the EBA, the videoconference format in combination with the written part of the proceedings is normally sufficient to comply with the principles of fairness of proceedings and the right to be heard (G 1/21, reasons 40). Therefore, although the use of video technology could, either objectively or in the perception of the participants, make it suboptimal as a format for oral proceedings, a party's right to be heard or the right to fair proceedings is normally not impaired when oral proceedings are held by videoconference (G 1/21, reasons 40).

1.4 However, according to the EBA, a party's request for oral proceedings being held in person can only be denied if the format of a videoconference is suitable for the particular case and if specific circumstances, such as for instance limitations and impairments during a general emergency, affect the parties' ability to attend oral proceedings in person at the premises of the EPO (G 1/21, reasons 48, 49). In case of a pandemic, examples for such impairments are travel restrictions or disruptions of travel possibilities, quarantine obligations, access restrictions at the EPO premises, and other health-related measures aimed at

preventing the spread of the disease (G 1/21, reasons 49).

- 1.5 In the present case, O1 (letter dated 11 August 2021) and PP (letter dated 17 August 2021) relied on such limitations and impairments in connection with the COVID-19 pandemic as the representatives needed to travel from the UK to the premises of the EPO in Germany. Beside the travel restrictions and quarantine obligations, within the premises of the EPO access restrictions were also operative.
- 1.6 The board has no reason to doubt the arguments presented by the parties demonstrating impairments of the representatives' ability to attend oral proceedings in person linked to the pandemic.
- 1.7 The reasons brought forward by the PP as to why a videoconference would not be suitable for this particular case are, however, not persuasive for the following reasons:
 - 1.7.1 PP explained that it had extensive experience with oral proceedings in the format of a videoconference but did not find the case suitable for being heard by videoconference. It further argued that the case at issue had a high level of complexity as it involved multiple opponents, a large number of objections and cited documents including experimental data. Videoconference also placed greater burdens in terms of effective communication and consistent engagement, in particular in longer meetings.
 - 1.7.2 The board concluded that neither the number of documents, including experimental data, nor the number

of opponents made oral proceedings by video conference inappropriate in the present case.

- 1.7.3 The platform Zoom used by the Boards of Appeal for oral proceedings being held by videoconference can easily deal with several opponents, the proprietor and accompanying persons. In oral proceedings being held by videoconference it is even easier to look at multiple presenters as all of them are shown in frontal view. The parties also have the possibility of highlighting the speaker by individually choosing the "speaker view" in Zoom. In contrast, during oral proceedings being held in person some parties/representatives are seated in the front and others in the back of the hearing room so that it puts a greater burden on the parties/representatives to effectively follow oral presentations of the participants whose faces cannot be seen.
- 1.7.4 The number of accompanying persons did not make oral proceedings held by videoconference unsuitable either. Rather, the representatives and their accompanying persons were able to contact each other during the hearing on separate communication channels. Moreover, the board offered to provide separate deliberation rooms, which opportunity the parties however did not avail themselves of.
- 1.7.5 The number of objections and documents including experimental data, may well influence the time needed for the discussion, but this does not in general have an impact on the suitability of a videoconference as such.
- 1.7.6 As regards the duration of the oral proceedings, the board invited the parties to request breaks whenever

needed and offered to postpone the proceedings to the next day, should the parties feel that the length of the hearing imposed an excessive burden. The board however notes that during the oral proceedings none of the parties objected to have been deprived the opportunity or sufficient time to present its case, nor were further breaks or a postponement requested.

- 1.7.7 PP also argued that the complexity of the case with multiple opponents inevitably presented a greater burden on the representative of the proprietor as it needed to deal with all the objections raised. This burden is however not linked to the format of a videoconference. Incidentally, the board agrees with O1 who noted that the detailed preliminary opinion of the board (sent more than one year before the oral proceedings) remained a suitable framework for structuring and concentrating the hearing to the essentials. Indeed, the hearing ended at 16:50 o'clock.
- 1.7.8 The board also bore in mind that both, PP and O1 stated to have had positive and extensive experience with oral proceedings being held by videoconference.
- 1.7.9 Under these circumstances, holding oral proceedings by videoconference was a suitable alternative to in-person oral proceedings in order to bring the appeal case to a conclusion without the need for further postponement.
- 1.8 Moreover, the board exercised its discretion in view of the fact that the oral proceedings had already been postponed four times at the request of the parties which had already resulted in a delay of almost two years. Excluding oral proceedings by videoconference yet again would have meant postponing the oral proceedings for an unknown length of time. The

experience in the past demonstrated the difficulties of finding dates for oral proceedings suitable for all the representatives. In addition, the unpredictable nature of the COVID-19 pandemic leading to repeated postponement of in person oral proceedings at short notice puts an undue burden on the parties to prepare the case several times.

- 1.9 Under these circumstances, it was justified to hold oral proceedings by videoconference without infringing the PP's right to be heard.
2. Admittance of MR and AR1-AR5, AR7-AR10
 - 2.1 These new requests were filed for the first time on 24 September 2021. Although PP stated that should the board find that any of the dependent claims against which objections have been raised lack basis it would be willing to delete those claims from the requests on file, it did not react immediately to the board's preliminary opinion (in which claims 4, 5 and 12 were found to contravene Article 123(2) EPC) by filing such amended claim requests. Rather, the PP reacted more than one year later, and even only two weeks before the oral proceedings. At this stage, however, the admittance of an amendment to the party's appeal case is subject to the party's justification for its amendment and may be admitted only at the discretion of the board according to Article 13(1) RPBA 2020.
 - 2.2 As Article 13(2) RPBA 2020 does not apply in the present case, since the first summons was sent before 1 January 2020 (Article 25(2) RPBA 2020), instead Article 13(1) RPBA 2020 and Article 13 RPBA 2007 are applicable (Article 25 RPBA 2020; T 950/16, reasons 3.2; T 715/16, reasons 2.2; T 1511/15, reasons 3). As

the detailed wording in Article 13(1) RPBA 2020 reflects much of the case law developed under Article 13(1) RPBA 2007 (see T 32/16, reasons 1.1.2 and 1.1.3), the assessment can be based on Article 13(1) RPBA 2020.

- 2.3 Article 13(1) RPBA 2020 is applicable in case of "any amendment to a party's appeal case filed after the grounds of appeal or the reply". The new requests are distinguished from the previous ones by the deletion of the features of granted claims 4, 5 and 12. This amounts to an "amendment of the party's appeal case" within the meaning of Article 13(1) RPBA 2020.
- 2.3.1 Some boards have taken the position that the deletion of claims in a new claim request was not to be regarded as an "amendment to the party's appeal case" if the deletion does not change the factual and legal framework of the case (see for example T 1480/16, reasons 2.3; T 2243/18, reasons 2; T 1792/19, reasons 2; T 1151/18, reasons 2.1).
- 2.3.2 Other boards have taken the position that the deletion of claims was indeed to be regarded as an "amendment to the party's appeal case" and have applied Article 13 RPBA 2020 and assessed whether to admit the request in exercising their discretion in view of the criteria set out in Article 13 RPBA 2020, (T 2091/18, reasons 4; T 494/18 reasons 1.3-1.4; T 1597/16, reasons 4; T 1439/16, reasons 2; T 1224/15, reasons 5; T 908/18, reasons 1; see also T 682/16, reasons 5 to 8; and concerning Article 13(1) RPBA 2007 see T 168/16, reasons 2.1 and 2.2). The board follows this approach as it is in line with the systematic context of Articles 12(3) and 13 RPBA (T 494/18, reasons 1.3-1.4). Article 12(3) RPBA 2020 provides that the statement of grounds of appeal and the reply shall contain a party's

complete appeal case. Accordingly, all requests shall be specified expressly at this stage. It follows from this that only those requests that have been filed with a party's statement of grounds of appeal or the reply thereto form part of a party's appeal case.

2.3.3 As a consequence, all the claim requests filed on 24 September 2021 are to be regarded as an amendment to PP's appeal case and their admittance is subject to the board's discretion under Article 13(1) RPBA 2020.

2.4 According to Article 13(1), third sentence, RPBA 2020. the party shall provide reasons for submitting the amendment at this stage of the proceedings. The board does not find a persuasive justification for the extremely late filed new requests. If the PP wished to file requests without claims 4, 5 and 12 as granted in order to avoid objections under Article 123(2) EPC it could and should have done so at an earlier stage. The PP announced its willingness to file new requests if the board should find that any of the dependent claims lacked basis, but did not immediately react to the board's negative preliminary opinion in this regard. Thus, the other parties could not expect that PP was still willing to defend such limited requests which it then filed more than one year after having received the preliminary opinion and only two weeks before the oral proceedings. It is to be further noted that, according to Article 12(3) RPBA 2020 (see also Article 12(2) RPBA 2007) the statement of grounds of appeal and the reply shall contain a party's complete appeal case, and so specifying inter alia all the requests. This implies that PP had to file its requests as soon as possible and is thus not allowed to wait until the board gives its preliminary opinion as regards the appellant's objections.

2.5 The criteria for the exercise of the discretion set out in Article 13(1) RPBA 2020 include inter alia the suitability of an amendment to resolve the issues which were raised either by another party in the appeal proceedings or by the board, and in the case of an amendment to a patent, whether the party has demonstrated that the amendment prima facie overcomes said raised issues.

2.6 In the case at issue, the board came to the conclusion that the amendments made in all these requests were not suitable to resolve the issues raised under Article 123(2) EPC for the following reasons:

2.7 Claim 1 of the main request (MR) reads as follows (amendments to granted claim 1 underlined and to original claim 1 in bold character):

*"1. A **granular laundry** detergent composition comprising a lipase which is a polypeptide having an amino acid sequence which:*

*(a) has at least 90% identity with the wild-type lipase derived from *Humicola lanuginosa* strain DSM 4109;*

*(b) compared to said wild-type lipase, comprises a substitution of an electrically neutral or negatively charged amino acid at the surface of the three-dimensional structure within 15 Å of E1 or Q249 **at any of positions 1, 11, 90, 95, 169, 171-175, 192-211, 213-226, 228-258, 260-262** with a positively charged amino acid; and*

(c) comprises a peptide addition at the C-terminal; and/or

(d) comprises a peptide addition at the N-terminal; and/or

(e) meets the following limitations:

i) comprises a negative amino acid in position E210 of said wild-type lipase;

ii) comprises a negatively charged amino acid in the region corresponding to positions 90-101 of said wild-type lipase; and

iii) comprises a neutral or negative amino acid at a position corresponding to N94 of said wild-type lipase and/or has a negative or neutral net electric charge in the region corresponding to positions 90-101 of said wild-type lipase;

*the detergent composition comprising up to 10 wt% aluminosilicate (anhydrous basis) and/or phosphate builder, the composition having a reserve alkalinity of greater than 4, **the composition comprising 0.05 to 5 wt% soil release polymer.***"

2.7.1 The board, upon considering the latest arguments of the PP in letter of 24 September 2021, confirms its preliminary view as set out in the communication dated 7 August 2020 that the composition of claim 1 at issue was not directly and unambiguously disclosed as such in the original application, *inter alia* because there is no basis for combining the new feature (*soil release polymer*) with all other features, in particular the substitutions' positions, the options (c)-(e), and the features "*granular*" and "*laundry*".

2.7.2 According to the original application (page 1, lines 4-5), the invention relates to "*laundry detergent compositions*". Furthermore, the original application acknowledges prior art laundry detergent compositions (page 1, lines 7, 18) and mentions that testing carried out on "*cotton swatches*" (page 6, line 16) has to do with laundering. Although the term "*laundry*" was disclosed originally in a generic way and mentioned in original claim 9 (as invoked by the PP, but concerning

the wash with the composition of preceding claims), beyond these generally applicable items of disclosure there is no hint at the combination with all other features of claim 1 at issue, not even in the original claims. For instance, if starting from the term "laundering" in claim 9, in claim 8 the feature "granular" is only preferable and not necessarily linked to the soil release polymer (SRP) of claim 7, as the cross-reference between claims is generic ("any preceding claim") and original claim 1 does not even define a list of substitutions-positions.

2.7.3 As regards the feature "*granular*", this is only disclosed as an especially preferred embodiment of the "solid" detergent in the original application (last paragraph of page 20, lines 21-22) and correspondingly defined in original claim 8 with "preferably". Also, claim 8 refers generically to any previous claim, such as claims 1 and 7 (the latter referring to SRP). Hence, claim 8 merely defines a preferred form of a preferred embodiment of a composition of original claim 1, which however was open, since it did not disclose which of the now defined positions might be combined therewith and with SRP or with any of options (c)-(e).

2.7.4 In fact, the mentioning of the substitutions (page 3, lines 27-29) in the original application does not disclose the now claimed list of positions (**at any of positions 1, 11, 90, 95, 169, 171-175, 192-211, 213-226, 228-258, 260-262**) as a general or preferred embodiment thereof (see page 3, lines 24-26), but as exemplary positions of the preferred embodiment of page 3, lines 27-29 ("e.g. at any positions "). Moreover, the positions are disclosed in a separate list, independent from all other features such as "*granular*" and "*soil release polymer*", and from other particulars

such as options (c), (d) and (e) defined in original claim 1.

- 2.7.5 The original exemplary list of positions furthermore does not disclose which lipase variant comprises further (optional) features (c)-(e) (mentioned in separate and independent lists thereof) and which one is suitable for use in a "*granular*" laundry composition comprising a "*soil release polymer*". This applies a *fortiori* to the features of the dependent claims, in particular those not defined in the original claims.
- 2.7.6 For instance, the general disclosure of feature (c) "*peptide addition at the C-terminal*" on page 4 of the original application, only mentions under a separate heading that the optional peptide is "attached to C-terminal L269" (leucine 269) of the sequence list of D16, without disclosing its combination with any other position/substitution in the mature protein sequence.
- 2.7.7 Thus, the original application does not disclose which substitution "**at any of positions 1, 11, 90, 95, 169, 171-175, 192-211, 213-226, 228-258, 260-262**)" may be combined with a peptide addition at any C-terminal. In other words, whether a specific, or only some or even all of listed substitutions may be combined with feature (c) is not directly and unambiguously disclosed in the original application. For instance, a composition with a variant having (positive) amino acid **R** in position **210** and a generic peptide added at the C-terminal was not disclosed in the original application.
- 2.7.8 Also optional feature (d) "*peptide addition at the N-terminal*" is mentioned in general terms in the context of original claim 1 without the list of positions now defined, neither is it mentioned at all in the detailed

description of the invention on pages 3 to 5 of the original application (where also features (c) and (e) are disclosed). Thus, the combination of a specific or of all substitutions at the positions listed with feature (d) (optionally defined in claim 1) is not directly and unambiguously disclosed in the original application.

2.7.9 Finally, optional feature (e) of claim 1 at issue is mentioned in a generic way in the original application in the context of original claim 1 (and so not including the list of positions for substitutions now defined in claim 1 at issue, but the more general definition of page 3, lines 24-26 and first clause of lines 27-28). Feature (e) is detailed on page 4, from line 20, under a separate heading and in general terms in lines 21-23, wherefrom it is apparent that e.g. amino acid 210 should be unchanged or E210D/C/Y (i.e. should be negative) (for the amino acid grouping see page 6, lines 4-12, of the original application), as in original claim 1. Instead, the list of positions in claim 1 at issue encompasses the possibility for position 210 of having a positive amino acid such as R, at least when features (c) and/or (d) are present, even in combination with a positive amino acid in position 94. This particular combination of substitutions (positive amino acid in 210, or in both 94 and 210) with feature (e) is not disclosed either in the original application, let alone in combination with the other features of claim 1.

2.7.10 Since the composition of claim 1 ("**granular laundry detergent composition**") in combination with a **soil release polymer** and with the defined **variants** and any of options (c), (d), (e) was not directly and unambiguously disclosed in the original application, it

does not comply with Article 123(2) EPC, so that the main request is not allowable.

- 2.8 Claim 1 of each of AR1, 2, 3 and 7 to 10 is at least objectionable under Article 123(2) EPC in the same way as claim 1 of the MR, as it contains all the features of this claim, and so it is not suitable to overcome the objections raised under Article 123(2) EPC. Hence, the board need not decide whether the further features or limitations included in claim 1 of each of these requests comply with Article 123(2) EPC.
- 2.9 Claim 1 of AR4 is not allowable also because it is not based on the original disclosure of page 4, lines 3 and 4, according to which the now defined subset of listed substitutions are located within 10Å of E1. Contrary to the position of PP in letter of 24 September 2021 (last paragraph of page 4), the subset of positions now defined in claim 1 of AR4 is encompassed by the generic definition of page 3, lines 27-29, which however does not directly and unambiguously disclose that these most preferred substitutions may, let alone all, be located also between 10 and 15 Å of E1 or Q249. Thus, already this amendment per se represents an intermediate generalisation of the disclosure of the original application not complying with Article 123(2) EPC.
- 2.10 Claim 1 of AR5 includes a further selection, arising from the deletion of option (d), the new combination of claim 1 not being directly and unambiguously disclosed originally. In fact, claim 1 still encompasses the embodiment with a positive amino acid such as R in 210 in combination with feature (d) (now c) and with a positive amino acid in position 94.

2.11 Thus none of MR, AR1 to 5 and 7 to 10 is allowable under Article 123(2) EPC. Therefore, the board exercised its discretion not to admit these requests into the proceedings under Article 13(1) RPBA 2020.

2.12 In view of these findings a decision on the objections under Articles 83 and 56 EPC, dealt with in the board's preliminary opinion, is not necessary.

3. Sixth auxiliary request (AR6)

3.1 Claim 1 of this request concerns:

"1. A granular laundry detergent composition comprising a lipase which is a polypeptide having the amino acid sequence of positions 1-269 of SEQ ID NO:2 of US 5869438 with the mutations T231R and N233R with reference to said SEQ ID NO:2 the detergent composition comprising up to 10 wt% aluminosilicate (anhydrous basis) and/or phosphate builder, the composition having a reserve alkalinity of greater than 4, the composition comprising 0.05 to 5 wt% soil release polymer."

3.2 Preliminary remarks

Due to the presence of the feature *"the composition comprising 0.05 to 5 wt% soil release polymer"*, this claim is narrower in scope than claim 1 of AR4' upheld by the OD. Prompted by the board at the oral proceedings, PP however confirmed that it does not request maintenance of the patent in the upheld form. Since as explained *infra* the composition according to claim 1 of AR6 fails for lack of an inventive step,

neither the question of its admittance into the proceedings nor its allowability under Articles 123 EPC and 54 EPC need to be addressed in this decision.

3.3 Construction

- 3.3.1 The feature "a lipase which is a polypeptide having the amino acid sequence of positions 1-269 of SEQ ID NO:2 of US 5869438 with the mutations T231R and N233R with reference to said SEQ ID NO:2" is understood by the skilled person as meaning a variant of the lipase according to SEQ ID NO:2 of D16 (Lipolase in the original application) with (only) two substitutions (T231R and N233R) with reference to the mature protein thereof.
- 3.3.2 The interpretation that only two mutations (T231R and N233R) are present is in agreement with D16 (paragraph bridging columns 11 and 12, starting from line 57, with particular considerations of lines 64-65 of column 11 and lines 2-4 of column 12) according to which the mutations refer to the mature protein and multiple mutations are separated by "pluses" (which clearly applies to all multiple mutations), so that in the present case, the word "and" between T231R and N233R means "plus". The board has therefore no reason to deviate from decision T 1598/13 (reasons, 4.3).
- 3.3.3 As stated in [0027] of the patent, and confirmed for example by D31 and D32 (and also by D33 and D35), the defined lipase with the mutations T231R and N233R is commercially available under the registered trade name "Lipex" (see D34 in this respect).

3.3.4 At the oral proceedings before the board, it was not in dispute that a zeolite is a *species* of the *genus* aluminosilicate.

3.3.5 The construction of the feature reserve alkalinity (RA) in view of the measured data of the corresponding values in prior art compositions was not in dispute either.

3.3.6 It was not contested either that under "*soil release polymer*" (SRP) the skilled person understands known polymeric materials being substantive to (hydrophobic) fibres and suitable to modify their surface such that subsequent soiling is minimised.

4. Inventive step of AR6

4.1 The patent ([0003]) relates to laundry detergent compositions comprising high efficiency first wash lipases known from D1 and D2 as variants of lipolase working effectively already during the wash phase of the cleaning process and also in the second washing step. According to [0027], the lipase with the mutations T231R and N233R (registered as Lipex by Novozymes) is the most preferred. According to [0004] the objective of the patent was to maximise the performance from these enzymes by finding new ways of formulating them into laundry detergent compositions. It had been found ([0008], [0009] and [0039]) that when a first wash lipase was used with low levels of zeolite and phosphate builder, dramatically grease removal benefits were obtained compared to formulations with conventional levels thereof. Further, according to [0042] a robust alkalinity system was beneficial at preventing malodour associated with lipases, and according to [0076] a soil release polymer (SRP) was

especially beneficial in further strengthening the stain removal and cleaning benefits.

- 4.2 At the oral proceedings it was common ground that D2a, also acknowledged in the application as filed, is a suitable starting point for assessing obviousness according to the problem-solution approach. In view of the similarity of objectives between the patent ([0004]) and D2a (page 2, third paragraph) and the use of a lipase with substitutions at T231R and N233R (D2a page 1), the board has no reason to take a different stance.

The closest embodiment of D2a, and so the closest state of the art, is Formulation #6, which has a measured RA of 13 (see O1's statement of grounds, point E, page 10, third paragraph), not contested by PP (reply of 3 January 2018, page 9, third last and penultimate paragraphs), but which contains too high a **phosphate** level (**21%** vs 10% of claim 1) and **no** SRP.

- 4.3 As regards the technical problem underlying the invention, PP (letter of 11 June 2020, page 1, third paragraph; letter of 24 September 2021, last paragraph, last sentence) formulated it in the provision of an improved first wash lipolytic detergent composition suitable to maximise stain removal without leading to excessive malodour.

- 4.4 As a solution to this problem, the patent proposes the *granular laundry detergent composition of claim 1 at issue, which is in particular characterised in that it comprises up to 10 wt% aluminosilicate (anhydrous basis) and/or phosphate builder and 0.05 to 5 wt% soil release polymer, and has a reserve alkalinity of greater than 4."*

4.5 Success of the solution - Evidence on file

4.5.1 The examples (formulations A to G) in the **patent** all comprise:

- at least 5 wt% sodium linear alkylbenzene sulfonate (**LABS**) (an anionic surfactant) in combination with optional further anionic or nonionic surfactants,
- less than 10 wt% phosphate or zeolite ([0035]) (compositions C and F comprise no phosphate or zeolite, and composition E only comprises 0.5wt% zeolite),
- sodium carboxymethylcellulose (**CMC**) (a lime soap dispersant [0073] and anti redeposition agent [0098]),
- one of sodium **polyacrylate** (A,B,D,G) or **copolymer of maleic/acrylic acid** (C,E,F) (see [0070] and [0073]),
- diethylene triamine pentaacetic acid (A-D,G) or ethylene diamine disuccinic acid (E,F) (**chelant**),
- from 0.1 to 0.6 wt% **Lipex**, in combination with proteolytic and amyolytic enzymes,
- a brightener,
- more than 10 wt% sodium **carbonate** and more than 10 wt% sodium **silicate** (as **reserve alkalinity agents** [0048], the latter, also as a co-builder [0103]),
- perfume.

Some of them also comprise **citric acid** (D-F) (**weak builder**, [0038]), lime soap dispersing **polycarboxylate** (C,G), sodium **perborate** (A,D) or **percarbonate** (E-G), and tetraacetylenediamine (**TAED**) (A, D-G) (**bleaching agents**, [0096]). However, none of them comprises a soil release polymer (**SRP**).

4.5.2 It is noted that the patent does not contain any experimental data on the "stain removal performance without leading to excessive malodour" achieved by these formulations.

In such a situation, in which the scope of the claimed composition, apart from the presence of the SRP, is much broader than that of the specific examples in the patent, the burden of proof that all the claimed compositions lead to the alleged advantageous effects mentioned in the patent rests upon the patent proprietor (T 97/00, reasons 3.1.6). In this respect, PP has also to give evidence that an improvement over the closest prior art is achieved over the whole breadth of the claim (T 653/07, reasons 5.1.7; T 1188/00, reasons 4.9).

- 4.5.3 In the present case Experimental Reports have been filed by PP, also in the examination proceedings in support of improved wash performance without excessive malodour, and by the opponents, which contest that this effect is achieved across the whole breadth of claim 1.
- 4.5.4 As to the alleged **reduced malodour**, according to the patent [0041 and 0042], a robust alkalinity system (RA > 4) is beneficial in the detergent compositions because it prevents malodours associated with the presence of a lipase enzyme, as the alkalinity in the wash neutralises malodorous fatty acids produced by break-down of fatty soils and then, after neutralisation, calcium salts of fatty acids having significantly lower vapour pressure than the protonated fatty acids released by the enzymes are formed. According to this disclosure two conditions need to be fulfilled to be able to reduce malodour: RA > 4 and the presence of calcium ions. Claim 1 however only requires the first condition.
- 4.5.5 At the oral proceedings it was common ground that claim 1 at issue is distinguished from Formulation 6# of D2a (using first wash lipolytic enzyme Lipex as claimed)

only in the phosphate level (at most **10 wt%**) and the presence of an **SRP**. Since it is not in dispute that Formulation #6 of D2a has RA > 4 (O1's grounds of appeal, page 10, "formulation #6, RA = 13; formulation #8, RA = 5.8"), Formulation #6 of D2a thus implicitly and unambiguously performs "without excessive malodour" in the same way as required (by the sole condition specified) for the subject-matter as claimed.

- 4.5.6 Hence, the issues raised by the opponents and still in dispute, that malodour reduction is not obtained across the whole breadth of claim 1 as a function of RA, need not be dealt with, and so the following items of evidence and their admittance need not be considered:
- (a) **PP's Experimental Report 3**, filed to demonstrate the difference between reserve alkalinity (**RA**) and pH, and their impact on malodour reduction;
Experimental Report 4, filed to demonstrate that the reduction in malodour (due to Lipex) achieved in **high RA wash** is of consumer relevance;
Experimental Report 6 (sections I and II),
Experimental Report 7 (section 1) and **Experimental Report 9** (Sections 3 and 4);
 - (b) **O1 (Unilevers) Experimental Reports 2** (Section 2) and **4**, concerning malodour data at "high" or "low" RA;
 - (c) **O3's Counter-Data**, filed to demonstrate that compositions 10 and 15 of D24 have RA > 4 and that RA was not related to malodour reduction; **O3's Experimental Report 8**, filed to demonstrate the malodour reduction of compositions with variants of claim 1 of MR, AR1-8, 10-12, versus Lipolase 100L; **O3's D36**, Statement of D. Herbst on malodour data and RA measurement in O3's Counter-data; **O3's Experimental Report D38** filed to demonstrate the RA value of composition 4 of D8.

- 4.5.7 As regards **stain removal performance vs strong builder level** and **soil release polymer**, it is noted that Formulation #6 of D2a contains only too much phosphate (but no zeolite) with Lipex (not Lipolase). Hence, the reports not comparing different phosphate levels, but different zeolite levels, may not be used to prove that the invoked low phosphate level produces ([0008]) an improved "grease removal benefit" over the level of Formulation #6 of D2a.
- 4.5.8 It is established case law that, where comparative tests are carried out to demonstrate an inventive step based on an improved effect over a claimed scope, the nature of the comparison with the closest prior art must be such that the effect is convincingly shown to have its origin in the distinguishing feature of the invention (Case Law of the Boards of Appeal, 9th edition, I.D.10.9; T 1660/19, reasons 3.4).
- 4.5.9 Further, since "zeolite" is only a particular "aluminosilicate", any effect invoked from reports based on "zeolite" is not necessarily achieved by all aluminosilicates encompassed by claim 1 at issue, in particular as it is not apparent that all aluminosilicates are strong builders for detergents.
- 4.5.10 Finally, reports dealing with lipases other than Lipex (used in Formulation #6 of D2a) or seeking to prove that the claimed composition can(not) be made are not relevant for assessing obviousness of the subject-matter of claim 1 of AR6 (which limited to a lipase with mutations T231R and N233R).
- 4.5.11 Thus, following data and their admittance need not be considered in the present decision:

- (a) **PP's Experimental Report 1** filed to prove small scale greasy soil removal (part 1) and full scale laundry (part 2) testing of compositions comprising certain lipases (**Lipolase**, **Lipolase ultra**, Lipex) at varying levels of **zeolite** as strong builder; **Experimental Report 6** (section 3), filed to prove Lipase stain removal vs **zeolite** and **Lipolase**; **Experimental Report 11**, filed to demonstrate a **malodour reduction** of compositions with variants of claim 1 of MR other than Lipex and lipase stain removal performance vs **zeolite** level; and **Experimental Report 12**, filed to demonstrate that the claimed composition could be made;
- (b) **O2's Experimental Report 10** filed to demonstrate that a composition as claimed could not be made.

4.6 Admittance of late-filed items of evidence

4.6.1 Experimental Reports D37 (O3) and D40 (O1) were filed with the grounds of appeal. PP contested their admittance as they should have been filed during the opposition proceedings. The board notes that prior to the oral proceedings the opposition division did not give a preliminary opinion on whether the then pending experimental reports proved any technical effect provided by the claimed composition. Thus, in the particular case, the submission of further experimental data with the grounds of appeal is to be regarded as a legitimate reaction to the impugned decision.

4.6.2 The same applies to PP's Experimental Report 6. Moreover, the board does not exclude section 4 of this report, though encompassing data previously presented in PP's Experimental Report 5 (not admitted by the opposition division), because the data did not become relevant for the claimed subject-matter assessed in the

opposition proceedings but are relevant for subject-matter which comprises a SRP as defined in claim 1 at issue.

- 4.6.3 O1's documents D34 and D39 (labelled D33) and O3's documents D33-D35 are to be regarded as the elaboration of previous evidence in reaction to the impugned decision. Thus, the board exercised its discretion under Article 12(4) RPBA 2007 (Article 25(2) RPBA 2020) not to exclude these documents from the proceedings.
- 4.6.4 The board also exercised its discretion under Article 12(4) RPBA 2007 (Article 25(2) RPBA 2020) not to exclude PP's Experimental Report 7, because it was a legitimate reaction to the arguments and documents filed in the opponents' grounds of appeal.
- 4.6.5 PP also contested the admittance of O1's Experimental Report 2 as it should have been filed during the opposition proceedings. The board exercised its discretion under Article 12(4) RPBA 2007 (Article 25(2) RPBA 2020) not to exclude this report from the proceedings as it has been filed in reaction to PP's arguments in the grounds of appeal and in order to further support O1's arguments in its previous experimental reports for contesting that an unexpected technical effect was achieved across the claimed scope by the claimed composition.
- 4.6.6 O1's Experimental Report 3 is an amendment to the appeal case (Article 13(1) RPBA 2020) but was filed in reaction to PP's arguments set out in its reply against D40 to further support the reliability of O1's previous experimental reports. Thus, the board exercised its discretion to admit this experimental report under Article 13(1) RPBA 2020 (Article 25(1) RPBA 2020).

4.6.7 For the same reasons PP's Experimental Reports 9 and 13, filed in reaction to O1's Experimental Reports 2 and 3, are admitted into the proceedings under Article 13(1) RPBA 2020 (Article 25(1) RPBA 2020).

4.7 Invoked improved performance

4.7.1 As regards the invoked improved effect that the claimed composition "**maximises greasy or fatty stain removal**" vs **phosphate** level, the patent teaches that:

- "*when a first wash lipase is used in conjunction with a low level of phosphate ..., dramatically improved grease removal benefits are obtained compared to formulating lipase with conventional builder levels. This is driven by the presence of divalent cations enhancing lipase activity by increasing the deposition of enzyme onto fabric surface and/or enhancing precipitation of the insoluble fatty acid salts from the lipolysis enzymatic process" ([0008]);*
- "*While builder reduction or elimination might be expected to raise significant stain removal negatives on e.g. particulate and beverage stains, we have found that the compositions show unexpectedly good performance. It is believed that this is due to fatty acids released by the lipase during lipolysis of fatty soils acting to destabilize these stains via a hardness sequestration effect and reduce the wash pH slightly resulting in lightening of pH-sensitive stains.*" ([0009]);
- "*soil release polymer has been found to be especially beneficial in further strengthening stain removal and cleaning benefits on synthetic fibres" ([0076]).*

4.7.2 The following evidence dealing with compositions having **phosphate** and a **SRP** is thus needed and relevant to assess whether said benefit is achieved across claim 1.

4.7.3 PP's **Experimental Report 6** (Section 4) filed with the grounds of appeal deals with stain removal performance from fabric of a lipolytic composition containing no **phosphate** or zeolite but a **soil release polymer**.

Base composition includes 14.7% LABS, 2.2% alkyl alkoxy(1EO) sulfate (AES/1EO) (ethoxylated anionic surfactant), 1% alcohol ethoxylates (AE/7EO) (nonionic surfactant), 12.29% carbonate and 9.23 silicate, 0.17% CMC, 0.84% polycarboxylate polymer (MW 4500), 1.17% nonaoyl oxy benzene sulphonate (bleach activator), 1.60% percarbonate, 0.5% polyethylene glycol/polyvinyl acetate co-polymer (amphiphilic copolymer), < 4% miscellaneous (further enzymes, brighteners, speckle, perfume), 50.40% sulphate (salt), balance water.

Test compositions were prepared as follows and added at a wash concentration of 2414 ppm:

- A = Base detergent treatment;
- B = Base detergent + 4.8ppm of Texcare® SRA300F;
- C = Base detergent + 0.11ppm Lipex 100T®; and
- D = Base detergent + 4.8ppm of Texcare® SRA300F + 0.11ppm Lipex 100T®.

Lipex 100T® level is expressed as ppm in wash solution based on active enzyme concentration. Texcare® SRA300F (SRP) (anionic polyester of propylene terephthalate) as ppm in wash solution based on polymer concentration.

Polycotton swatches (25x25cm) stained with **bacon** or **hamburger** grease and clean cotton tea-towel ballast are washed with test compositions in **30l** water (hardness 8.2 Usppg = **14.14**°fH) (water:cloth ratio, 23:1) at **20°C**, in a washing machine **20'**, spun **2'**, rinsed **5'**, spun again **2'**. Line-drying was at room temperature. Stain Removal Index is calculated from L* a* b* measured before/after washing.

From graph 9 and table 2, PP argues (last page) that a "more than additive performance" is achieved by using SRP and Lipex, as across each of the stains the performance with composition D is significantly higher than with other compositions and much higher than the single additive effects of SRP or Lipex when added together, so that a **synergy** benefit is achieved.

4.7.4 Synergy is invoked also from PP's **Experimental Report 7** (Section 3).

Base composition includes 15% LABS, 1% AE/7EO, 1% CMC, 2% A/M-polycarboxylate (70,000 MW), 25% carbonate, sulphate (> 30%) and water. The composition does not comprise phosphate nor zeolite, nor bleaching agent/activator, amphiphilic polymer, polycarboxylate of high MW as in Report 6, but falls under claim 1.

Test compositions were prepared by adding the base at **2.5g/L** to water of **7.0** USgpg (**12°fH**) hardness at 25°C and topping with enzyme and/or SRP, enzyme level as ppm in wash solution based on active enzyme concentration, SRP level as % base formulation. Test formulations are:

1. Base Detergent 2.5g/L;
2. Base Detergent 2.5g/L + 0.25ppm **Lipex** 100L®;
3. Base Detergent 2.5g/L + 0.25ppm Lipolase 100L®;
4. Base Detergent 2.5g/L + 0.5% **SRP** (Texcare SRA300F®)
5. Base Detergent 2.5g/L + 0.25ppm **Lipex** 100L® + 0.5% **SRP** (Texcare SRA300F®);
6. Base Detergent Detergent 2.5g/L + 0.25ppm Lipolase 100L® + 0.5% **SRP** (Texcare SRA300F®).

Polyester swatches (5x5cm) stained with dyed **lard** and **bacon** grease were washed (with clean **knitted cotton ballast** (50g)) with test compositions in a **Tergotometer** (pots filled with **1** l of solution and swatches/ballast)

at 25°C, agitation 200 rpm 20', 2' spin 1000 rpm, 5' rinse in 25°C water of 7.0 USgpg for, final 2' spin 1000 rpm and line drying. L* a* b* are measured before/after wash, then Stain Removal Index is calculated.

Graph 3 *inter alia* shows that **Formulation 5** (Lipex 100L® + SRP Texcare® SRA300F) performs significantly better than all other formulations. In particular, **Formulation 5** performs significantly better than formulation 2 (base detergent + Lipex) (sharing with formulation #6 of D2a only the presence of Lipex). A comparison between Formulations 5 (best performing) and 2 (base detergent + Lipex), Formulations 4 (base + SRP) and 1 (base detergent), shows an above additive performance effect from the addition of SRP to Formulation 2.

4.7.5 However, the achievement of a more than additive effect invoked in PP's Experimental Reports 6 and 7, to backup the formulation of a more ambitious technical problem, for the composition of claim 1 at issue over D2a is contested by O1 with counter evidence (reply to PP's appeal, page 4, second and third paragraphs thereof), and by O2 on other grounds (letter of 20 September 2019, IV.1.3). The board agrees with the opponent's lines of argument.

4.7.6 **O1's (Unilever's) Experimental Report 2**, was filed in reaction to PP's appeal to further support O1's position that even across the narrowest claim 1 no unexpected performance improvement is achieved. Its **Section 3** concerns the performance of detergent compositions with phosphate/zeolite, Lipex 100T and **Repelotex® SF3** (SRP, nonionic polyester polymer) and seeks to prove that no unexpected improved performance

is achieved by Lipex 100TC® + Repelotex® SF3 and that a SRP merely provides the expected soil release function.

Base detergents A-C comprise 9 wt% LABS, 6 wt% AE/7EO, 0.5 wt% CMC, 4 wt% CP5 (polycarboxylate), 25 wt% carbonate, 6 wt% percarbonate, 0.23 wt% Repelotex® SF3 (SRP) and 48.27 or 47.67 wt% sulphate depending on enzyme and SRP level. RA > 10 (as shown in letter of 25 January 2018, 2nd paragraph).

Test compositions were formulated as follows:

- A: Base Detergent + 0.23 % Repelotex SF 3 polymer;
- B:** Base Detergent + 0.6% Lipex 100TC + 0.23% Repelotex SF 3 polymer;
- C: Base Detergent+ 0.6% Lipolase 100T + 0.23% Repelotex SF 3 polymer.

Composition B differs (e.g. different SRP structure) from those of PP's experimental reports 6 and 7 but still falls under claim 1 at issue.

Knitted Polyester and Woven Polycotton swatches (10x10cm) stained with Sunflower oil + Violet Dye, Dirty Motor Oil, Mechanical Grease, Vanaspati + Violet Dye, were washed (clean ballast: 25% cotton Terry towel, 25% woven cotton and 50% woven polyester) (water/cloth ratio=3.3:1) in a wash machine filled with **10l** water (**25°fH**, Ca:Mg 4:1) (inlet temp 15°C, wash temp **40°C**) for **110'**, spun (Spin time after 1st rinse-after draining of water, 4'; Spin time after 2nd rinse-after draining of water, 8') and line-dried at ambient temperature. L* a* b* are measured before/after washing to calculate Stain Removal index.

As motor oil is made of hydrocarbons, the performance on lipase responsive sunflower oil or Vanaspati is considered. The report shows that:

- Formulation B (SRP + Lipex) performs as high as formulation A (SRP only) on KPES-Cooking Oil (Graph 1, left), but worse than A on PCN Cooking Oil (Graph 1, right), in the latter case at much lower performance;
- Formulation B (SRP + Lipex) performs as low as formulation A (only SRP) on KPES Vanaspati (Graph 4, left) but better than formulation A (only SRP) on PCN Vanaspati (Graph 4, right).

Thus, formulation (B) does not perform better than nil Lipex (A) on KPES (Graph 1, left). As a composition with Lipex + SRP (SRI B) falls under claim 1 but does not always achieve improved performance over composition A (only SRP), the invoked **synergy is not achieved**, let alone across claim 1 at issue.

PP, also during the oral proceedings, argued that these tests are not reliable as under the selected conditions the effect of the lipase was not measurable at all. The board is not convinced by these arguments, at least because a significant Lipex effect is seen on PCN-Vanaspati (B vs A) (Graph 4, right). Moreover, a less significant but positive Lipex effect is also seen (Table on page 16, column " Δ SRI B vs. A") for Cooking Oil on KPES, DMO on KPES and Vanaspati Oil on KPES. The fact that the Lipex activity on KPES is less pronounced also for Lipex responsive Cooking Oil or Vanaspati Oil appears to be caused by the very efficient stain removal of SRP on PES. As a case in point, in Graph 1, the composition with only Base Detergent and SRP (SRI A) achieves an almost 100% stain (Cooking Oil) removal, leaving little room for Lipex activity. Nevertheless, a further, little Lipex activity is obtained (Table on page 16, intersection first row and third column).

4.7.7 **PP's Experimental Report 9** (Section 5) was filed to contest section 3 of O1's Experimental Report 2. Its experiments use PP's protocol and a composition which differs from that of O1's Experimental Report 2 Section 3 in the absence of percarbonate and TAED, and in lower Lipex level (0.08% rather than 0.6%). The performance is tested in a full scale washing machine using stains which are responsive to lipase enzymes.

Polyester swatches (10x15cm) (preconditioned twice with test formulation) and clean ballast (cotton/polycotton in 55:45 ratio, total load weight 3kgs) are washed with 5g/l formulation in a Miele Front Loader wash machine (fill volume 13L, total dose 65g) and 22.5gpg (38.5°FH) hard water (30°C cotton short cycle) and dried overnight. Stain removal is then measured (as % average stain removal).

Graph 5 (last bars) shows actual or calculated benefit on preconditioned polyester of separate/combined addition of Lipex and SRA300, as follows:

- composition B (Lipex + SRA300, 4th bar from left) performs strongest, statistically stronger than formulation Nil Lipex/Nil SRP or Nil Lipex/0.23% SRP;
- composition B (Lipex + SRA300) significantly differs from 0.08% Lipex (no SRP) only at 7% significance; and
- composition B (Lipex + SRA300, 4th bar from left) gives higher stain removal than (expected) calculated benefit (far right bar) (an "above expected additive effect").

4.7.8 PP has however not proven that an "above expected additive effect" from using specific test compositions, first invoked in appeal, is achieved across the whole breadth of claim 1. This is the objection of O2 (letter

20 September 2019, IV.1.3), shared by the board, for reasons as follows:

4.7.9 The patent [0076] merely mentions that the "presence of a soil release polymer had been found to be especially beneficial in further strengthening (i.e. reinforcing) the stain removal and cleaning benefits, especially on synthetic fibres" (i.e. a mere additive effect, not an "above expected additive effect").

4.7.10 Further, it is established case law that a formulation of a more ambitious technical problem based on an improved effect not mentioned (or only mentioned in a specific context in the patent cannot be used to substantiate inventive step unless it is demonstrated that the improved effect is achieved across the whole scope of the claim (T 1188/00, reasons 4.5; T 653/07, reasons 5.1.7). The burden of proof therefore lies with the patent proprietor (T 1188/00, reasons 4.9).

Moreover, an improvement based on a synergistic effect of a specific composition cannot necessarily be expected if the structure of the composition is modified (T 1814/11, reasons 3.3) (e.g. if another SRP is used).

4.7.11 In the present case the invoked synergy is contested by O1's Experimental report 2 *inter alia* using another SRP (thus, a composition of different structure), the data in PP's Experimental Reports 6, 7, 9 are derived from a specific use of a specific formulation (zero phosphate, defined level of lipase, a specific SRP structure). A synergy achieved across the whole breadth of claim 1 is thereby not proven in view of the evidence submitted by the opponents.

- 4.7.12 Thus, the performance invoked by the PP (Experimental Reports 6, 7, 9) cannot backup a formulation of a more ambitious technical problem for claim 1 at issue over the whole breadth of the claim.
- 4.7.13 As to the test reports concerning compositions with **SRP** and **STPP (phosphate)** but not relying on synergy, the board notes:
- 4.7.14 **PP's Experimental Report 7** (Section 2) concerns removal of dyed lard or dyed bacon by Lipase from knitted cotton swatches vs STPP (phosphate). A SRP is present (page 7, I. Preparation of Test Compositions, "0.2% anionic polyester of propylene terephthalate") but with no indication of any trade name as in section 3 thereof.

Base composition includes 15% LABS, 1% AE/7EO, 1% CMC, 2% A/M-polycarboxylate (70,000 molecular weight), 0.2% anionic polyester of propylene terephthalate (SRP), 25% carbonate and 30% sulphate, to which **5, 12, 20, and 25%** STPP (**phosphate**) is added, balance water.

Test compositions are prepared by topping up a stock (wash) solution of base composition with 0.25ppm Lipex.

Graph 2 and page 9 (conclusion) show that:

- Formulation A (0% STPP) is significantly different from Formulation C (12% STPP) but the latter is not significantly different from Formulation E (25% STTP);
- Formulation D (20 wt% STPP) (as #6 D2a) has the worst performance, worser than Formulations B (5 wt% STPP) or E (25% zeolite). Prompted by the board at oral proceedings, the PP could not explain the very low performance of Formulation D (20% STPP) other than by arguing: "scientific experiments present fluctuations";

- as a Formulation with **10%** STTP was not tested, it is not possible to gather whether its performance would be significantly different than that of Formulation C or E (25% STTP) (having higher STTP level than #6 D2a and being not significantly different from Formulation C). Hence, Section 2 does not prove an improved performance achieved across the whole phosphate range of claim 1.

4.7.15 Finally, the board has considered also the test reports relying solely on the effect of a reduction of level of phosphate on stain removal performance, as follows:

4.7.16 **PP's Experimental Report 2**, filed in examination proceedings to support an unexpected lard removal performance, deals with small-scale soil removal of compositions comprising certain lipases (Lipolase, Lipolase ultra and Lipex) at varying **phosphate** level.

Base detergent contains 9wt% LABS, 5wt% AES/3EO, 1 wt% AE/7EO, 0.5wt% CMC, 4wt% A/M-polycarboxylate (70,000 MW), 25wt% carbonate and 30wt% sulphate, water and minors, with RA being 9.1.

Test compositions were prepared by adding 0.4 mg of Lipolase or Lipolase Ultra (comparative enzymes) or Lipex (invention's enzyme) to 0.492 g of granular detergent. Then, a stock solution was made with 20gpg hard (34.48°FH) water to contain 0.6 g/l of granular composition with the enzymes, and topped up with 0, 5, 7, 13 and 16 wt% of STTP (phosphate).

Cotton elastane (polycotton) swatches (5 cmx5 cm) stained with lard and (knitted cotton) ballast at 25:1 water: cloth ratio were washed in a Tergotometer at 30°C, 30' agitation at 200 rpm, 5' rinse in cold water and 12h drying at room temperature (These conditions

are not identical to those of Lard test in [0030]-[0034]). % soil removal vs phosphate level is determined by gravimetry (weighing the swatches before/after soiling, after washing, and averaging, Chart 1) and by image analysis (see Chart 2), as for the Lard Test.

According to last page, last two paragraphs, for a test composition with Lipex, a decrease in STPP level leads to significant improvement in performance (52% more lard removed by reducing STPP level from 16 to 0wt%) (Gravimetric analysis).

Nevertheless, the board remarks that:

- Chart 1 shows a significant performance improvement at 0 wt% phosphate over a 13 or 16 wt% level, and a lower but still significant and comparable improvement at 5 or 7 wt% over 13 or 16%. However, it does not show that a significant improvement in performance is achieved up to or at 10 wt% phosphate level (as claimed), over the 13 wt% or 16 wt% level, as these latter levels appear to produce a stable performance. Thus, the specific composition tested under particular wash conditions improves performance up to 7wt% STPP.
- Chart 2 (Image Analysis according to Lard Test, see Lipex only, i.e. Formulation 1) shows less significant improvement at 0 wt% phosphate level over 13 or 16%, compared to the gravimetric analysis, less significant and comparable improvement at 5 or 7 wt%. A composition with 10% STPP is not tested, so that no significant improvement in stain removal at 10% over 13 or 16wt% phosphate, if any, is proven. Seen the steep decrease from 0 to 7 wt%, the slow decrease between 7 and 13% and the stable performance at 13wt% to 16wt%, the report does not show that the specific test composition

used improves performance up to/at 10wt% STPP (phosphate).

Also, the board remarks that the choice of the method, whether gravimetry or Image Analysis, has an impact, the effects in Chart 1 being more pronounced. And the lack of data for a composition with 10 wt% STPP is such that it is not seen what would be the improvement, if any, of a formulation with 10 wt% STPP as in claim 1 over Formulation #6 of D2a (21 wt% phosphate).

Finally PP argued that the tested composition did not comprise a SRP but its addition would only further improve the performance. For the board, however, it is not possible to establish whether and how the addition of any SRP, which is substantive to e.g. synthetic fibres, would affect at least the gravimetric chart.

4.7.17 **O1's Experimental Report 1 (D40)** filed with the grounds of appeal in reaction to the decision under appeal, to further support the point that no improved performance is achieved at low phosphate level.

Base composition contains 9 wt% LABS, 6 wt% AE/7EO, 0.5 wt% CMC, 4 wt% AA/MA-co-polymer, 25 wt% carbonate, balance sulphate, enzyme and/or STPP, and has RA > 4 (letter of 25 January 2018, second paragraph). Lipex is either nil or present at 0.08, 0.3 or 0.6% level, STPP is either nil or present at 5, 10 or 15% level.

Commercial knitted cotton swatches stained with cooked (burnt) beef or internal stains (Vanaspati + Violet dye and Cooking oil + violet dye) were washed with detergent solution prepared with water of 24°FH/Ca:Mg 2:1) giving 0.5g powder/800ml water, in a Tergotometer, each beaker filled with 6 swatches per stains, for 30'

at 30°C, agitation at 170rpm, 5' rinse, dried overnight. Stain removal (SRI) was calculated after measuring L*, a* and b* before and after washing.

The results on Burnt beef, Cooking oil + Dye, Vanaspati + Violet Dye removal vs Lipex or STPP (phosphate) level are shown in the graphs on pages 8-10. The conclusion on page 11 indicates "a trend of reducing Lipex performance as phosphate level is increased is not seen".

The board shares this conclusion, as:

- for burnt beef, irrespective of Lipex level, a STPP level up to 10% (claim 1) leads to % stain removal of at most 50%, whilst a STPP level of 15% attains 60 to 70%;
- for cooking oil + dye, irrespective of Lipex level, a STPP level up to 10% (claim 1) leads to stain removal of 30-40%, whilst a STPP level of 15% attains about 50%;
- for Vanaspati + Violet Dye, a performance of at most 50% is attained at nil or 5% STPP and at 0.08% Lipex, no improvement is achieved at 0.08% Lipex and 10-15% STPP.

PP (response to opponents' grounds of appeal, page 8, last two paragraphs) contested the data D40, arguing that since the invention addressed the aspect of a detergent composition including a first wash lipase, it was sensible to consider how to maximise its performance and to test that under conditions in which the lipase is **actually** having an effect. However, from D40 no such effect appeared to be shown. If there were, it would be expected that for each different composition, the stain removal performance would increase as the level of lipase increased from zero to

0.6%. This did not appear to happen in most of the tests done. If it were a true test of whether a particular formulation could maximise the performance of lipase, it would be essential to firstly demonstrate that the conditions could distinguish different levels of lipase activity. In the first set of results on page 5, the results were divided into 4 groups, 4 different levels of zeolite, and in each group the level of lipase increased from 0 up to 0.6 towards the right. In no case was there a trend whereby grease removal performance increases as lipase level increases.

However, the board cannot disregard that the data of PP are based on few specific compositions tested on few stains according to particular wash conditions, whilst claim 1 concerns a composition, which is open also as to the level of lipase. O1 used compositions falling under claim 1 and generally known Lipex (%) levels (D34, page 2) and their tests were carried out by qualified formulators according to internal practices. PP invoked test conditions that relate to the wash method rather than to the composition itself. If the effect depends on the wash, it cannot always "actually" be achieved by a claimed composition on any stain/fabric.

Finally, the board has no element to conclude that the effect of Lipex, if any, would change the trends of the graphs of D40, such that a decrease in STPP level improves the performance as invoked. Thus PP's objections do not convince the board.

4.7.18 **O3's D37** was filed with the appeal's grounds.

Detergents A-L contain 9% LABS, 5% AES/3EO, 1% AE/7EO, 0.75% HEDP, 4% polycarboxylate, 0,5% (A,C,E,G,I,K) or nil Lipex Evity 100 T, 25 (A-D, I-L) or 15% carbonate,

25% STPP (only in C and D), 11% citric acid (only in compositions E and F), 25% (compositions I and J) or 4% (compositions K and L) zeolite, varying amount of sodium sulphate, balance (water and minors) to 100%.

Commercial cotton swatches(10x10mm) were preconditioned with test detergent, soiled with CFT C09=pigment/oil, CFT CS32=sebum/oil, engine oil or olive oil, washed 30' at 30°C in a Lini-Test apparatus (100 ml hard water 21.4°dH and 0.616g detergent; each beaker filled with cotton fabric(12x12mm), two test-swatches and two steel balls to provide mechanical last), rinsed with water, dried overnight, placed between two towels and mangled. Performance was then instrumentally assessed.

The graph on page 3 shows no significant difference between Compositions A (Lipex/nil STPP), C (Lipex + 25 wt% STPP) and D (nil Lipex/25 wt% STPP) in soil removal performance (according to Tuckey-Test), apart for pigment/oil stain CFT-09. As to removal of (lipase responsive) Olive Oil, the performance of Lipex thereon is very good, well above 65%, compared to other soils. PP objected (response to opponents' grounds of appeal, page 8, last two paragraphs) that the same problem of D40 (i.e. that the Lipex effect was not apparent from the graphs) arose with the data in D37. The results on page 3 in which the only difference between runs C and D was that the former contained Lipex Eivity 100T and run D did not, showed no difference between these two runs. Thus D37, if admitted, would not contradict the effect of reducing the level of phosphate and maximising the performance of the lipase.

For the board, the objection is again not convincing for the same reasons as those on D40, *supra*. Thus, D37

shows that STPP level does not always significantly affect Lipex performance.

- 4.7.19 **O1's Experimental Report 2** (Section 1) demonstrates that there is no unexpected improvement in stain removal when using Lipex at nil/low STPP level.

Base composition, almost identical to that of D40, comprises 9 wt% LABS, 6 wt% AE/7EO, 0.5 wt% CMC, 4 wt% CP5, 25 wt% carbonate, and is balanced with sulphate, depending on absence or presence or level of enzyme and STPP, with RA > 4 (letter of 25 January 2018, second paragraph). Lipex is either nil or at a level of 0.08 to 0.6%, whilst STPP level is nil, 5 or 15wt%.

A detergent solution was made using 800 ml water of 38°FH (Ca:Mg 5:1) hardness, ensuring 5 gpl.

Commercial knitted cotton swatches stained with cooked (burnt) beef, with ballast, were washed in Tergotometer (each beaker with 6 swatches per stains) with detergent solution 30' at 27°C, agitation 100 rpm, rinsed 5' and dried overnight. Stain removal (as SRI) is calculated after measuring L* a* b* before/after wash.

The resulting graph (% stain removal vs Lipex and phosphate level), compared to that of D40, makes apparent that a higher performance level of about 70% to 80% is achieved. As the same levels of Lipex and STPP are used, this might depend on higher hardness (38 vs 24°FH) and detergent concentration (5gpl) used.

The graph shows the Lipex effect for all three sets of bars, as Lipex performance increases when increasing its level from 0.08 to 0.6%. The graph also shows that a composition with 0.6% Lipex has a performance stably

above 70% across the whole range 0-15% STPP. Thus, for this embodiment a trend of reducing lipase performance as STPP level increases is not seen. Moreover, the composition with 0.6% Lipex and 15% STPP has the same performance of a composition with 0.08% Lipex and nil STPP, so that the phosphate level is not always, or is not the sole factor, influencing the performance. Thus, this experimental report shows that a decrease in STPP level not always improves stain removal performance.

4.7.20 **PP's Experimental Report 9** was filed in response to O1's Experimental Report 2 against the data on Stain Removal vs level of **STPP** (Section 1). Tests are made by using both O1's protocol and PP's protocol, the latter including relevant test control samples showing the sensitivity of the method used, for comparison.

The O1's protocol (Section 1) uses compositions of O1's Experimental Report 2 (Section 1), apart from 3 additional control samples (nil Lipex) vs 0%, 5%, 15% STPP. The same washing procedure was used.

For PP, graph 1 shows that the absence of standard deviation/standard error does not permit to draw valid statistical conclusions, the dynamic range of the tests being also very low as all products vary between 75% and 95% stain removal despite significant formulation differences, the poor sensitivity coming from a 10x10 cm swatch used that was designed for use in a full scale washing machine and was too large to move freely around a small Tergotometer. Also, O1 had used a 800 ml Tergotometer with 6 cooked beef stains in 1 pot, which was 105x above the recommendation (AISE Laundry Detergent Guidelines, v.5.1. - April 2016) of 1 cooked beef stain in a 14L washing machine.

The board, however, notes that Section 1 of O1's Experimental Report 2 mentions the use of a standard WE5BBWKC- AISE 13 Cooked beef on white cotton swatch in the Tergotometer, whilst a 10x10 cm swatch is only mentioned in section 3 thereof, where wash is carried out in a commercial wash machine. The recommendation invoked by PP is not mentioned in the patent nor is on file. The objection of PP is thus not convincing, the board is rather convinced that the wash conditions considerably influence the performance on greasy soils, as acknowledged in D34, page 2, penultimate paragraph.

Instead, the results in Graph 2 from PP's Protocol (the error bars shown represent standard error calculated across external replicates for each of the experimental products), show that:

- at 0% and 5% STPP and 0.08% Lipex 100L, a significant improvement vs nil lipase control is seen;
- compositions with 0.6% Lipex 100L show a significant improvement vs 0.08% Lipex 100L compositions and nil lipase controls;
- at 15% STPP level there is no significant difference (at 5% significant level) for the high or the low Lipex 100L compositions vs a 15% STPP nil lipase control.

However, irrespective of accepting the conclusions of the PP, it is not possible for the board to gather that a composition with more than 5 and up to **10** wt% STPP performs significantly better than a composition with 15% STPP, let alone over Formulation #6, of D2a.

- 4.7.21 **O1's (Unilever's) Experimental Report 3**, was submitted by O1 in reaction to PP's criticism in its submission of 3 January 2018, that the stain removal reported in O1's counter-data did not consistently correlate with the level of lipase present, suggesting the use of

inappropriate wash conditions. The wash protocol now followed the "Lard First Wash Test" [0031]-[0032] (this is contested in PP's Experimental Report 13, *infra*).

Test compositions were as tested before, included a control sample with nil Lipex for all STPP levels (0, 5, 10, 20 wt%). Flat cotton swatches, lard/sudan red soil and wash protocol were as disclosed in the patent.

The graphs in Point 5.1 show lard stain removal at 3 enzyme levels. The three graphs do not show significant difference in lard stain removal obtained when reducing STPP level from 20 (as Formulation #6 of D2a) to 0wt%. The graph of Point 5.2, different presentation of the previous data, shows the sensitivity to Lipex levels, and makes even more apparent that, for the same enzyme level, no significant difference in lard stain removal is obtained when reducing STPP level from 20 to 0wt%.

The compositions of section 2 of PP's Experimental Report 9 and O1's Experimental Experimental Report 3 are the same for STPP levels of 0 and 5 wt%, apart from Lipex 100L used by the PP and Lipex 100T by O1. The knitted cotton swatches used by the PP are however stained with dyed lard/dyed bacon/cooked beef, whilst the flat cotton swatches of O1 are Lard-stained as described in the patent. Hence, this report of O1 does not concern a repetition of PP's Experimental Report 9. Instead, the two reports co-exist, as invoked by O1. Thus, even upon accepting the results of the PP for STPP levels of 0 and 5wt%, it may not be disregarded that Experimental Report 3 of O1 shows that claim 1 at issue encompasses non-working embodiments (compositions falling under claim 1 which do not perform as invoked).

4.7.22 PP's **Experimental Report 13** was filed to react to O1's Experimental Report 3 to demonstrate the performance of Lipex® 100L vs STPP levels at two lipase levels:

1. at 12,500 LU/l, lipase level according to the "Lard First Wash Test" in the patent, a level equivalent to 2.12ppm active enzyme through the wash; and
2. at 3,302 LU/l, a different lipase level used in O1's Experimental Report 3 and being equivalent to 0.56 ppm active enzyme through the wash.

Lard stained swatches as in O1's Experimental Report 3.

In the graph on page 2 the performance is measured as "Delta % Lard Removal from Lipase", the error bars represent standard error calculated across all external replicates, the delta lipase performance is expressed for each of the detergent formulation, the zero base line in the graph represents the performance of the formulation without lipase, to which the delta refers.

According to the conclusions drawn below the graph,
- at a Lipex level of 0.56 ppm: the delta Lipex benefit at 5 and 12.5% STPP level is significantly larger than the benefit at the 25% STPP level at 95% confidence; the delta Lipex benefit at 5% STPP level is significantly larger than the benefit at 12.5% STPP level at 90% confidence (p value is 0.0694), whilst
- at a Lipex level of 2.12ppm, the delta Lipex benefit at 5% STPP is significantly larger than the benefit of both the 12.5 and 25% STPP level at 95% confidence; and, the delta Lipex benefit at 12.5% STPP level is significantly larger than the benefit at 25% STPP level at 95% confidence.

4.7.23 Before comparing the data of PP's Experimental Report 13 with that of O1's Experimental Report 3, it is to be noted that in the latter the performance is expressed

as SRI (Stain Removal Index) (not as Delta % SRI). In the graph (point 5.2) of the latter report a delta SRI over the respective first (nil lipase) bar of each of the four sets of bars is visually apparent on the SRI scale from 0 to 100 (the actual values being given in the graphs of Point 5.1). The lipase effect is clearly visible. A composition with 5% STPP and 0.6 ppm Lipex, the only one having comparable levels with PP's Experimental Report 13 (5% STPP and 0,56% Lipex), achieves a delta SRI over a composition with 5% STPP and nil Lipex (first bar of the second set) higher than 10 SRI units (72.2-57.5), i.e. 14.7 units, whilst compositions with 10% or 20% STPP and 0.6% lipase have respectively a delta SRI of 69.2-63.4 = 5.8 units and 70.2-60.9 = 9.3 units, i.e. less than 10 SRI units. Hence O1's Experimental Report 3 shows that the delta performance increases in a similar way as in PP's Experimental Report 13, when going from 20 to 5 wt% STPP level, not however for a composition with 10% STPP over a composition with 20% (as in #6 of D2a).

The graph of point 5.2 in O1's Experimental Report 3 also shows that it is not evident that Lipex functions more effectively in compositions containing low levels of phosphate builder, at least not for the embodiment with 0.3% Lipex, not reproduced in PP's Experimental Report 13, as a composition with nil or 10% STPP has a lower (6.3) or much lower (4.9) delta than that of a composition with 20% STPP (7.9).

Moreover, the graph of PP's Experimental Report 13 shows that there is no significant better performance (in terms of delta % ...) between a composition with 0.56 ppm Lipex and 12.5wt% STPP and a composition with 2.12 ppm Lipex and 25wt% STPP. There is little, if any, performance difference between a composition with 0.56

ppm Lipex and 5wt% STPP and a composition with 2.12 ppm Lipex and 12.5wt% STPP.

Hence, the graph of PP's Experimental Report 13 shows that the invoked trend of increasing the performance of Lipex 100L as STPP level is decreased across the range 25 to 5 wt% STPP is Lipex-dose dependent (i.e. the higher the Lipex level, the better the performance over nil Lipex). Claim 1 is open as to the level of Lipex, however, thus encompasses embodiments with vanishing levels of Lipex, as argued by O1, which would not provide unexpected performance gain across claim 1.

4.7.24 PP (reply to opponents' appeal, page 8, fourth full paragraph) stressed that it was not possible to demonstrate an effect of conditions which maximise the performance of the lipase, as laundry detergent compositions included many technologies, every wash being different and a composition was chosen for sale to consumers who have different practices and wash different fabrics soiled with a variety of different stains. Accordingly, some washes will require the action of lipase to maximise cleaning, for instance those which have aged stains, hard fat and so on. In other washes the lipase effect was not significant, for instance if the stain was primarily starch or protein or bleachable stain, or if a greasy stain is not particularly difficult to remove using other technologies. Some fat-based stains were not particularly susceptible to lipase anyway, as shown by D34. This was the case for any claim to a laundry detergent composition. Developers of such compositions tried to focus on technologies which maximised stain removal across all stain types and all fabrics and conditions. Evidently, no single invention addressed all of them. There was no hint to combine the specific

first wash lipases with soil removal polymer and to expect that this will lead to a more than additive stain removal benefit for these first wash lipases when it does not do so for other lipases outside the claim.

- 4.7.25 The board final remarks in this respect are that:
- a more than additive stain removal benefit has not been proven by PP, rather disproved by the opponents;
 - all test reports of PP and opponents were made or supervised by highly qualified formulators of enzymatic laundry compositions according to internal practices;
 - all compositions of all reports indisputably fall under claim 1 at issue, concerning a product, not a wash method or a use thereof for a specific technical effect;
 - the compositions of PP's Experimental Reports are more specific than claim 1 in terms of surfactants and additional components (CMC, polycarboxylate, acrylate/maleate copolymer, etc.). The level of phosphate in claim 1 is defined irrespective of Lipex level (a vanishing amount thereof being encompassed by claim 1) and of other builders/chelants levels, influencing the level of calcium ions available in the wash;
 - therefore, PP invokes an improved performance on the basis of tests with more specific compositions than those according to claim 1 at issue (relying only on a low builder level), used for removing specific soil under particular wash conditions. Moreover, as confirmed by D34, page 2, washing performance of Lipex depends not only on the particular soiling agent but also to a considerable extent on the washing conditions used;
 - thus, the argument that the opponents used particular washing conditions is not convincing;
 - the board thus shares the position of the opponents that it is not proven that an improved performance is

achieved across claim 1 at issue as a function of only phosphate level, let alone over Formulation #6 of D2a with 21 wt% STPP.

- 4.8 In consequence, the technical problem effectively solved across claim 1 has to be reformulated less ambitiously, namely as the provision of a further, efficient, first wash lipolytic laundry composition.
- 4.9 Obviousness
- 4.9.1 The board shares the arguments of the opponents, e.g. of O1 (grounds of appeal, page 10, (4)) that:
- 4.9.2 Formulation #6 of D2a concerns a laundry granular detergent composition comprising Lipex and *no zeolite* but (too much) phosphate (21 wt% of STTP) and no SRP.
- 4.9.3 D2a teaches that its first wash lipolytic detergent composition (page 1, Detergent composition, first paragraph) may be formulated with *inter alia* less builders, namely 1-65%, or be unbuilt ("essentially free of detergent builders") (page 1, Detergent composition, second paragraph), and still provides "*benefits such as stain removal, removal of fatty stains, whiteness maintenance, anti-redeposition or dinginess reduction*" (D2a, third paragraph under "Lipase" on the first description page).
- 4.9.4 This teaching implies for the board that builders do not necessarily affect the performance of the first wash lipase of D2a.
- 4.9.5 The board is convinced that for the skilled person starting from Formulation #6 (because it contains too much phosphate), it was obvious to reduce the level of

phosphate for environmental reasons. In this respect D39, which discloses general trends in the formulation of detergent compositions, taught a decline in the use of phosphate and zeolite from the late 70s and a concomitant rise in the use of layered disilicate (SKS-6). Upon comparing zeolite, phosphate, and disilicate performance, D39 taught that said SKS-6 was a suitable phosphate substitute with no negative environmental impact (pages 228-9, Figures 5-8 and corresponding description, "outlook", figure 11, table). Thus, bearing in mind this teaching, the skilled person starting from D2a, according to which SKS-6 (First page penultimate paragraph) is a preferred builder, would obviously have replaced phosphate in Formulation #2 of D2a with corresponding levels of SKS-6 (Figure 8/D39).

4.9.6 Indeed, for the board, the composition of claim 1 was obvious over D2a also for a cross-reference therein to *inter alia* D24, hinting at formulating a first wash lipase of D2a as taught in D24. D2a thus motivates the skilled person to simply incorporate a Lipex into a formulation of D24, *a fortiori* into an already formulated composition of D24, such as that of examples 10 (III to V) or 15 (IV and VI) (wherein phosphate was replaced with SKS-6 or alkaline silicate). Hence, by nothing more than following this hint in D2a, the skilled person would have arrived without inventive skill at a phosphate level as defined in claim 1 of AR6.

4.9.7 Further, as regards the motivation for adding a SRP to a lipolytic composition with $RA > 4$ and being essentially free of builder, the board shares O1's position that D2a motivated (e.g. as done in Formulation #8) the skilled person to add a SRP to

merely provide its known function. Indeed, for a composition intended for washing also synthetic fibres (polyester or polycotton), the addition of a SRP, if not unavoidable, was at least obvious for a skilled person, as also taught by D1 (page 7, lines 15-16).

4.10 Therefore, it is the board's conviction that the composition of claim 1 of auxiliary request 6 was obvious and so, lacks an inventive step over D2a and D39 or D24, and is thus not allowable under Article 56 EPC.

5. *Conclusion*

5.1 As auxiliary request 6 is at least not allowable under Article 56 EPC and since all other requests are not admitted for not being allowable at least in view of Article 123(2) EPC, the board had to accede to the opponents' request to revoke the patent.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



A. Pinna

J.-M. Schwaller

Decision electronically authenticated