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Datasheet for the decision of 22 February 2019

Case Number: T 1512/14 - 3.3.02

Application Number: 03250958.0

Publication Number: 1344814

IPC: C10M141/10, C10M163/00, C10M141/12

Language of the proceedings: EN

Title of invention:
Lubricating a CVT transmission with a Power Transmission Fluid

Patent Proprietor:
Infineum International Limited

Opponent:
Afton Chemical Corporation

Headword:

Relevant legal provisions:
RPBA Art. 12(4)
EPC Art. 56

Keyword:
Inventive step - (no)

Decisions cited:
T 0547/88, T 0971/11

Catchword:

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Beschwerdekammern

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Case Number: T 1512/14 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 22 February 2019

Appellant I: (Patent Proprietor)	Infineum International Limited P.O. Box 1, Milton Hill Abingdon, Oxfordshire OX13 6BB (GB)
Representative:	Lewis, Pauline Therese Infineum UK Limited P.O. Box 1 Milton Hill Abingdon Oxfordshire OX13 6BB (GB)
Appellant II: (Opponent)	Afton Chemical Corporation 500 Spring Street Richmond, Virginia 23219 (US)
Representative:	J A Kemp 14 South Square Gray's Inn London WC1R 5JJ (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 14 May 2014 concerning maintenance of the European Patent No. 1344814 in amended form**

Composition of the Board:

Chairman	M. O. Müller
Members:	P. O'Sullivan
	M. Blasi

Summary of Facts and Submissions

I. The appeals of the patent proprietor and the opponent lie from the interlocutory decision of the opposition division according to which the patent as amended and the invention to which it relates were found to meet the requirements of the EPC.

II. The patent was opposed under Article 100 (a) and (b) EPC on the grounds that the subject-matter of the claims thereof lacked novelty and did not involve an inventive step, and the invention disclosed therein was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

III. The decision under appeal was based on the patent as granted (main request), a first auxiliary request (comprising claims "Set A"), a second auxiliary request (comprising claims "Set C") and a third auxiliary request (comprising claims "Set B").

IV. The following evidence *inter alia* was cited during opposition proceedings:

D3: WO 97/14773
D4: US 6,103,673
D9: US 5,750,477
D13: US 3,784,588
D14: GB 1 569 730
D15: US 4,544,492
D16: US 4,917,809
D17: WO 95/07966
D18: WO 95/10584
D19: US 5,531,911
D20: Ciba product specification for Irgalube 63®

D21: US 5,922,657
D22: US 6,187,723
D23: US-A-2002/0016266
D25: First Declaration of Dr Timothy Henly dated 15 May 2012
D26: Second Declaration of Dr Timothy Henly (undated)

V. In this decision the patent proprietor and the opponent shall be referred to as appellant I and appellant II, respectively.

VI. With the statement of grounds of appeal appellant II filed *inter alia* the following evidence:

D29: Declaration of Dr Timothy Henly dated 22 September 2014
D30: US 6,303,546
D31: R.T. Vanderbilt Company, Inc., Technical Bulletin 941
D32: US 5,705,085

With the statement of grounds of appeal appellant I filed the following evidence:

D33: "Proprietor's Appeal Data"

With the reply of appellant II the following evidence *inter alia* was filed:

D36: Declaration from Dr Timothy Henly dated 4 February 2015

With the reply of appellant I the following evidence was filed:

D37: Appendix "Proprietor's Appeal Reply".

VII. In a communication sent in preparation of oral proceedings, the board *inter alia* expressed the opinion that the disclosure of document D3 appeared to represent an appropriate starting point for the assessment of inventive step of the claimed subject-matter.

VIII. Appellant I requested that the contested decision be set aside and the patent be maintained as granted, i.e. the opposition be rejected, or as an auxiliary measure, that the patent be maintained in amended form, on the basis of one of the claim sets of:

- the first auxiliary request ("Set A"), as filed with letter dated 24 September 2014,
- the second auxiliary request ("Set G"), as filed with letter dated 10 February 2015,
- the third auxiliary request ("Set E"), as filed with letter dated 24 September 2014,
- the fourth auxiliary request ("Set H"), as filed with letter dated 10 February 2015,
- the fifth auxiliary request ("Set B"), as held allowable by the opposition division, i.e. dismissal of appellant II's appeal
- the seventh auxiliary request ("Set F") as filed with the letter of 10 February 2015.

The sixth auxiliary request was withdrawn during oral proceedings.

Appellant I also requested that the opposition division's decision not to admit D26 be confirmed and that documents D29 to D32 not be admitted into the proceedings.

IX. Appellant II requested that the contested decision be set aside and that the patent be revoked in its entirety. It also requested not to admit documents D33 and D37 and the sets of claims according to the second, third, fourth, and seventh auxiliary requests into the proceedings.

X. Claim 1 of the main request (claim 1 as granted) reads as follows:

"*A method for lubricating a continuously variable transmission, the method requiring the use therein of a power transmission fluid comprising a mixture of a major amount of a lubricating oil and an additive composition comprising:*

(a) an organic phosphate having the structure: R_1-X_2-P(:X_1)(R_2X_3)-X-R_5 *where* R_1 *and* R_2 *may independently be substituted or unsubstituted alkyl, aryl, alkylaryl or cycloalkyl having 1 to 24 carbon atoms and X,* X_1 X_2 *and* X_3 *may independently be sulfur or oxygen;* R_1 *and* R_2 *may also contain substituent hetero atoms, in addition to carbon and hydrogen, such as chlorine, sulfur, oxygen or nitrogen; wherein* R_5 *is derived from a reactive olefin and is either* -CH2-CHR-C(:O)O-R_6 *or* R_9-OC(:O)CH_2-CH-C(:O)O-R_{10} *where R is H or the same as* R_1 *or* R_2 *and* R_6, R_9 *and* R_{10} *are the same as* R_1 *and* R_2*;*

(b) a calcium detergent; and

(c) a friction modifier."

Claim 1 of the first auxiliary request differs from claim 1 of the main request by the addition of the following text:

" *... wherein (a) is used in combination with (b) and (c) to improve the anti-shudder durability of the fluid.*"

Claim 1 of the second auxiliary request differs from claim 1 of the main request in the limitation of component (c) to the friction modifier of granted claim 7.

In claim 1 of the third auxiliary request component (a) is limited in R_5 with respect to claim 1 of the main request as follows (~~strike through~~ representing deletions):

"*... wherein R_5 is derived from a reactive olefin and is ~~either -CH2-CHR-C(:O)O-R_6 or~~ R_9-OC(:O)CH_2-CH-C(:O)O-R_{10} where ~~R is H or the same as R_1 or R_2 and R_6,~~ R_9 and R_{10} are the same as R_1 and R_2;*"

Claim 1 of the fourth auxiliary request differs from claim 1 of the main request in that it incorporates the amendments from the respective claim 1 of both the second and third auxiliary requests.

Claim 1 of the fifth auxiliary request differs from claim 1 of the main request in the definition of component (a) which reads as follows:

"*(a) an organic phosphate having the formula $(R-O)_2$-P(:S)-S-CH(COOR_1)CH_2COOR_2 where R, R_1 and R_2 are C_3-C_8 alkyl; wherein the group R_2-OC(:O)CH_2-CH-C(:O)O-R_1 is derived from a reactive olefin;*"

Claim 1 of the seventh auxiliary request differs from claim 1 of the main request in that it incorporates the amendments from the respective claim 1 of both the second and fifth auxiliary requests.

XI. Oral proceedings before the board were held on 22 February 2019.

XII. The following abbreviations are employed in the present decision:

"CVT" : Continuously Variable Transmission

"Irgalube": Irgalube 63®

"Vanlube" : Vanlube 7611M®

"ZDDP" : Zinc Dialkyl Dithiophosphate

"Ethomeen": ETHOMEEN® T12, friction modifier

"phosphate **mono**ester": an organic phosphate having the structure recited in component (a) of claim 1 of the main request wherein the group R_5 is -CH2-CHR-C(:O)O-R_6.

"phosphate **di**ester": an organic phosphate having the structure recited in component (a) of claim 1 of the main request wherein the group R_5 is R_9-OC(:O)CH_2-CH-C(:O)O-R_{10}.

XIII. Insofar as relevant to the present decision, the arguments of appellant II may be summarised as follows:

Admittance of evidence

D26 should be admitted into appeal proceedings. It was clearly relevant, and had been filed as soon as possible in response to the summons issued by the opposition division. The decision was devoid of any reasoning allowing assessment of whether the opposition division had exercised its discretion correctly. It should not be held inadmissible for the sole reason that it was filed in first instance proceedings.

D29 should be admitted into appeal proceedings. It had been filed in response to the decision of the opposition division according to which the failure in the test D25 was attributed to the phosphate monoester, rather than to the open definition of the friction modifier. It demonstrated that in the same test, the phosphate diester would lead to failure.

Similarly, D30-D32 were filed in response to the opinion of the opposition division that the effect had been shown for the phosphate diester, and to demonstrate that the skilled person would not be restricted to specific organic phosphates anti-wear compounds when formulating a CVT fluid. Consequently, D30-D32 should be admitted into the proceedings.

D33 was late filed and should not be admitted into to the proceedings, since it should have been filed during first instance proceedings. It was evident from an early stage of opposition proceedings that whether the alleged advantage would arise across the scope of the

claim was highly relevant for the assessment of inventive step, in particular as demonstrated by D25.

D37 was filed to support appellant I's shifted focus in appeal proceedings from improved anti-shudder durability to maintenance of steel-on-steel properties as a basis for defending inventive step, the former having been challenged from the outset. Appellant II had had ample opportunity to defend the steel-on-steel aspect during first instance proceedings, but chose not to do so. Consequently, D37 should not be admitted into the proceedings.

Main request - inventive step

While D3 was the closest prior art, it was only one of numerous feasible starting points for the skilled person, including *inter alia* D4, D9 and D30. The patent related only to an improvement in anti-shudder durability and the fluids of the invention did not offer any improvement in steel-on-steel friction. In view of the evidence provided by D25, D26, D29 and D36, the technical problem was the provision of an alternative fluid for use in the claimed CVT lubrication method. The solution, the selection of well known thiophosphate anti-wear agents Irgalube or Vanlube, disclosed in D13-D23, was obvious.

First auxiliary request - clarity

Claim 1 lacked clarity under Article 84 EPC since it was not clear how to determine whether the requirement introduced by the amendment was fulfilled or not.

Second auxiliary request - admittance

The second auxiliary request was filed in response to an objection raised in the notice of opposition and should have been filed in the first instance. It was thus late filed and should not be admitted into appeal proceedings.

Inventive step

Claim 1 lacked inventive step in view of D29 and D36 for the same reasons as provided for the main request.

Third auxiliary request - admittance

The amendments to claim 1 were an attempt to overcome the non-working embodiment in D25, which had been on file since early in the opposition procedure. Consequently, it could have been presented in first instance proceedings and should not be admitted into appeal proceedings.

Inventive step

Claim 1 was not inventive for the same reasons as provided for claim 1 of the main request with respect to the phosphate diester of component (a).

Fourth auxiliary request - admittance

The fourth auxiliary request was filed with appellant I's reply to the grounds of appeal. It addressed an objection already raised during first instance proceedings, and consequently should not be admitted into appeal proceedings.

Inventive step

D36 was an example of a fluid produced according to the guidelines in the patent, and demonstrated that the claims comprised embodiments which did not display the alleged effect of improved anti-shudder durability. Thus for the same reason as provided for higher ranking requests, claim 1 of this request lacked inventive step.

Fifth auxiliary request - inventive step

Arguments already submitted in respect of higher ranking requests also applied to the subject-matter of this request.

Seventh auxiliary request

Admittance and inventive step

Arguments already submitted in respect of higher ranking requests also applied to the subject-matter of this request.

XIV. Insofar as relevant to the present decision, the arguments of appellant I may be summarised as follows:

Admittance of evidence

D26 should not be admitted into appeal proceedings. The discretionary decision of the opposition division should only be reversed if the opposition division had exercised their discretion incorrectly, which it had not.

D29 concerned tests carried out using the phosphate diester and as such should have been presented during first instance proceedings. It did not address the effect of steel-on-steel friction, was no more relevant than D25 or D26, and consequently should not be admitted into the proceedings.

Similarly, D30-D32 should not be admitted into the proceedings as they were filed to fill gaps in the original evidence of appellant II, did not add anything of substance, and should have been filed during first instance proceedings.

D33 was filed in response to the conclusion of the opposition division that there was no evidence of improved anti-shudder durability in fluids comprising the phosphate monoester. It was filed at the earliest possible stage of the proceedings, and consequently should be admitted into appeal proceedings.

D37 was filed in response to D29, which lacked evidence challenging the maintenance of steel-on-steel friction, and thus should be admitted into the proceedings.

Main request- inventive step

D9 was the closest prior art. D3 was less appropriate as it did not directly concern the lubrication of CVTs. D33 demonstrated that a fluid comprising the phosphate monoester Irgalube provided improved anti-shudder durability and sufficient steel-on-steel friction, while D37 demonstrated that steel-on-steel friction was maintained for fluids with the terms of claim 1 for both Irgalube and Vanlube, when combined with either Ethomeen or a succinimide as friction modifier component (c). Furthermore in view of the contradictory

data on file, the benefit of the doubt should go to appellant I (T 547/88).

The technical problem was the provision of a method for lubricating a CVT providing improved anti-shudder durability, and the maintenance of sufficient steel-on-steel friction. The solution was not obvious in view of the prior art. Even if the problem were to be seen in less ambitious terms as concerning only the maintenance of sufficient steel-on-steel friction, the solution would not be obvious, since in view of the distinct frictional properties required by a CVT fluid, the skilled person would not turn to the secondary references disclosing Irgalube and Vanlube. The phosphate esters were known to be more suitable for low friction environments, as shown in D15 and D20.

First auxiliary request - clarity

Claim 1 of the first auxiliary request met the requirements of Article 84 EPC, the amendment merely delimiting the claim from isolated examples of methods using a fluid within the chemical definitions of claim 1, but failing to achieve improvement in anti-shudder durability.

Second auxiliary request - admittance

The second auxiliary request should be admitted into the proceedings. It was filed as an amendment to claim set D filed with the grounds of appeal of appellant I in response to the filing of D29 with grounds of appeal of appellant II. D29 allegedly demonstrated the same conclusion for the phosphate diester in combination with the ethoxylated amine (Ethomeen) friction modifier as D25 with respect to the phosphate monoester. Claim 1

of this request overcame the new objection by introduction of the preferred friction modifier of granted claim 7.

Inventive step

D26 and D36 were outlier results which could not be used to contradict the data in the patent and those of D33 with respect to the improvement in anti-shudder durability for fluids within the terms of claim 1 comprising either the phosphate monoester or diester. The technical problem was consequently the provision of a method for lubricating a CVT providing improved anti-shudder durability, and the solution was not obvious in view of D3 or D9 as closest prior art.

Third auxiliary request - admittance

Claim 1 of this request represented a *bona fide* attempt to respond to the decision of the first instance, according to which inventive step was denied in view of issues associated with the phosphate monoester. It was filed at the earliest opportunity after receipt of the decision, was easily comprehensible, and consequently should be admitted into the appeal proceedings.

Inventive step

Claim 1 no longer included in its scope the phosphate monoester of component (a). The tests of D25 and D26 were consequently irrelevant.

Fourth auxiliary request - admittance

Similarly to the second auxiliary request, the fourth auxiliary request was filed in response to the filing

of D29 with the grounds of appeal of appellant II. Consequently, it should be admitted into the appeal proceedings.

Inventive step

Claim 1 being limited in component (a) to the phosphate diester and the friction modifier of granted claim 7, D36 was the only test filed by appellant II which covered this combination. However, D36 was an anomalous result as the fluid thereof immediately failed the relevant test, and further attempts to succeed should have been made. Consequently, set against the results provided in the patent (table 1), the benefit of doubt should go to appellant I.

Fifth auxiliary request - inventive step

Arguments already submitted in respect of higher ranking requests also applied to the subject-matter of this request.

Seventh auxiliary request - admittance

The seventh auxiliary request was filed in response to the filing of D29 by appellant II with the grounds of appeal, and corresponded to claim set B found allowable by the opposition division, with the further limitation to a friction modifier as defined in granted claim 7. It should consequently be admitted into the appeal proceedings.

Inventive step

Arguments already submitted in respect of higher ranking requests also applied to the subject-matter of this request.

Reasons for the Decision

1. The claimed invention relates to a method for lubricating a continuously variable transmission, the method requiring the use of a power transmission fluid comprising a mixture of a lubricating oil and an additive composition comprising (a) a certain type of a phosphate mono- or diester compound, (b) a calcium detergent and (c) a friction modifier.

2. Admittance of evidence

2.1 Under Article 12(4) RPBA, the board has discretion over whether or not to take documents into account which could have been presented or were not admitted in the proceedings before the opposition division, even if these documents relate to the case under appeal and meet the requirements under Article 12(2) RPBA.

2.2 D29, D30, D31 and D32 were filed by appellant II with its statement of grounds of appeal. Appellant I requested that these documents not be admitted into the proceedings.

2.3 In its decision the opposition division concluded that the effect of improved anti-shudder durability had been shown for the phosphate diester (defined above). D29 was filed to demonstrate that the effect was also not

present when this **di**ester was employed. Thus, D29 was filed in direct response to the appealed decision and represents a fair and legitimate reaction thereto. Consequently, the board decided to admit D29 into the proceedings in accordance with Article 12(4) RPBA.

2.4 D30 was filed in response to the finding provided in the decision of the opposition division (page 11, central paragraph) that the prior art D13 to D23 relating to specific phosphate esters (in particular, Irgalube and Vanlube) could not be combined with a primary reference (the closest prior art) relating to CVT lubricants. D31 was filed in response to the finding in the opposition division's decision (page 13, "Claim 1 of AR3", second paragraph) that in contrast to the phosphate monoester, the phosphate diester was not known as an ashless alternative to ZDDP. D32 was filed merely as proof that D31 formed part of the state of the art. The filing of these documents thus also represented a fair and legitimate response to the decision, and the board decided to admit them into the proceedings in accordance with Article 12(4) RPBA.

2.5 D33 and D37, both filed by appellant I, were submitted with the statement of grounds of appeal, and with the reply, respectively. Appellant II requested that these documents not be admitted into the proceedings.

2.6 D33 was submitted in response to the finding of the opposition division that there was no evidence of a technical effect when component (a) was the phosphate monoester (defined above). Accordingly, the board considers the filing of D33 as a reasonable reaction to the decision of the opposition division, and decided to admit it into the proceedings in accordance with Article 12(4) RPBA.

2.7 D37 was filed in response to the filing of D29 by appellant II, with a view to demonstrating that sufficient steel-on-steel friction was achieved across the scope of the claims. D29 being the first evidence filed by appellant II concerning the phosphate diester as component (a), D37 was filed at the earliest possible opportunity in defence of this embodiment. Consequently, the board decided to admit it into the proceedings in accordance with Article 12(4) RPBA.

2.8 D26 was filed by appellant II one month before oral proceedings in opposition, and was not admitted into the proceedings by the opposition division.

According to Article 12(4) RPBA, the admission of evidence which was not admitted in the first instance proceedings into the appeal proceedings is at the discretion of the board. D26 concerns comparative tests carried out with the phosphate monoester Irgalube as component (a). Even though filed prior to the issuance of the opposition division's decision, it further reinforces the conclusion of the opposition division made in that decision that the claims comprise embodiments for which no improvement in anti-shudder durability is achieved when component (a) is a phosphate monoester. It does not represent a new objection, and thereby lies within the legal and factual framework of the appealed decision. Therefore, had D26 been filed by appellant II with its statement of grounds of appeal, the board would have admitted it into the proceedings for these reasons. Facts and evidence which would have been admitted into the appeal proceedings if they had been filed for the first time at the outset of those proceedings, should not be held inadmissible for the sole reason that they were already

filed before the department of first instance and not admitted then by a correct discretionary decision. Rather, the board has to exercise its discretion under Article 12(4) RPBA independently (cf. T 971/11, Reasons 1.3).

2.9 Consequently, whether or not the opposition division exercised its discretion correctly in not admitting D26, in view of the considerations provided above, the board decided to admit D26 into the appeal proceedings in accordance with Article 12(4) RPBA.

2.10 It follows that D26, D29, D30-D32, D33 and D37 are part of the appeal proceedings (Article 12(4) RPBA).

Main request (claims as granted) - inventive step

3. Closest prior art

3.1 Appellant I was of the view that the disclosure in document D9 was the closest prior art. Appellant II on the other hand was of the view that the disclosure in D9 was merely one possibility from numerous feasible starting points, including D3-D11 or D30, but considered the disclosure in D3 as the most appropriate.

3.2 Similarly to the patent (paragraph [0008]), document D3 discloses a composition for improving the anti-shudder durability of automatic power transmission fluids (page 1, lines 5-7), and identically to the patent, it is specifically concerned with improving anti-shudder and anti-shudder durability in continuously slipping torque converter clutches (D3, page 2, lines 7-21).

3.3 Consequently, D3 represents a possible closest prior art document.

3.4 Appellant I argued that D3 was less suitable than D9 as closest prior art since it did not concern relevant CVT systems, and that the requirement for high steel-on-steel friction for the variator - which is different from a clutch as dealt with in D3 (patent, paragraph [0012]) - was not disclosed therein. However, according to the patent, continuously slipping torque converter clutches are routinely used with CVTs (paragraph [0008]). Thus to the skilled person reading document D3, which concerns lubrication of said clutches (D3, page 2, lines 7-21), it would be immediately apparent that the subject-matter thereof concerns the lubrication of CVTs.

3.5 Furthermore, although paragraph [0012] of the patent discusses the steel-on-steel friction requirements of the variator, this is not a technical feature of claim 1 at issue, which is directed to a method for lubricating a CVT using a power transmission fluid, and **not** limited to a method involving specific CVTs in which e.g. a variator must be present. The arguments of appellant I in this regard consequently do not change the view of the board that the disclosure in document D3 represents a possible starting point for the skilled person.

4. Problem solved

4.1 Example 10 of D3 discloses a specific automatic transmission fluid. It comprises a succinimide friction modifier (page 3, component (a); page 6, example A) corresponding to component (c) of claim 1 at issue and essentially identical to the friction modifier used in

the examples according to the patent (compare the process according to D3, Example A and that of table 1, footnote). It further comprises a calcium detergent ("300 TBN Ca Sulfonate"), corresponding to component (b) of claim 1 at issue. Example 10 of D3 however employs dibutyl hydrogen phosphite as an organic phosphorous-containing compound (D3, page 8, structure IV) rather than the organic phosphate as defined in component (a) of claim 1 at issue, and consequently differs therefrom in this respect.

4.2 According to appellant I, the effect of using an organic phosphate recited in claim 1 is the provision of improved anti-shudder durability, and the maintenance of sufficient steel-on-steel friction.

4.3 In order to formulate the objective technical problem, it must be determined whether the distinguishing features of the claim provide these alleged technical effects. Alleged effects which are neither credible nor supported by sufficient evidence cannot be taken into consideration in determining the problem.

4.4 Improved anti-shudder durability - evidence

When component (a) is a phosphate **mono**ester:

4.4.1 The patent itself provides no evidence of improved anti-shudder durability for formulations comprising a phosphate **mono**ester.

4.4.2 Post-filed experimental data for formulations comprising the phosphate monoester as component (a) was filed by appellant II (D25 and D26) and appellant I (D33 and D37).

4.4.3 D25 concerns a formulation falling within the terms of claim 1 at issue comprising the phosphate monoester Irgalube as component (a) and Ethomeen as component (c). This formulation immediately failed the anti-shudder durability test (measured according to the patent as "*Hour* [sic] *to fail*", failure defined as the time elapsed at which the dMu/dV measurement drops below -3; paragraph [0089] and table 1), thereby demonstrating that claim 1 at issue includes within its scope embodiments which do not achieve the alleged effect.

4.4.4 According to D26, formulations within the terms of claim 1 at issue were prepared comprising Irgalube at 0.1 wt.% or 10 wt.%, the preferred and upper limits, respectively, according to the patent (paragraph [0027]) as component (a), and a succinimide-based friction modifier as component (c). The anti-shudder performance of those formulations was compared with the corresponding formulations devoid of organic phosphate, or comprising 0.12 wt.% ZDDP as phosphate (different from component (a) of claim 1). Test results were provided in a table (D26, page 3). The formulation comprising 10 wt.% Irgalube was found to immediately fail the anti-shudder durability test. Although the tests with formulations comprising 0.1 wt.% Irgalube and ZDDP (D26, table, columns 2 and 3) were not continued to the point at which the formulations failed the anti-shudder durability test, when comparing the "time to fail" data, it can at least be concluded that the former (according to the claims) does not provide improved durability when compared to the latter (not according to the claims). Consequently, the tests of D26 also demonstrate that claim 1 includes embodiments which do not achieve the alleged effect.

4.4.5 In D33 a formulation according to claim 1 was prepared using the methods of example 1 and 2 of the patent, but comprising 0.36 wt.% Irgalube as the phosphate monoester. The test formulation additionally comprised 6.8% of a viscosity modifier, 3.8% of a dispersant, 0.25% of an antioxidant and 0.05% oleamide. This formulation failed the anti-shudder durability test only after 35 hours, from which the authors of D33 concluded that, despite having low amounts of the additives (a) to (c), the conventional fluid duration to fail of 15 to 25 hours (recited in the patent, paragraph [0090]) was exceeded.

4.4.6 The results of D33 however fail to show that the fluid tested demonstrates an improvement in anti-shudder durability having its basis in the distinguishing feature over the closest prior art. No comparative test data is presented against which it can be objectively determined whether the result represents an improvement. Additionally, comparison with the tests provided in the patent is not possible, since the fluid of D33 comprises differing amounts of calcium detergent and friction modifier as well as further additives with unknown influence on the properties of the fluid. The fluid of D33, for example, comprises 3.8% of an unidentified dispersant, while the patent itself (paragraph [0066]) recognises that dispersants may affect frictional characteristics.

4.4.7 The tests of D37 only measure steel-on-steel friction properties and consequently are irrelevant to the effect of improved anti-shudder durability.

4.4.8 Consequently, in view of the results of tests of D25 and D26 as detailed above, and the irrelevance of the results provided by D33 and D37, it must be concluded

that the alleged effect of improved anti-shudder durability has not been demonstrated for across the scope of claim 1 for embodiments comprising a phosphate **mono**ester as component (a).

When component (a) is a phosphate **di**ester:

4.4.9 The examples of the patent provide data on the anti-shudder durability of formulations comprising the phosphate **di**ester Vanlube. In all formulations component (c), the friction modifier, was the succinimide compound prepared according to the footnote of table 1, and no further additives were present. Appellant I submitted that these formulations displayed improved anti-shudder durability (patent, table 1) when compared to comparative examples 1-3.

4.4.10 D29, filed by appellant II, concerns a formulation falling within the terms of claim 1 at issue comprising the phosphate diester Vanlube as component (a) and Ethomeen as component (c). This formulation immediately failed the anti-shudder durability test, demonstrating that claim 1 includes embodiments comprising the phosphate diester which do not achieve the alleged effect.

4.4.11 D36, filed by appellant II, details an attempt to produce fluid composition 5 comprising phosphate diester Vanlube (patent, table 1), with the addition of further components (D36, page 2) in accordance with the preferred weight percentages provided therefor in the patent (see for example paragraph [0084]). According to D36, the fluid tested immediately failed the anti-shudder durability test.

The board does not share the view of appellant I that D36 must be understood to represent an outlier result, an anomaly which must be assessed as being less convincing than the data provided by the examples in the patent. In fact, the test of D36 represents an attempt to get as close as possible to the core of the examples of the patent by reproducing the fluid of a specific example, and furthermore attempting to supplement that fluid with additional additives which similarly fall within the recommended weight ranges provided therefor in the patent. That the fluid of D36 failed the anti-shudder durability test not only provides a concrete example of an embodiment which fails to demonstrate the alleged effect despite falling within the terms of claim 1 at issue, but also serves as a credible indicator that further fluids falling within the terms of claim 1 at issue but with components (a), (b) and (c) more structurally remote from those exemplified in the patent would be at least equally likely to also fail the anti-shudder durability test. Thus D36 demonstrates that insofar as the phosphate **di**ester is concerned, the alleged effect of improved anti-shudder durability is not plausibly demonstrated across the scope of the claim.

4.4.12 Consequently, even if it were to be accepted, in appellant I's favour, that the tests in the patent (table 1) demonstrate the alleged effect for the fluids exemplified, this is irrelevant given the evidence provided by D29 and D36 which show that claim 1 at issue includes embodiments wherein component (a) is a phosphate diester, for which the alleged effect is not present. Furthermore, although D37, filed by appellant I, details the preparation of fluids comprising the phosphate diester Vanlube, falling within the terms of claim 1 at issue (Tests 1 and 1B)

and comprising further additives, no data is collected with respect to the anti-shudder durability performance thereof.

4.4.13 Consequently, the effect of improved anti-shudder durability has not been demonstrated across the scope of the claim 1 for embodiments comprising a phosphate **di**ester as component (a).

4.5 Appellant I submitted that the testers of D25 and D26 (appellant II's tests with a phosphate monoester) and D29 and D36 (appellant II's tests with a phosphate diester), having failed at the first attempt, should have endeavoured to repeat the tests in order to succeed. The board disagrees - there is no reason to believe that these tests do not represent *bona fide* attempts by appellant II to test the claimed method. Each test was performed by an independent test house and demonstrates that the scope of claim 1 covers embodiments for which the alleged effect is not present. As set out above, the contrary has not been demonstrated, neither in the patent nor in the post-published data filed by appellant I. The burden of proof in this regard thus remains with appellant I.

4.6 Appellant I furthermore submitted, citing decision T 547/88 in support of his arguments, that in view of the apparent contradiction in the results of on the one hand D25 and D26 (fluids comprising Irgalube failed the anti-shudder durability test) and D33 (a fluid comprising Irgalube passed the anti-shudder durability test) and on the other hand D29 and D36 (fluids comprising Vanlube failed said test) and the examples of the patent (fluids comprising Vanlube passed said test), the benefit of the doubt with respect to the effect should go to appellant I.

4.6.1 The board however does not see the case underlying T 547/88 as being comparable to the present situation. In that decision (see points 10 and 11 of the reasons), tests had been filed which showed contradictory results, meaning that it was not possible to base any final conclusion thereon. In the present case, the board is confronted with a series of **different** tests. More specifically, while comprising the same type of phosphate mono- or diester, the fluids applied in the various tests differed in terms of the amount of phosphate ester employed and/or the further components present in those fluids. Thus while the result of the tests in terms of whether the alleged effects are shown or not are not consistent, the tests themselves are not carried out on the same fluid formulations, and consequently cannot be said to provide contradictory results.

4.6.2 Thus, also in view of appellant I's arguments, the board maintains its view that the effect of improved anti-shudder durability has not been demonstrated across the scope of the claim.

4.7 Maintenance of sufficient steel-on-steel friction

The tests in the patent (table 2), D33 and in particular D37 demonstrate that for specific fluids falling within the terms of claim 1, comprising a phosphate monoester (D33 and D37) or diester (the patent and D37), sufficient steel-on-steel friction is maintained, i.e. the measured values are comparable to those provided by the fluids of the prior art. No counter-evidence with regard to this aspect was submitted by appellant II. Thus, to the benefit of appellant I, it may be assumed that the effect of

maintaining steel-on-steel friction has been demonstrated across the scope of claim 1 at issue.

4.8 The objective technical problem underlying the subject-matter of claim 1 is consequently the provision of an alternative method for lubricating a CVT using a power transmission fluid, while maintaining the high steel-on-steel friction required for a CVT transmission.

5. Obviousness

5.1 Appellant I did not dispute that, although not disclosed for use in lubricating compositions for CVTs, both Irgalube and Vanlube are well-known commercially available thiophosphate anti-wear agents (disclosed in D13 - D23). Appellant I nevertheless submitted that the skilled person would not have considered using these compounds in a CVT fluid in order to solve the above problem since e.g. D15 and D20 teach that those phosphate esters would provide **lower** friction to ZDDP, while in contrast, a CVT required a high level of friction (D15, column 1, lines 22-26; D20, page 1, "Benefits").

5.2 However, the board agrees with appellant II that these indications do not mean that Irgalube or Vanlube would be considered by the skilled person as being unsuitable for use in CVTs, the lubrication of which involves controlling friction based on speed, and balancing the properties of the range of additives typically provided, including a friction modifier (patent, paragraphs [0006] and [0066]). Furthermore, as an alternative phosphate compound to that employed in example 10 (supra), D3 suggests a broad range of phosphorous-containing compounds, including phosphates of structure VI (page 8, lines 15-30), under whose

broad definition the phosphates of claim 1 at issue are encompasssed. There is also no teaching nor indication in the further prior art (*inter alia* D3, D9, D11 and D30) against using particular types of organic phosphates in CVTs. D30, for example, concerns traction drive fluids for CVTs (column 1, lines 5-12) and explicitly teaches that the active phosphate ester which may be used therein may be selected from "*well known active phosphate ester base compounds that have heretofore been used as an extreme pressure agent or an anti-wear agent...*" (D30, column 3, lines 7-14). Furthermore, there is no indication in said further prior art that the maintenance of steel-on-steel friction would not have been expected by the skilled person. Those documents all disclose fluids suitable for use in CVTs and employing differing organic phosphorous compounds (D3, examples; D9, column 11, line 55; D11, column 7, lines 4-61) and none report difficulties or concerns in the maintenance of the required level of steel-on-steel friction.

5.3 Consequently there is no reason why the skilled person starting at D3 and looking to solve the above problem, would not turn to the known phosphate monoester Irgalube or the known phosphate diester Vanlube for the claimed solution.

5.4 Consequently, in the present case, the provision of the claimed method to solve the above problem is obvious.

5.5 It follows that the subject-matter of claim 1 at issue lacks inventive step and, therefore, the ground for opposition under Article 100(a) and Article 56 EPC prejudices the maintenance of the patent as granted.

First auxiliary request

6. Clarity (Article 84 EPC)

6.1 Claim 1 of the first auxiliary request differs from claim 1 of the main request in that the following functional feature has been introduced into claim 1, *viz*. "*... wherein (a) is used in combination with (b) and (c) to improve the anti-shudder durability of the fluid*". The appellant argued that this feature served to delimit the claim from a method using the fluid within the chemical definitions of the claim, but failing to achieve improvements in anti-shudder durability.

6.2 The above wording was not present in any of the granted claims and thus can be examined under Article 84 EPC in opposition appeal proceedings.

6.3 In the view of the board, the term "used .. to improve" could either be understood to mean that a factual improvement in the method is required, or alternatively could be understood to reflect the intention of the user, thereby not requiring an actual improvement. Furthermore, there is no guidance with respect to the extent of the change in anti-shudder durability necessary for it to be considered an improvement, nor is it clear against which reference the fluid recited in the claim should be compared to determine whether an improvement has actually been achieved.

6.4 It follows therefore that the subject-matter of claim 1 of the first auxiliary request fails to meet the requirements of Article 84 EPC.

Second auxiliary request

7. Admittance

7.1 The set of claims of the second auxiliary request was filed with appellant I's reply to the grounds of appeal. Claim 1 differs from claim 1 of the main request in that the friction modifier component (c) has been limited to those recited in granted claim 7. Appellant II requested that this request not be admitted into the proceedings. The discretion of the board in admitting this request into proceedings is governed by Article 12(4) RPBA.

7.2 D29, filed with appellant II's statement of grounds of appeal, was the first test report which challenged the presence of the alleged effect of anti-shudder durability for fluids within the scope of claim 1 having a phosphate **di**ester (Vanlube) as component (a), the earlier test reports D25 and D26 dealing exclusively with the phosphate **mono**ester.

7.3 Consequently, in view of the filing of D29, the filing of the second auxiliary request represents a reasonable response thereto, namely an attempt to render the phosphate diester alternative of claim 1 inventive by way of restricting the friction modifier. The board consequently decided to admit the second auxiliary request into the proceedings in accordance with Article 12(4) RPBA.

8. Inventive step

8.1 This group of succinimide friction modifiers is also disclosed in the closest prior art D3 (page 3, line 4 -

20), such that the differentiating feature with the closest prior art remains the same. The effect of improved anti-shudder durability has not been demonstrated across the scope of claim 1 of this request for the same reasons as provided with respect to the main request, as demonstrated by evidence D26 and D36, both of which concern a fluid falling with the terms of claim 1 at issue. The objective technical problem consequently remains the same as for claim 1 of the main request, and the conclusions in respect of obviousness apply *mutatis mutandis*.

8.2 It follows that the subject-matter of claim 1 of the second auxiliary request lacks inventive step under Article 56 EPC.

Third auxiliary request

9. Admittance

9.1 The set of claims of the third auxiliary request was filed with appellant I's statement of grounds of appeal. Compared to claim 1 of the main request, claim 1 of this request is limited in component (a) to organic phosphates **di**esters. Appellant II requested that this request not be admitted into the proceedings. The discretion of the board in admitting this request into proceedings is governed by Article 12(4) RPBA.

9.2 The board accepts the arguments of appellant I according to which this request, which is limited to the phosphate diester, was filed in response to the first instance decision in which inventive step was denied for the phosphate monoester alternative of claim 1. The board consequently decided to admit the third

auxiliary request into the proceedings in accordance with Article 12(4) RPBA.

10. Inventive step

10.1 Since the conclusions with respect to claim 1 of the main request, supra, in view of the tests of D29 and D36 (both of which disclose fluids falling within the terms of claim 1 at issue), also apply to embodiments wherein component (a) is a phosphate diester, the same conclusions apply *mutatis mutandis* to claim 1 of this request.

10.2 It follows that the subject-matter of claim 1 of the third auxiliary request lacks inventive step under Article 56 EPC.

Fourth auxiliary request

11. Admittance

The set of claims of the fourth auxiliary request was filed with appellant I's reply to the grounds of appeal. Compared to claim 1 of the second auxiliary request, claim 1 of this request has been limited in component (a) to the phosphate diester. Appellant II requested that this request not be admitted into the proceedings. The boards decided to admit the fourth auxiliary request into the proceedings in accordance with Article 12(4) RPBA, for the same reasons as provided above for the admittance of the second auxiliary request.

12. Inventive step

Since the conclusions with respect to claim 1 of the second auxiliary request, supra, in view of the results provided by D36 (which discloses a fluid falling within the terms of claim 1 at issue) also apply to embodiments wherein component (a) is limited to a phosphate diester, the same conclusions as for claim 1 of the second auxiliary request apply *mutatis mutandis* to claim 1 of this request.

It follows that the subject-matter of claim 1 of the fourth auxiliary request lacks inventive step under Article 56 EPC.

Fifth auxiliary request

13. Inventive step

Claim 1 of the fifth auxiliary request differs from claim 1 of the third auxiliary request in a narrower definition of the organic phosphate diester component (a). In view of the fact that the tests of D29 and D36 still both disclose fluids falling within the terms of claim 1 at issue, the same conclusions as for claim 1 of the third auxiliary request apply *mutatis mutandis* to claim 1 of this request.

It follows that the subject-matter of claim 1 of the fifth auxiliary request lacks inventive step under Article 56 EPC.

Seventh auxiliary request

14. Admittance

The set of claims of the seventh auxiliary request was filed with appellant I's reply to the grounds of appeal. Appellant II requested that this request not be admitted into the proceedings. The board, exercising its discretion under Article 12(4) RPBA, decided to admitted the seventh auxiliary request into the proceedings, for the same reasons as those provided above for the admittance of the second auxiliary request.

15. Inventive step

15.1 Claim 1 of the seventh auxiliary request differs from claim 1 of the fourth auxiliary request in a narrower definition of the organic phosphate diester component (a). However, since the fluid of test D36 falls within the terms of this narrower definition, the conclusions with respect to claim 1 of the fourth auxiliary request apply *mutatis mutandis* to claim 1 of this request.

15.2 It follows that the subject-matter of claim 1 of the seventh auxiliary request lacks inventive step under Article 56 EPC.

16. In conclusion, none of the sets of claims on file fulfills the requirements of Article 56 EPC.

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:

N. Maslin M. O. Müller

Decision electronically authenticated