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Datasheet for the decision of 13 February 2026

Case Number: T 0326/24 - 3.3.03

Application Number: 17890491.8

Publication Number: 3553095

IPC: C08F36/04, C08K5/5415, C08L9/00, C08L15/00, C08K3/36, C08K3/04, B60C1/00, C08C19/22, C08C19/25, C08C19/42, C08C19/44

Language of the proceedings: EN

Title of invention:
MODIFIED CONJUGATED DIENE-BASED POLYMER AND RUBBER COMPOSITION INCLUDING THE SAME

Patent Proprietor:
LG Chem, Ltd.

Opponent:
Compagnie Générale des Etablissements Michelin

Relevant legal provisions:
EPC Art. 56, 123(2)
RPBA 2020 Art. 12(4), 12(6), 13(2)

Keyword:

Late-filed evidence - circumstances of appeal case justify admittance (yes)
Amendment after notification of communication - exceptional circumstances (no)
Inventive step - (auxiliary requests 17 and 20: no)
Amendments - extension beyond the content of the application as filed (auxiliary request 2: yes)

Decisions cited:

G 0003/89, G 0011/91, G 0002/10, T 0035/85, T 0197/86, T 1556/16

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Case Number: T 0326/24 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 13 February 2026

Appellant: (Patent Proprietor)	LG Chem, Ltd. 128, Yeoui-daero Yeongdeungpo-gu Seoul 07336 (KR)
Representative:	Plasseraud IP 104 Rue de Richelieu CS92104 75080 Paris Cedex 02 (FR)
Respondent: (Opponent)	Compagnie Générale des Etablissements Michelin 23 place des Carmes-Déchaux 63000 Clermont-Ferrand (FR)
Representative:	Regimbeau 87, rue de Sèze 69451 Lyon Cedex 06 (FR)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 3 January 2024 revoking European patent No. 3553095 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	D. Semino
Members:	O. Dury
	W. Ungler

Summary of Facts and Submissions

I. The appeal of the patent proprietor lies from the decision of the opposition division revoking European patent No 3 553 095.

II. The following documents were, among others, cited in the decision under appeal:

D16: EP 3 059 258 A1
D18: EP 1 457 501 A1

III. The decision under appeal was based on a main request and on twenty auxiliary requests, whereby:

- Auxiliary requests 2 and 20 were both filed during the oral proceedings before the opposition division held on 15 November 2023.

- Auxiliary request 17 corresponded to auxiliary request 15 filed with letter of 27 October 2023.

In this decision, the opposition division reached, among others, the following conclusions:

- Auxiliary request 2 did not meet the requirements of Article 123(2) EPC.

- The subject-matter of claim 1 of each of auxiliary requests 17 and 20 did not involve an inventive step when document D18 was taken as the closest prior art.

Further considering that all other pending requests of the patent proprietor were found to add matter, to lack novelty or to lack an inventive step, none of the patent proprietor's requests was allowable and the patent was revoked.

IV. The patent proprietor (appellant) appealed against the above decision and, together with the statement of grounds of appeal, filed new experimental data as well as submissions based thereon (statement of grounds of appeal: bottom of page 4 to bottom of page 7). These are referred to hereinafter as D32. In the statement of grounds only auxiliary requests 2, 17 and 20 "already on file" were defended by the appellant.

V. The opponent (respondent) filed a rejoinder to the statement of grounds of appeal.

VI. The parties were summoned to oral proceedings and a communication pursuant to Article 15(1) RPBA dated 7 August 2025 and indicating specific issues to be discussed at the oral proceedings, was subsequently sent to the parties.

VII. With letter of 30 January 2026, the appellant confirmed that auxiliary requests 2, 17 and 20 defended on appeal were auxiliary requests 2, 17 and 20, respectively, dealt with in the decision under appeal. In addition, the following documents were filed:

D33: H. L. Hsieh, J. Polym. Sci. Part A, 1965, Vol. 3, pages 153-161

D34: R. Kozak and M. Matlengiewicz, Int. J. Polym. Anal. Charact., 2016, Vol. 21, No 1, pages 44-58

VIII. The respondent filed further submissions with letters of 6 and 12 February 2026, the latter enclosing tables 10 and 11 of document WO 03/029299. These tables are referred to hereinafter as D36.

IX. Oral proceedings were held on 13 February 2026 in the presence of both parties.

X. **The final requests of the parties were as follows:**

(a) The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of one of auxiliary requests 17 and 20, in that order. Alternatively, they requested that the case be remitted to the opposition division for further prosecution on the basis of auxiliary request 2, provided that the Board considered the requirements of Article 123(2) EPC to be met. Auxiliarily, they requested that the patent be maintained on the basis of auxiliary request 2.

(b) The respondent requested that the appeal be dismissed.

XI. Claim 1 of **auxiliary request 17** read as follows:

"1. A modified conjugated diene-based polymer having:

a unimodal shape of gel permeation chromatography (GPC) molecular weight distribution curve,

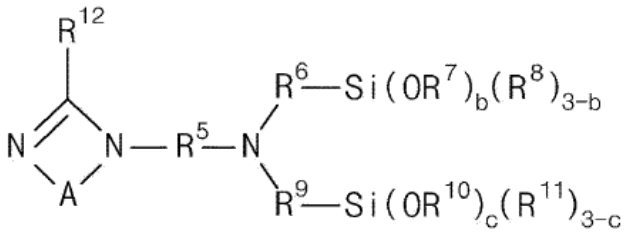
a molecular weight distribution (PDI; MWD) of 1.0 or more and less than 1.7, and

a Si content of 100 ppm or more based on weight,

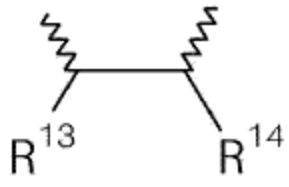
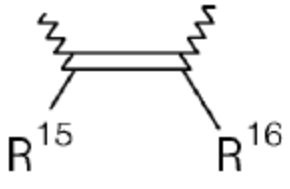
wherein the modified conjugated diene-based polymer comprises a repeating unit derived from a conjugated diene-based monomer and a functional group derived from a modifier,

wherein the modifier is a compound represented by a formula selected from:

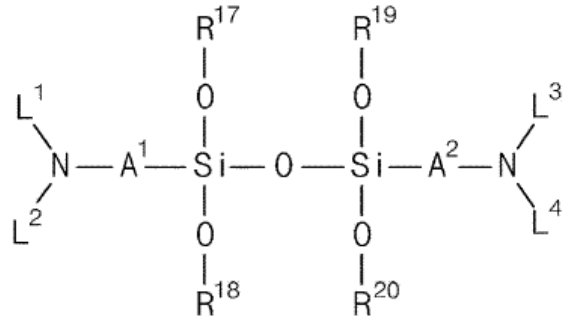
[Formula 2]



wherein R^5, R^6 and R^9 are each independently an alkylene group of 1 to 10 carbon atoms, R^7, R^8, R^{10} and R^{11} are each independently an alkyl group of 1 to 10 carbon atoms, R^{12} is hydrogen or an alkyl group of 1 to 10 carbon atoms, b and c are each independently 0, 1, 2 or 3, where $b+c \geq 1$ is satisfied,

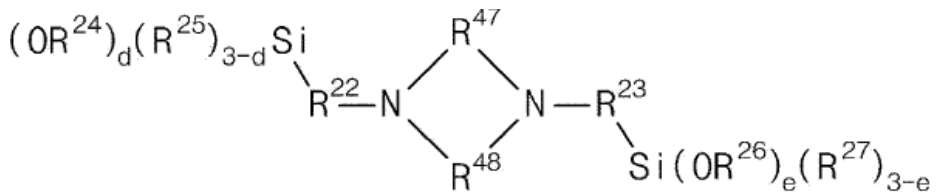
and A is  or  , where R^{13}, R^{14}, R^{15} and R^{16} is each independently hydrogen or an alkyl group of 1 to 10 carbon atoms;

[Formula 3]



wherein A^1 and A^2 are each independently a divalent hydrocarbon group of 1 to 20 carbon atoms, which contains an oxygen atom or not, R^{17} to R^{20} are each independently a monovalent hydrocarbon group of 1 to 20 carbon atoms, L^1 to L^4 are each independently a divalent, trivalent, or tetravalent alkylsilyl group which is substituted with an alkyl group of 1 to 10 carbon atoms, or a monovalent hydrocarbon group of 1 to 20 carbon atoms, or L^1 and L^2, and L^3 and L^4 are combined with each other to form a ring of 1 to 5 carbon atoms, the ring thus formed including one to three heteroatoms selected from the group consisting of N, 0 and S;

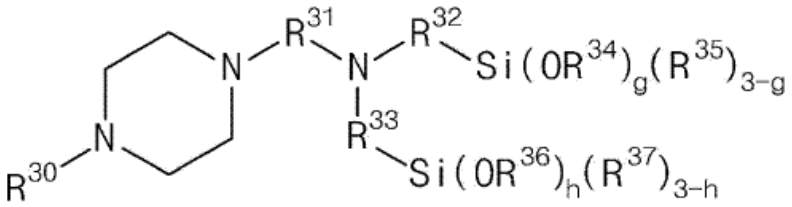
[Formula 4]



wherein R^{22} and R^{23} are each independently an alkylene group of 1 to 20 carbon atoms or $-R^{28}[OR^{29}]_f-$, R^{24} to R^{27} are each independently an alkyl group of 1 to 20

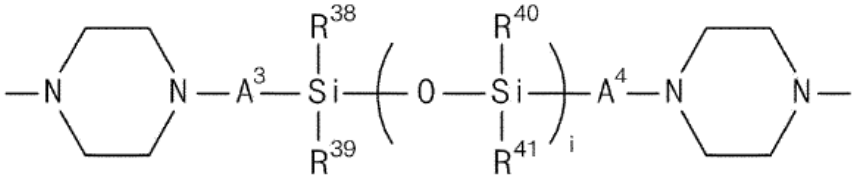
carbon atoms or an aryl group of 6 to 20 carbon atoms, R^{28} and R^{29} are each independently an alkylene group of 1 to 20 carbon atoms, R^{47} and R^{48} are each independently a divalent hydrocarbon group of 1 to 6 carbon atoms, d and e are each independently 0, or an integer selected from 1 to 3, where d+e is an integer of 1 or more, and f is an integer of 1 to 30;

[Formula 5]



wherein R^{30} is a monovalent hydrocarbon group of 1 to 30 carbon atoms, R^{31} to R^{33} are each independently an alkylene group of 1 to 10 carbon atoms, R^{34} to R^{37} are each independently an alkyl group of 1 to 10 carbon atoms, and g and h are each independently 0, or an integer selected from 1 to 3, where g+h is an integer of 1 or more;

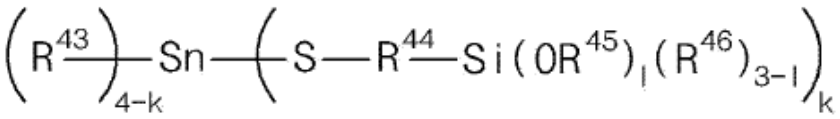
[Formula 6]



wherein A^3 and A^4 are each independently an alkylene group of 1 to 10 carbon atoms, R^{38} to R^{41} are each independently an alkyl group of 1 to 10 carbon atoms,

or an alkoxy group of 1 to 10 carbon atoms, and i is an integer selected from 1 to 30; and

[Formula 7]



wherein R^{43}, R^{45} and R^{46} are each independently an alkyl group of 1 to 10 carbon atoms, R^{44} are an alkylene group of 1 to 10 carbon atoms, and k is an integer selected from 1 to 4."

XII. Claim 1 of **auxiliary request 20** differed from claim 1 of auxiliary request 17 in that the following feature was added at the end of the claim:

"and wherein the modified conjugated diene-based polymer is a homopolymer not including a repeating unit derived from an aromatic vinyl monomer but including a repeating unit derived from a conjugated diene-based monomer."

XIII. Claim 1 of **auxiliary request 2** read as follows:

"1. A modified conjugated diene-based polymer having:

a unimodal shape of gel permeation chromatography (GPC) molecular weight distribution curve,

a molecular weight distribution (PDI; MWD) of 1.43 or more and less than 1.7, and

a Si content of 100 ppm or more based on weight,

wherein the modified conjugated diene-based polymer comprises a repeating unit derived from a conjugated diene-based monomer and a functional group derived from a modifier;

wherein the modified conjugated diene-based polymer is a homopolymer not including a repeating unit derived from an aromatic vinyl monomer but including a repeating unit derived from a conjugated diene-based monomer."

XIV. The parties' submissions, insofar as pertinent, can be derived from the reasons for the decision below. The relevant points of dispute were:

- Admittance into the proceedings of documents 32 to D34 and D36.

- Inventive step of claim 1 of each of auxiliary requests 17 and 20 when D18 was taken as the document constituting the closest prior art.

- Admittance into the proceedings of auxiliary request 2 and whether claim 1 thereof met the requirements of Article 123(2) EPC.

Reasons for the Decision

1. Admittance of D32 - Article 12(4) and (6) RPBA

1.1 The respondent requested in writing that D32 should be not admitted into the proceedings (rejoinder: second

page, second paragraph; section 3).

1.2 Considering that the filing of D32 and of the submissions based thereon with the statement of grounds of appeal constitutes an amendment to the patent proprietor's case (Article 12(2) and (4) RPBA), the admittance of D32 is subject to the stipulations of Article 12(4) to (6) RPBA.

1.3 It is apparent from the appellant's submissions that D32 was filed in support of their line of defence regarding inventive step of claim 1 of auxiliary requests 17 and 20 in view of D18 as the closest prior art, in particular regarding the issue whether a technical effect was effectively achieved over the closest prior art D18 (statement of grounds of appeal: section 2.1.c).

1.4 As outlined in the Board's communication pursuant to Article 15(1) RPBA (section 6.4.3), it can be inferred from the file history that the filing of D32 at the outset of the appeal proceedings was prompted by a late development in the case during the opposition proceedings, namely the substantiation by the opponent of an objection of lack of inventive step starting from D18 as the closest prior art for the first time shortly before the oral proceedings before the opposition division.

1.5 This view was not contested by the respondent either in writing (letters of 6 and 12 February 2026) or during the oral proceedings before the Board. In addition, the respondent explicitly indicated during the oral proceedings that they did not object to the admittance of D32 any longer (minutes: middle of page 2).

1.6 In view of the above, the Board considered it appropriate to make use of its discretion to admit D32 into the proceedings (Article 12(4) and (6) RPBA).

2. Admittance of D33 and D34 - Article 13(2) RPBA

2.1 Documents D33 and D34 were filed by the appellant with their letter of 30 January 2026. The respondent argued that these documents were late filed (letter of 6 February 2026: point 2.b; oral proceedings before the Board) and indicated that their admittance was subject to the discretion of the Board (oral proceedings).

2.2 The appellant argued that D33 and D34 merely supported their previous line of defence without altering their case or introducing new factual circumstances (letter of 30 January 2026: page 5, third full paragraph). In addition, these documents were said to illustrate what the common general knowledge was at the priority/filing date of the patent in suit regarding the general effects of solvents and polar additives on polymerisation reactions and polymer microstructure at stake in the patent in suit. Therefore, according to the appellant, the filing of D33 and D34 did not constitute an amendment to their case and there was no reason to disregard these documents.

2.3 However, pursuant to Article 12(4), first sentence, RPBA, documents that are filed for the first time in appeal constitute an amendment to a party's case. Therefore, on that basis, the appellant's argument that the filing of D33 and D34 does not constitute an amendment to their case is rejected.

2.4 Since D33 and D34 were submitted after receipt of the Board's communication, their admittance is governed by

Article 13(2) RPBA, according to which any amendment to a party's appeal case is, in principle, not taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

2.4.1 In the written submissions put forward when filing D33 and D34, the appellant did not provide any cogent reasons to justify the filing of these documents at such a late stage of the proceedings. The Board can also see no compelling reasons for this, in particular because the issue of the different solvents and polar additives used in D32 compared to the closest prior art had already been addressed by the appellant themselves at the outset of the appeal proceedings (statement of grounds of appeal: page 5, tables 1 and 2). Therefore, the appellant could and should have submitted, at that stage of the proceedings, any information they deemed relevant to support their case. In addition, considering that this issue was also addressed in the rejoinder (seventh paragraph of point 3) and in point 10.2.2 of the Board's communication dated 7 August 2025 (i.e. about six months ahead of the oral proceedings), there can be no justification for filing D33 and D34 only two weeks before the oral proceedings before the Board.

2.4.2 During the oral proceedings before the Board, the appellant acknowledged that, in the present case, there were no exceptional circumstances in the sense of Article 13(2) RPBA justifying the filing of D33 and D34 at this late stage of the proceedings. The appellant further argued that D33 and D34 had been filed in order to address concerns expressed by the Board in its communication regarding the different experimental procedures used in D32 as compared to the disclosure of

the closest prior art represented by example 28 of D18 (nature of the solvent and polar additive). However, in reply to a question from the Chairman, the appellant agreed that no new issue had been raised for the first time in the Board's communication that would have prompted the filing of D33 and/or D34. In these circumstances, the Board saw no reason to deviate from the established case law that a Board's preliminary opinion based solely on the parties' submissions cannot justify the late submission of new documents (Case Law of the Boards of Appeal of the EPO, 11th edition, 2025, V.A.4.5.5.a and f).

2.4.3 In addition, the Board considers that under Article 13(2) RPBA the decisive criteria regulating the admittance of a document filed for the first time after the Board's communication has been notified to the parties are primarily of procedural nature, i.e. the question is if the circumstances of the case justify the filing of a new document at such a late stage of the proceedings. However, for the reasons indicated above, the Board concluded that this was not the case here. In these circumstances, the questions whether or not D33 and/or D34 constituted common general knowledge or if the submissions of the appellant based on these documents merely supported their previous line of defence is/are not relevant for the decision on the admittance of these documents at the present stage of the appeal proceedings and can, therefore, remain unanswered. For the sake of completeness, it may be noted that evidence relating to common general knowledge is also subject to the same provisions governing the admittance of amendments to the case.

2.5 In view of the above, the Board cannot recognise any exceptional circumstances justifying the submission of

D33 and/or D34 at such a late stage of the appeal proceedings. Therefore, the Board decided not to take these documents into account pursuant to Article 13(2) RPBA.

3. Admittance of D36 - Article 13(2) RPBA

3.1 When questioned by the Chairman during the oral proceedings before the Board, the appellant stated that, although D36 had only been filed by the respondent one day before the oral proceedings before the Board, they had no objection regarding its admittance into the proceedings (minutes: middle of page 2). In addition, the appellant indicated that they were fully aware of the content of this document and agreed with the respondent's view that the content of D36 was part of the PCT application on which document D18 was based (as indicated in item (87) on the front page of D18).

3.2 In view of the above, not only was the question of the admittance of D36 not a point of contention between the parties but its content was undisputedly related to document D18, which had been on file since the outset of the opposition proceedings and for which there was agreement that its content was known to both parties. For these reasons, the Board decided to exercise its discretion pursuant to Article 13(2) RPBA to admit D36 into the proceedings.

Auxiliary request 17

4. Although the respondent had expressed some concerns regarding the admittance of auxiliary requests 17 and 20 in the rejoinder (see section 4 of the Board's communication), they stated during the oral proceedings

that they had no objection any more to the admittance of auxiliary request 17 (and no objection was raised in that respect to auxiliary request 20). Therefore, there is no need for the Board to address the question of the admittance of auxiliary request 17 (and 20) in the present decision.

5. Inventive step

5.1 The appellant contested the opposition division's decision that the subject-matter of claim 1 of auxiliary request 17 did not involve an inventive step when document D18 was taken as the closest prior art.

5.2 Closest prior art and distinguishing feature(s)

5.2.1 It was common ground that:

(a) D18 was a suitable document to be taken as the closest prior art for the subject-matter of claim 1 of auxiliary request 17.

(b) Example 28 of D18 was particularly relevant and could be taken as starting point for the assessment of inventive step.

(c) The subject-matter of claim 1 of auxiliary request 17 differed from the disclosure of example 28 of D18 in that the modifier defined therein was according to any of formulae 2 to 7, which did not encompass the modifier used in example 28 and specified in paragraph 262 of D18.

5.2.2 The Board has no reason to be of a different opinion. It is noted that in the statement of grounds of appeal, the appellant expressed some doubts regarding the

reliability of the data disclosed in table 10 of D18, which includes example 28 (statement of grounds of appeal: page 7, third paragraph below the table). However, this objection was not pursued further during the oral proceedings before the Board, in particular in view of the disclosure of tables 10 and 11 of D36. The Board also sees no reason to be of a different opinion and is therefore satisfied that table 10 of D18, and in particular example 28 thereof, can hereinafter be relied upon.

5.3 Technical problem solved over the closest prior art

5.3.1 The parties did not agree on how the problem effectively solved over D18 should be formulated (as an alternative or as an improvement) and reached different conclusions in that respect in the light of the experimental data contained in the patent in suit and in D32.

No improvement demonstrated by the experimental data of the patent in suit

5.3.2 The appellant did not dispute the conclusion reached by the opposition division, which was shared by the respondent, that the examples of the patent in suit did not allow to conclude that the distinguishing feature indicated in point 5.2.1.c above was related to any improvement as compared to the closest prior art (rejoinder: section 5.2.1, third paragraph below the table). In this respect, the Board notes that it was common ground between the parties (in particular during the oral proceedings before the Board) that while examples 1, 3, 5, 6 or 8 of the patent in suit illustrated the subject-matter of claim 1 of auxiliary request 17 with a modifier according to formulae 2, 3,

4 or 7 thereof, examples 2, 4, 7, 9 and 10 of the patent in suit illustrated a modified conjugated diene-based polymer that only differed from the subject-matter of said claim 1 in that the modifier used therein was according to formula 1 of paragraph 30 of the patent in suit (which is not contained in the list of modifiers of operative claim 1). In addition, the respondent's view that the modifier used in examples 2, 4, 7, 9 and 10 of the patent in suit was according to the general teaching of D18 (rejoinder: point 5.2.1, third paragraph below the table; respondent's letter of 6 February 2026: point 2.b, sixth paragraph) was not contested and the Board sees no reason to deviate from this view. In this respect, it is not disputed that no direct comparison with a modified polymer according to example 28 of D18 is made in the patent in suit and no arguments were submitted by the appellant that the experimental data of the patent in suit showed that an improvement over the closest prior art represented by example 28 of D18 was achieved. For these reasons, the Board agrees that the examples of the patent in suit do not allow to demonstrate that the above indicated distinguishing feature is related to any improvement as compared to the closest prior art.

No improvement derivable from D32

5.3.3 In the statement of grounds of appeal (section 2.1.c), the appellant argued that the experimental data of D32 showed that the above distinguishing feature was related to improvements (as compared to example 28 of D18) in terms of tensile properties and viscoelastic properties while maintaining excellent processability.

a) As indicated by the appellant, D32 is a replication of the closest prior art constituted by example 28 of

D18 under different experimental conditions (see tables 1 and 2 on page 5 of the statement of grounds of appeal). In particular, whereas example 28 of D18 is directed to the preparation of a modified conjugated diene-based homopolymer prepared from 1,3-butadiene as monomer and N,N-bis(trimethylsilyl)aminopropylmethyl-dimethoxysilane as modifier using cyclohexane as solvent and tetrahydrofuran as polar additive (see paragraphs 261-262 of D18), the replication experiments #1 and #2 of D32 are directed to the preparation of a modified conjugated diene-based homopolymer prepared from the same monomer and the same modifier as those used in example 28 of D18 but using hexane as solvent and tetramethylethylenediamine as polar additive. In that respect, it was common ground that the use of a polar additive in the polymerisation process of the polymers according to the patent in suit and D18 was well known in the art and was a means to adjust the microstructure (vinyl bond content) of the polymer being prepared (paragraph 74 of D18; paragraphs 78-79 of the patent in suit).

b) In view of the above, the supplemental examples #1 and #2 of D32 do not constitute exact replications of example 28 of D18 but modifications thereof, whereby in particular a different solvent and a different polar additive in a different amount were used (see the table at the bottom of page 5 of the statement of grounds of appeal as well as the seventh paragraph of section 3 of the rejoinder). In that regard, it was acknowledged by the appellant that the skilled person would expect that these differences in terms of solvent and polar additives would have an impact on the properties of the polymer being prepared (letter of 30 January 2026: point 5.2.1). Therefore, the replications of example 28 of D18 carried out by the appellant in D32 do not

constitute a fair rework of the disclosure of D18. In addition, in the light of these differences in the preparation processes and of the appellant's own arguments in this respect it is, in the Board's view, not surprising that the polymers prepared in the supplemental examples #1 and #2 of D32 exhibited properties that were significantly different from those of the polymer according to example 28 of D18 (in particular in terms of Mooney viscosity and vinyl content: see table 3 of D32 and section 3 of the rejoinder). Since the polymers prepared in D32 are significantly different from the one according to example 28 of D18, it cannot be considered that any effect that would be shown to be achieved over the supplemental examples #1 and #2 of D32 would also be necessarily achieved over example 28 of D18. For this reason, the data of D32 are not suitable to demonstrate that a technical effect was achieved over the closest prior art represented by example 28 of D18, in particular an effect that is causally related to the above indicated distinguishing feature.

c) It is established case law (Case Law, *supra*, I.D.4.3.2; see in particular T 35/85: section 4 of the reasons, and T 197/86: section 6.1.3 of the reasons) that the patent proprietor (here, the appellant) may discharge their onus of proof by voluntarily submitting comparative tests with newly prepared variants of the closest state of the art identifying the features common with the invention, in order to have a variant lying closer to the invention so that the advantageous effect attributable to the distinguishing feature is thereby more clearly demonstrated. In that respect, if comparative tests are chosen to demonstrate an inventive step on the basis of an improved effect over a claimed area, care should nevertheless be taken that

the nature of the comparison with the closest state of the art is such that the alleged advantage or effect is convincingly shown to have its origin in the distinguishing feature of the invention compared with the closest state of the art.

However, in the present case, the Board considers that in view of the differences in terms of processes and reaction conditions used, the replication of example 28 of D18 carried out by the appellant in D32 does not constitute a variant lying closer to the invention (as illustrated for instance by examples 1, 3, 5, 6 and 8 of the patent in suit) than example 28 of D18. In particular, the Board agrees with the respondent that the evidence on file (experimental data of the patent in suit and of D32) do not allow a fair comparison between modified conjugated diene-based polymers that differ from one another only in the above indicated distinguishing feature, namely the nature of the modifier (see rejoinder: point 5.2.1, paragraphs below the table). In particular, the examples illustrating the subject-matter being claimed and the one used for comparison by the appellant in the replication of D32 differ from one another in various aspects in addition to the above indicated distinguishing feature (compare for instance the values of Mw, MV, vinyl content of supplemental example #1 with those of examples 1, 3, 5, 6, 8 or comparative example 5 of the patent in suit that were relied upon by the appellant). On that basis, the comparison relied upon by the appellant in table 4 of D32 is not suitable to establish a causal link between the above indicated distinguishing feature and the improved properties relied upon by the appellant. Further considering that examples 1/3/5 of the patent in suit were conducted using experimental conditions (in particular regarding the molar ratio M:PA -

modifier:polar additive -) that are different from the ones used in examples 6/8 of the patent in suit, it is further questionable with which of these examples the supplemental example #1 of D32 could be fairly compared. Therefore, at least for these reasons, the Board considers that the comparison relied upon by the appellant in table 4 of D32 is not suitable to demonstrate that the above distinguishing feature can be causally related to any technical effect.

d) For these reasons, the Board arrived at the conclusion that the supplemental examples #1 and #2 contained in D32 were not suitable to demonstrate that the effects relied upon by the appellant were credibly achieved over the polymer according to example 28 of D18, which constitutes the closest prior art.

Provision of an alternative that is at least equivalent to the disclosure of the closest prior art

5.3.4 During the oral proceedings before the Board, the appellant pointed out that examples 1, 3, 5, 6 and 8 of the patent in suit showed that a modified conjugated diene-based polymer according to claim 1 of auxiliary request 17 exhibited the same beneficial combination of properties as the polymer prepared according to example 28 of D18, namely good tensile properties together with good viscoelastic properties both at low and high temperatures expressed in terms of tan δ at 0°C and tan δ at 60°C as indicated in paragraph 154 of the patent in suit (see tables 10 and 11 of D18, whereby the properties of the polymers are disclosed in terms of an Index as indicated in paragraph 232 and in the first column of table 11 of D18, taking comparative example 28 as base 100 as shown in said table 11; see also tables 4 and 5 of the patent in suit, whereby the

viscoelastic properties at 0°C and 60°C are also disclosed in terms of an Index, taking either comparative example 1 or comparative example 5 as base 100 as indicated in paragraph 154). As indicated in paragraph 158 of the patent in suit, achieving good tensile properties together with simultaneously good viscoelastic properties at both low and high temperatures was not an easy task. In particular, according to the appellant, in the present technical field the impact on the polymer properties of the nature of modifiers with different chemical structures was almost unpredictable. In addition, the comparison of for instance example 3 of the patent in suit with comparative example 4 of the patent in suit showed that this beneficial combination of properties was only obtained for polymers with a molecular weight distribution within the range of claim 1 of auxiliary request 17. Therefore, the appellant considered that even if no improvement over the closest prior art were to be acknowledged by the Board, the objective problem solved by the modified conjugated diene-based polymer according to claim 1 of auxiliary request 17 should at least be formulated as residing in the provision of other modified conjugated diene-based polymers that also exhibited good tensile properties together with good viscoelastic properties at both low and high temperatures as did the closest prior art.

In that respect, the Board is satisfied that examples 1, 3, 5, 6 and 8 of the patent in suit show that the technical problem proposed by the appellant during the oral proceedings before the Board is indeed solved, at least for modifiers according to formulae 2, 3, 4 and 7 according to claim 1 of auxiliary request 17. Although there are some doubts as to whether the same - according to the appellant's own

submissions - surprising effect is also achieved with modifiers according to formulae 5 and 6 (whose chemical structure is, in the Board's view, not so similar to that of the modifiers of formulae 2 to 4 and 7, contrary to the appellant's opinion as given during the oral proceedings), it is hereinafter considered, to the appellant's benefit, that this is the case. This means, that it is considered that the problem proposed by the appellant during the oral proceedings is credibly solved over the whole scope of the claim, i.e. for all modifiers specified therein.

5.3.5 In view of the above, the technical problem effectively solved by the subject-matter of claim 1 of auxiliary request 17 is seen as residing in the provision of other modified conjugated diene-based polymers with good tensile properties together with good viscoelastic properties both at low and high temperatures, as an alternative to the one according to example 28 of D18.

5.4 Obviousness

5.4.1 The question remains to be answered if the skilled person, desiring to solve the problem defined in above section 5.3.5, would, in view of the closest prior art, possibly in combination with other prior art or with common general knowledge, have modified the disclosure of the closest prior art in such a way as to arrive at the claimed subject-matter.

5.4.2 The respondent's objection was based on the combination of D18 with D16. According to the respondent, it would have been obvious for the skilled person starting from example 28 of D18 to solve the problem posed by replacing the modifier used therein with a modifier according to formulae 11 or 12 of D16, which both fall

within formula 2 of operative claim 1 (rejoinder: section 5.2.1; oral proceedings before the Board).

5.4.3 The appellant considered that the respondent's objection was based on hindsight, which was not allowable. During the oral proceedings before the Board, the appellant in particular pointed out that whereas example 28 of D18 was directed to a modified homopolymer based on 1,3-butadiene, all the examples of D16 were directed to modified copolymers. Therefore, for that reason alone, the combination of D18 with D16 was not obvious, so the appellant. In addition, as already indicated above in point 5.3.4, considering that the nature of the modifier had unpredictable consequences on the properties of the polymer prepared therewith, the skilled person would have refrained from using any other modifier that was not specifically disclosed in D18. According to the appellant, this was particularly true in the present case in which it was aimed at providing a polymer with at least equivalent tensile properties and viscoelastic properties both at low and high temperatures, which was known in the art to be challenging.

5.4.4 Regarding the combination of D18 with D16, the Board shares the respondent's view that, as was put forward during the oral proceedings before the Board, D18 and D16 both belong to the same technical field of modified conjugated diene-based polymers that can be suitably used in automotive tire tread having good processability as well as a good balance of mechanical and viscoelastic properties (D18: claim 1; paragraphs 1-4, 27 and examples; D16: claim 1; paragraphs 1-8, 14). It was further not disputed by the appellant that, as put forward by the respondent, D16 discloses modifiers of formulae 11 and 12 that are

according to formula 2 of claim 1 of auxiliary request 17. In addition, the respondent explained, in particular during the oral proceedings before the Board, that the experimental data of table 4 of D16 showed that the modifiers according to D16 also led to good tensile properties and viscoelastic properties both at low and high temperatures. The respondent pointed out that, as had already been indicated in writing (rejoinder: second and third last paragraphs of point 5.2.1), it had to be taken into account that whereas in the patent in suit (and in D18) the tan δ values were expressed in terms of an index (ratio of the tan δ value of an example to the one of a comparative example), the tan δ values disclosed in table 4 of D16 were absolute values. In these circumstances, and as derivable from the indication in paragraph 154 of the patent in suit and paragraphs 103-104 of D16,

- an improvement in terms of viscoelastic properties at low temperature was shown by an index value of tan δ (0°C) above 100 in the patent in suit and by a higher absolute value (as compared to the relevant comparative example) of tan δ (0°C) in table 4 of D16;

- an improvement in terms of viscoelastic properties at high temperature was shown by an index value of tan δ (60°C) above 100 in the patent in suit and by a lower absolute value (as compared to the relevant comparative example) of tan δ (60°C) in table 4 of D16.

In reply to a question from the Chairman, the appellant stated during the oral proceedings that they agreed with the above understanding of the data of the

respondent, which means that they did not pursue their written argument that the data of table 4 of D16 did not demonstrate an improvement in both tan δ (0°C) (Index) and tan δ (60°C) (Index) (statement of grounds of appeal: page 7, penultimate paragraph, last sentence). In these circumstances and in view of the evidence on file, also the Board sees no reason to be of a different opinion.

In view of the above, not only do D18 and D16 belong to the same technical field and aim at solving similar technical problems, but they also both show that the modifiers taught therein lead to the same beneficial combination of properties as those that are relevant for the technical problem to be solved. In addition, it was neither shown, nor even argued that the skilled person would have refrained from combining the teaching of D16 with that of D18 because of e.g. an incompatibility between the disclosures of these documents (for instance regarding the definition of the polymers or of the modifiers that could be suitably used). Therefore, the Board is satisfied that the skilled person aiming at solving the technical problem posed would have considered combining the teaching of D16 with that of D18.

5.4.5 Although the appellant is correct that whereas example 28 of D18 is directed to a modified 1,3-butadiene homopolymer, the examples of D16 are all directed to copolymers (letter of 30 January 2026: page 6, fourth and fifth full paragraphs), the Board agrees with the respondent that the teaching of D16 is directed to both homo- and copolymers (D16: claim 8 and paragraphs 10, 25, 26 and 35). For that reason and in the absence of any counterevidence or reasonable arguments why the skilled person would have excluded

that the teaching of D16 would also apply to homopolymers, there is no reason for the Board to consider that the teaching of D16 cannot be applied to a homopolymer according to the disclosure of example 28 of D18. As an aside, the Board considers that this conclusion is confirmed by the fact that also D18 (see claim 1, paragraph 61, examples) and the patent in suit (claim 1, paragraphs 17, 19, 21) are both directed to modified conjugated diene-based polymers that are either homo- or copolymers.

5.4.6 In addition, it was neither shown, nor even argued by the appellant that formulae 11 and 12 of D16 were incompatible with the general teaching of D18. In these circumstances, the appellant's argument that the skilled person would disregard the combination of D18 with D16 because modifiers according to formulae 11 and 12 of D16 are not explicitly disclosed in D18 is not convincing and is, therefore, rejected.

5.4.7 For these reasons, the Board considers that it would have been obvious to solve the problem posed by replacing the modifier used in example 28 of D18 by one according to formulae 11 or 12 of D16, thereby arriving at the subject-matter of claim 1 of auxiliary request 17.

5.4.8 In view of the above, the arguments provided by the appellant do not justify that the Board overturns the decision of the opposition division that claim 1 of auxiliary request 17 did not involve an inventive step when document D18 was taken as the closest prior art.

Auxiliary request 20

6. The subject-matter of claim 1 of auxiliary request 20 differs from that of claim 1 of auxiliary request 17 only in that the following was added at the end of the claim: "the modified conjugated diene-based polymer is a homopolymer not including a repeating unit derived from an aromatic vinyl monomer but including a repeating unit derived from a conjugated diene-based monomer".

7. Inventive step

7.1 The amendment made in claim 1 of auxiliary request 20 limits the scope of claim 1 of this request (compared with that of claim 1 of auxiliary request 17) in that the modified conjugated diene-based polymer being claimed must be a homopolymer (i.e. as compared to claim 1 of auxiliary request 17, copolymers are now excluded). The appellant agreed with the Board's preliminary view that this amendment does not constitute any additional distinguishing feature over the disclosure of example 28 of D18 (communication: point 12, second paragraph; appellant's letter of 30 January 2026: point 6.2, second paragraph). Therefore, the formulation of the problem solved over example 28 of D18 as the closest prior art only differs from the one considered for auxiliary request 17 in that it resides in the provision of other modified conjugated diene-based *homopolymers* with good tensile properties together with good viscoelastic properties both at low and high temperatures, in alternative to the one according to example 28 of D18.

7.2 Regarding the (non)obviousness of the solution, the sole argument put forward by the appellant was that it would not have been obvious to apply the teaching of D16, which was - in view of the examples thereof - primarily directed to copolymers, to the homopolymer according to example 28 of D18 (letter of 30 January 2026: page 6, second and third full paragraphs; oral proceedings before the Board). However, these considerations were already taken into account when assessing inventive step of claim 1 of auxiliary request 17 (see in particular point 5.4.5 above). For these reasons, claim 1 of auxiliary request 20 can only share the same fate as claim 1 of auxiliary request 17, i.e. its subject-matter does not involve an inventive step when example 28 of D18 is taken as the closest prior art.

Auxiliary request 2

8. Admittance

The admittance of auxiliary request 2 was contested by the respondent both in writing (rejoinder: section 1, third paragraph and section 4.1) and during the oral proceedings before the Board (minutes: top of page 3). After hearing both parties on these issues during the oral proceedings, the Board arrived at the conclusion that claim 1 of auxiliary request 2 did not meet the requirements of Article 123(2) EPC. In these circumstances, there is no need for the Board to address the issue of the admittance of auxiliary request 2 in the present decision.

9. Allowability - Article 123(2) EPC

9.1 The appellant contested the conclusion reached by the opposition division that claim 1 of auxiliary request 2 did not meet the requirements of Article 123(2) EPC.

9.2 For the assessment of Article 123(2) EPC, the question to be answered is whether the subject-matter of an amended claim extends beyond the content of the application as filed, i.e. whether after the amendments made the skilled person is presented with new technical information (see G 2/10, point 4.5.1 of the Reasons and Case Law, *supra*, II.E.1.1). To be allowable the amendments can only be made within the limits of what a skilled person would derive directly and unambiguously, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of the documents as filed (G 3/89; G 11/91).

9.3 In this respect, the valid text for assessing Article 123(2) EPC is not that of the A1 publication (which was considered by the opposition division in the decision under appeal and by the parties in their written submissions on appeal) but that of the application as filed (here the documents filed on 12 July 2019). Therefore, reference is made hereinafter to said application as filed (i.e. not the A1 publication).

9.4 In the decision under appeal, the opposition division held that the feature of claim 1 of the main request according to which the molecular weight distribution had to be in the range of "1.43 or more and less than 1.7" was not directly and unambiguously derivable from the application as filed because the value of the lower limit of 1.43 for the molecular weight distribution was only disclosed as an isolated value in relation to example 9 of the application as filed. According to the

opposition division, the range of molecular weight distribution now specified in claim 1 of auxiliary request 2 amounted to a non-allowable intermediate generalisation. This issue was also the sole point of contention between the parties during the appeal proceedings regarding added-matter of claim 1 of auxiliary request 2. Therefore this is the only point that needs to be addressed in the present decision.

9.5 In that respect, it was common ground that the lowest value of molecular weight distribution of 1.43 specified in claim 1 of the main request is only disclosed in the context of example 9 of the application as filed (table 2), which, as indicated by the opposition division, is a very particular example using specific reaction conditions and a specific combination of modifier and polar additive (reasons: point 9, first paragraph). The Board has no reason to be of a different opinion.

9.6 The appellant argued that the value of molecular weight distribution of example 9 of the application as filed was not inextricably linked to the polar additive used. Therefore, according to the appellant, amending the subject-matter being claimed on that basis did not lead to added-matter (statement of grounds of appeal: page 3, last paragraph).

9.6.1 However, as put forward by the respondent, the molecular weight distribution characterises the polymer being prepared and, therefore, is related to the specific reaction conditions and components used (rejoinder: section 4.2, starting at the fifth paragraph). In addition, the Board shares the respondent's view that the value of molecular weight distribution disclosed in example 9 of the application

as filed is inextricably linked to a specific value of molecular weight by weight or number (rejoinder: section 4.2, seventh paragraph), which is indicated in paragraph 26 of the application as filed to potentially affect the properties of the polymer being prepared but which is not reflected in claim 1 of auxiliary request 2. Therefore, already for this reason, there is no reason to consider that the molecular weight distribution of a specific example of the application as filed is necessarily significant for any other polymer defined at the level of generality according to claim 1 of auxiliary request 2.

9.6.2 In addition, as pointed out by the opposition division, example 9 of the application as filed is not only carried out with a specific polar additive as indicated by the appellant, but also with a specific type of modifier and using specific reaction conditions.

a) For instance, while example 9 is carried out using a specific type of modifier (namely an alkoxysilane based modifier containing a nitrogen atom according to the preferred embodiment specified in paragraph 36 of the application as filed), it is indicated in paragraph 36 of the application as filed that the nature of the modifier has an impact on the properties of the polymer being prepared. In these circumstances, there is no reason to consider that any teaching related to example 9 of the application as filed necessarily applies to any kind of modifier, in particular to modifiers defined at the level of generality specified for them in claim 1 of auxiliary request 2.

b) In addition, example 9 is directed to a process in which 60 wt.% 1,3-butadiene as the conjugated diene-based monomer is polymerised in the presence of

2.0 wt.% 1,2-butadiene, which, as put forward by the respondent during the oral proceedings before the opposition division, is used as a comonomer (minutes: page 3, lines 4-5). Although the parties disagreed whether said 1,2-butadiene is a comonomer (minutes of the oral proceedings before the opposition division: page 3, first four paragraphs), it is disclosed in paragraphs 24 and 84 of the application as filed that 1,2-butadiene is a comonomer that can be present in relatively small amounts. Under these circumstances, the Board considers that example 9 cannot be held to constitute a direct and unambiguous disclosure of a homopolymer as defined in claim 1 of auxiliary request 2. Further considering that according to paragraph 25 of the application as filed the nature of the polymer can have an impact on its properties, there is also no reason to consider that the value of molecular weight distribution of 1.43 disclosed for example 9 has any significance for homopolymers as defined in claim 1 of auxiliary request 2.

c) During the oral proceedings before the Board, the appellant argued that according to established jurisprudence (Case Law, *supra*, II.E.1.5.2.a: see the paragraph related to T 1556/16), limiting an originally disclosed broader range using an isolated value taken from an example could be allowed, if it did not present the skilled person with information going beyond the content of the original disclosure. In application of this case law to the present case, the appellant argued that the isolated value of molecular weight distribution of 1.43 disclosed for example 9 of the application as filed could be taken up in claim 1 of auxiliary request 2 without adding matter.

The Board notes that in the same passage of the Case

Law, it is indicated that the conclusion that such an amendment did not lead to added-matter was reached in T 1556/16 after a detailed analysis of the application's disclosure, as understood by the skilled person, which led the deciding Board to conclude that, in the circumstances of that case, the skilled person was not presented with new information by the particular amendment made. However, in the present case, the Board arrived, after having also considered the application as filed as a whole, at the opposite conclusion for the reasons indicated in points 9.6.1 and 9.6.2.a-b above. Therefore, the circumstances of the present case differ from those of T 1556/16 so that the conclusions reached in the latter cannot be regarded as relevant for the case in hand. Therefore, the appellant's argument based on T 1556/16 is rejected.

9.7 The appellant argued that it was indicated in paragraph 26 of the application as filed that a molecular weight distribution of less than 1.7 led to beneficial properties, whereby the molecular weight distribution was further indicated to potentially vary from 1.0 to less than 1.7 or from 1.1 to less than 1.7. On that basis and further considering that all the examples 1 to 10 of the application as filed had a molecular weight distribution in the range of 1.43 to 1.67, the application as filed provided a valid support for the range of molecular weight distribution now defined in claim 1 of auxiliary request 2, so the appellant (statement of grounds of appeal: page 4, second and third paragraphs).

However, paragraph 26 of the application as filed at most discloses a range of molecular weight distribution from e.g. 1.1 to 1.7, which is broader than the range

specified in claim 1 of auxiliary request 2 and, for that reason, cannot provide a valid support for the range now specified in claim 1 of auxiliary request 2. In addition, for the same reasons as those indicated in section 9.6.2 above, all the examples of the application as filed are directed to very specific reaction conditions (in particular to polymers prepared from 1,3-butadiene and 1,2-butadiene and which contain an alkoxysilane based modifier containing a nitrogen atom), whereby it was not shown that it could be derived from the application as filed that the skilled person would consider that any teaching related to these examples, in particular the disclosure of the molecular weight distribution of example 9, necessarily applies to polymers defined at the level of generality of claim 1 of auxiliary request 2.

9.8 During the oral proceedings, the appellant drew the Board's attention to paragraph 209 of the application as filed, in which it is indicated that "As shown in Table 1 and Table 2, the modified conjugated diene-based polymers of Examples 1 to 10 according to exemplary embodiments of the present invention were found to have a unimodal shape molecular weight distribution curve by gel permeation chromatography (see FIG. 1 and FIG. 2), PDI (molecular weight distribution) of less than 1.7, and the Si content of 100 ppm or more.". Since said paragraph 209 followed tables 1 and 2 of the application as filed, the appellant considered that it constituted a pointer to the skilled person that the modified conjugated diene-based polymers being claimed should preferably have a molecular weight distribution in the range of more than 1.43 to less than 1.7, as specified in claim 1 of auxiliary request 2.

However, the Board shares the view of the respondent that paragraph 209 is not only directed to a range of molecular weight distribution but also to a range of Si content. Therefore, should paragraph 209 of the application as filed be considered in combination with the examples of the application as filed in order to define a more limited range of molecular weight distribution, the same should be done for the range of Si content. However, since a more limited range of Si content defined on the basis of the examples of the application as filed is not reflected in claim 1 of auxiliary request 2, paragraph 209 of the application as filed cannot provide a valid support for the amendment made at the present level of generality. Therefore, the appellant's argument related to paragraph 209 of the application as filed is rejected.

9.9 For these reasons the appellant's arguments do not justify that the Board overturns the decision of the opposition division that claim 1 of auxiliary request 2 does not meet the requirements of Article 123(2) EPC.

10. Since none of the appellant's requests is allowable, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Hampe D. Semino

Decision electronically authenticated