

## Appeal decision

Appeal No. 2016-16715

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The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2014-509693, titled "TIRE WITH A TREAD COMPRISING AN EMULSION SBR HAVING A HIGH TRANS CONTENT" (WO2012/152702, international publication published on November 15, 2012 and TOKUHYO 2014-518913, national publication published on August 7, 2014) has resulted in the following appeal decision:

#### Conclusion

The appeal of the case was groundless.

#### Reason

##### No. 1 History of the Procedures

The present patent application is a patent application filed internationally on May 4, 2012 (priority claim under the Paris Convention: received on May 6, 2011 by the foreign office, France (including all overseas regions and territories) (FR)), and a written directive (double application by one applicant) with the reasons for refusal dated December 11, 2015 was issued. Then, a written amendment was submitted together with a written opinion on March 16, 2016. However, the examiner's decision of refusal was issued on July 27, 2016. The appeal against the examiner's decision of refusal was requested on November 8, 2016 and a written amendment was submitted together therewith. A reconsideration report was made on December 27, 2016. A written statement was submitted on April 17, 2017.

##### No. 2 Decision to Dismiss Amendment

[Conclusion of Decision to Dismiss Amendment]

The Amendment in the written amendment submitted on November 8, 2016 shall be dismissed.

[Reason]

#### 1. Details of Amendment

The amendment in the written amendment submitted on November 8, 2016 (hereinafter, referred to as "the Amendment") amends the statements in the scope of claims, including amending Claim 1, which has been amended by the written amendment submitted on March 16, 2016, from

"[Claim 1]

A tire whose tread comprises a rubber composition comprising at least:

- 40 to 100 phr of a styrene-butadiene copolymer emulsion 'E-SBR' as a first diene elastomer with a content of butadienyl 1,4-trans units greater than 50% by weight of the total butadienyl units;

- optionally, 0 to 60 phr of another diene elastomer as a second diene elastomer;

- 90 to 150 phr of a reinforcing inorganic filler;

and

- a plasticizing system,

wherein the plasticizing system comprises:

- a hydrocarbon resin with a content A of 10 to 60 phr and a Tg of higher than 20°C; and

- a plasticizer provided as a liquid at 20°C with a content B of 10 to 60 phr and a Tg of higher than -20°C;

- provided that A + B is 50 to 100 phr." to

"[Claim 1]

A tire whose tread comprises a rubber composition comprising at least:

- 50 to 100 phr of a styrene-butadiene copolymer emulsion 'E-SBR' as a first diene elastomer with a content of butadienyl 1,4-trans units greater than 50% by weight of the total butadienyl units;

- optionally, 0 to 50 phr of another diene elastomer as a second diene elastomer;

- 105 to 145 phr of silica;

- optionally, less than 10 phr of carbon black;

and

- a plasticizing system,

wherein the plasticizing system comprises:

- a hydrocarbon resin with a content A of 10 to 60 phr and a Tg of higher than 20°C; and

- a plasticizer provided as a liquid at 20°C with a content B of 10 to 60 phr and a Tg of lower than -20°C;  
- provided that A + B is 50 to 100 phr, wherein,  
as the second diene elastomer, one containing 35 to 50 phr of polybutadiene (BR) is excluded." (the amended portions are underlined).

## 2. The Purpose of the Amendment and Existence or Nonexistence of New Matters therein

Since the Amendment was made at the same time as the request for trial, the Amendment is to be limited to one aimed at one of the matters prescribed in Article 17-2(5)(i) to (iv) of the Patent Act.

The purpose of the Amendment is discussed below.

The Amendment includes amendments of the constituent elements recited in Claim 1 of the scope of claims by restricting the content of the styrene-butadiene copolymer emulsion 'E-SBR' as the first diene elastomer from "40 to 100 phr" to "50 to 100 phr," restricting the content of the other diene elastomer as the second diene elastomer from "0 to 60 phr" to "0 to 50 phr," restricting the second diene elastomer by excluding "one containing 35 to 50 phr of polybutadiene (BR)," restricting the reinforcing inorganic filler to "silica" as well as restricting the content thereof from "90 to 150 phr" to "105 to 145 phr," and restricting the content of optional carbon black to "less than 10 phr."

The Amendment limits the matters necessary for specifying the invention recited in Claim 1 of the scope of the claims before amendment. The Field of Industrial Application and the Problem to be Solved by the Invention for the invention recited in the claim after the amendment are the same as those for the invention recited in the claim before the amendment. Therefore, the aim of the Amendment is to restrict the scope of claims by limitation stipulated in Article 17-2(5)(ii) of the Patent Act.

Furthermore, since the Amendment is based on the statements of paragraphs [0007], [0010], [0011], and so on of the specification originally affixed to the application (hereinafter, referred to as "the original Description"), the Amendment is obviously within the scope of the matters stated in the original Description.

Therefore, the Amendment is intended for the restriction of the scope of claims by limitation stipulated in Article 17-2(5)(ii) of the Patent Act and meets the requirements stipulated in Article 17-2(3) of the Patent Act.

## 3. Consideration on Requirement to be independently patentable

As stated above, the purpose of the Amendment is to restrict the scope of claims by limitation. Therefore, it will be examined below whether or not the invention recited

in Claim 1 of the scope of claims amended by the Amendment (hereinafter referred to as "Amended Invention") has to be independently patentable, as stipulated in Article 126(7) which is applied mutatis mutandis pursuant to the provisions of Article 17-2(6) of the Patent Act.

(1) Amended Invention

Amended Invention is specified by the matters stated in Claim 1 of the scope of claims amended by the Amendment and recognized as stated in the above No. 2 1. as follows:

"[Claim 1]

A tire whose tread comprises a rubber composition comprising at least:

- 50 to 100 phr of a styrene-butadiene copolymer emulsion "E-SBR" as a first diene elastomer with a content of butadienyl 1,4-trans units greater than 50% by weight of the total butadienyl units;

- optionally, 0 to 50 phr of another diene elastomer as a second diene elastomer;

- 105 to 145 phr of silica;

- optionally, less than 10 phr of carbon black;

and

- a plasticizing system,

wherein the plasticizing system comprises:

- a hydrocarbon resin with a content A of 10 to 60 phr and a Tg of higher than 20°C; and

- a plasticizer provided as a liquid at 20°C with a content B of 10 to 60 phr and a Tg of lower than -20°C;

- provided that A + B is 50 to 100 phr, wherein,

as the second diene elastomer, one containing 35 to 50 phr of polybutadiene (BR) is excluded."

(2) Publication and Described matters in Publication

Japanese Translation of PCT International Application Publication No. 2004-518806, which is a publication distributed before the Priority date (hereinafter, referred to as "Publication 1" (corresponding to Cited Document 1 in the original examination), states as follows (underlined by the body)

(2-1) "[Claim 1]

A cross-linkable or cross-linked rubber composition which is usable for constituting a tire tread,

the composition being based on one or more diene elastomers and comprises at least one hydrocarbon plasticizing resin miscible in the diene elastomer, the resin having a glass transition temperature (Tg) of 10°C to 150°C and a number-average molecular weight of 400 g/mol to 2000 g/mol, wherein the rubber composition comprises: 5 phr to 35 phr (phr: parts by mass per 100 parts of elastomer(s)) of the hydrocarbon plasticizing resin; more than 50 phr and less or equal to 100 phr of one or more diene elastomer having a glass transition temperature (Tg) of -65°C to -10°C; and 0 phr or more and less than 50 phr of one or more diene elastomers having a glass transition temperature (Tg) of -110°C to -80°C.

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[Claim 5]

The rubber composition according to any one of Claims 1 to 3, wherein the composition comprises a blend of the diene elastomer having a Tg of -65°C to -10°C and the diene elastomer having a Tg of -110°C to -80°C.

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[Claim 7]

The rubber composition according to Claim 5, comprising a blend of at least one polybutadiene having a cis-1,4 linkage content of greater than 90% as the diene elastomer having a Tg of -110°C to -80°C and at least one emulsion-prepared styrene-butadiene copolymer as the diene elastomer having a Tg of -65°C to -10°C.

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[Claim 9]

The rubber composition according to any one of Claims 1 to 8, wherein the hydrocarbon plasticizing resin has a glass transition temperature of 30°C to 100°C.

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[Claim 12]

The rubber composition according to any one of Claim 1 to 11, further comprising one or more paraffinic or aromatic type plasticizing oils in a total quantity less than or equal to 30 phr.

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[Claim 14]

The rubber composition according to any one of Claims 1 to 12, comprising a reinforcing white filler as the reinforcing filler.

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[Claim 16]

A tread for a tire comprising a rubber composition according to any one of Claims 1 to 15.

[Claim 17]

A tire of passenger-vehicle or of heavy-vehicle type comprising a tread according to Claim 16." (Claims 1, 5, 7, 9, 12, 14, 16, and 17)

(2-2) "[0001]

(Field of the Invention)

The present invention relates to a cross-linkable or cross-linked rubber composition which is usable to constitute a tread of a tire, to such a tread having in particular improved wear resistance, and to a tire incorporating this tread. The invention relates in particular to tires of passenger-vehicle or of heavy-vehicle type." (paragraph [0001])

(2-3) "--- The object of the present invention is to solve this situation. This is achieved by the applicant's recent unexpected discovery that a combination of: more than 50 phr and less than or equal to 100 phr of one or more diene elastomer having a glass transition temperature (T<sub>g</sub>) of -65°C to -10°C; 0 phr or more and less than 50 phr of one or more diene elastomers having a glass transition temperature (T<sub>g</sub>) of -110°C to -80°C; and at least one hydrocarbon plasticizing resin miscible in the diene elastomer in amount from 5 to 35 phr and having a glass transition temperature of 10°C to 150°C and a number-average molecular weight of 400 g/mol to 2000 g/mol enables obtainment of a cross-linkable or cross-linked rubber composition which is usable for constituting a tire tread having improved wear resistance in comparison to known tires, the treads of which comprise a plasticizing oil as plasticizer, while imparting to the tires incorporating the composition a rolling resistance and a grip on dry and damp ground which are close to those of the known tires." (paragraph [0002])

(2-4) "--- The composition according to the invention comprises a reinforcing filler which may present in a quantity varying from 50 to 150 phr in the composition. ---

--- Preferably, all or at least a majority proportion of the reinforcing white filler is silica (SiO<sub>2</sub>). ---" (paragraphs [0007] and [0009])

(2-5) "[0030]

[Examples]

Example 1

A "control" rubber composition T1 and a rubber composition in accordance with the invention I1 were prepared, each being intended to constitute a tread of a "passenger-vehicle"-type tire.

Table 1 below contains:

- 1) the formulation of each of these compositions T1 and I1;
- 2) the properties of each of the composition in the non-vulcanized and vulcanized states;
- 3) the performances of tires, the respective treads of which are formed of these compositions T1 and I1.

[0031]

[Table 1]

Table 1



	組成物 T 1	組成物 I 1
組成		
エラストマーマトリックス	E-SBR A(60phr) E-SBR B(20phr) BR-A(20phr)	E-SBR A(80phr) BR-A(20phr)
強化充填剤	カーボンブラックN234(80phr)	カーボンブラックN134(80phr)
合計芳香族油	46 phr	30 phr
可塑化用樹脂 R 1	0 phr	16 phr
ステアリン酸 / ZnO	1 phr / 2.5 phr	0.5 phr / 2.5 phr
耐酸化剤(6PPD)	2 phr	2.4 phr
硫黄 / 促進剤(CBS)°	1.4 phr / 1.4 phr	1.4 phr / 1.4 phr
性質		
ML (1+4) (100℃)	83	90
ショアー A	60	60
ME100 (23℃)	1.18	1.17
HL (60℃) (%)	41.2	42.6
10Hzで、0.2MPa及び0.7MPaの応力での動的性質		
Tg (0.2MPaでのMDC) (℃)	-39.5	-40.0
Tg (0.7MPaでのMDC) (℃)	-19.3	-19.2
タイヤの機能 (175/70 R14 "MXT")		
耐摩耗性 (7℃で、24%の湿潤路面上、Citroen Xantia 1.8 l車)	100	105
グリップ(at 23℃、Renault Laguna 2 l車)		
乾燥地面ブレーキ (ABS)	100	100
乾燥地面ブレーキ (車輪固定)	100	100
湿った地面ブレーキ(ABS)		
湿った地面ブレーキ(車輪固定)	100	104
	100	101
湿潤路面での挙動 (13℃で、Golf 75車)	100	102
ローリング抵抗 (11.1 kg / ton)	100	99

組成物 T 1          COMPOSITION T1

組成物 I 1          COMPOSITION I1

組成      Formulation

エラストマーマトリックス          Elastomeric matrix

強化充填剤          Reinforcing filler

合計芳香族油 Total aromatic oil

可塑化用樹脂 R 1 Plasticizing resin R1

ステアリン酸／ZnO Stearic acid/ZnO

耐酸化剤(6PPD) Antioxidants (6 PPD)

硫黄／促進剤(CBS)° Sulphur/accelerator (CBS)°

カーボンブラック N234(80phr) Carbon Black N234 (80 phr)

カーボンブラック N134(80phr) Carbon Black N134 (80 phr)

性質 Properties

ショアーA Shore A

10 Hz で、0.2 MPa 及び 0.7 MPa の応力での動的性質 Dynamic properties at 10 Hz, at 0.2 MPa, and at 0.7 MPa stress

Tg (0.2 MPa での MDC) (°C) Tg (MDC at 0.2 MPa) (°C)

Tg (0.7 MPa での MDC) (°C) Tg (MDC at 0.7 MPa) (°C)

タイヤの機能 Performances of the tires

耐摩耗性 (7°C で、24% 湿潤路面上、Citroen Xantia 1.8 1 車)

Wear resistance (at 7°C on wet ground at 24%, for a motor car Citroen Xantia 1.81)

グリップ (at 23°C、Renault Laguna 2 1 車) Grip (at 23°C for a motor car Renault Laguna 21)

乾燥地面ブレーキ (ABS) Braking dry ground (ABS)

乾燥地面ブレーキ (車輪固定) Braking dry ground (wheels locked)

湿った地面ブレーキ (ABS) Braking wet ground (ABS)

湿った地面ブレーキ (車輪固定) Braking wet ground (wheels locked)

湿潤路面での挙動 (13°C で、Golf 75 車) Behavior on wet ground (at 13°C, for a motor car Golf 75)

ローリング抵抗 (11.1 kg/ton) Rolling resistance (11.1 kg/ton)

[0032]

E-SBR A: A styrene-butadiene copolymer prepared in emulsion having a 1,2 linkage content of 14.9%, a 1,4 linkage content of 13.0%, a trans linkage content of 72.1%, a styrene linkage content of 23.9%, a Mooney viscosity ML(1+4) at 100°C which was equal to 46, a quantity of oil equal to 38.1 phr, and a glass transition temperature Tg of -53°C.

E-SBR B: A styrene-butadiene copolymer prepared in emulsion having a 1,2 linkage content of 14.2%, a 1,4 linkage content of 14.2%, a trans linkage content of 71.6%,

a styrene linkage content of 38.3%, a Mooney viscosity ML(1+4) at 100°C which is equal to 54.5, a quantity of oil equal to 37.9 phr, and a glass transition temperature Tg of -36°C. BR-A is a polybutadiene having a cis-1,4 linkage content of approximately 93%, and a glass transition temperature Tg of -103°C.

Plasticizing resin R1 is a resin sold by HERCULES under the name "R2495", having: an aliphatic linkage content of 97%, an aromatic linkage content of 0%, number-average (Mn) and weight-average (Mw) molecular weights respectively of 820 g/mol and 1060 g/mol, and a glass transition temperature Tg of 88°C.

6PPD: N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine, and

CBS: N-cyclohexyl-benzothiazyl sulphenamide.

[0033]

It will be noted that the Tg of the composition I1 according to the invention under a dynamic stress of high modulus (0.7 MPa) was made substantially equal to the corresponding Tg of the "control" composition T1.

As can be seen in Table 1, the variance (0.5°C) between the Tg of the compositions I1 and T1 which were measured at a dynamic stress of reduced modulus, equal to 0.2 MPa, was very close to the variance (0.1°C) between the Tg of said compositions I1 and T1 which were measured under said stress of high modulus.

This absence of discrepancy between the Tg when passing from a stress of high modulus to a stress of reduced modulus conveys that the resin R1 is readily miscible in the elastomeric matrix constituted by E-SBR A and BR-A.

The performance results of the tires show that the incorporation of a plasticizing resin of a Tg equal to 88°C and of an Mn equal to 820 g/mol in the tread composition I1 comprising carbon black as reinforcing filler enables improvement of the wear resistance and the grip on damp ground of a tire (the tread of which is formed of said composition I1) (the behavior on wet ground of a vehicle fitted with such tires was also improved), due to the aforementioned miscibility of the resin according to the invention, without adversely affecting the grip on dry ground and the rolling resistance of these tires.

It will be noted that this composition I1 comprises plasticizing oil in a quantity which was significantly reduced compared with that which characterizes the composition T1." (paragraphs [0030] to [0033])

### (3) Invention disclosed in Publication 1

Publication 1 can be recognized as one that states that the problem to be solved by the invention is to provide a cross-linkable or cross-linked rubber composition, which can be used for a tire tread, with improved wear resistance, rolling resistance, and a grip

on dry and damp ground (Indications (2-2) and (2-3)), and also states Indications (2-1) and (2-4) organized as the following invention (hereinafter referred to as "Cited Invention"):

"A tire of passenger-vehicle or of heavy-vehicle type using a rubber composition in a tire tread, wherein the rubber composition is a cross-linkable or cross-linked rubber composition which is usable for constituting the tire tread, the composition being based on one or more diene elastomers and comprises at least one hydrocarbon plasticizing resin miscible in the diene elastomer, the resin having a glass transition temperature (T<sub>g</sub>) of 30°C to 100°C and a number-average molecular weight of 400 g/mol to 2000 g/mol, wherein the composition comprises: 5 phr to 35 phr (phr: parts by mass per 100 parts of elastomer(s)) of the hydrocarbon plasticizing resin; an emulsion-prepared styrene-butadiene copolymer in a quantity more than 50 phr and less or equal to 100 phr having a glass transition temperature (T<sub>g</sub>) of -65°C to -10°C; and polybutadiene in a quantity 0 phr or more and less than 50 phr having a cis-1,4 linkage content of greater than 90% and having a glass transition temperature (T<sub>g</sub>) of -110°C to -80°C, wherein the composition further comprises: paraffinic or aromatic plasticizing oils in total quantity of less than or equal to 30 phr in the composition; and silica as a reinforcing white filler in a quantity varying from 50 to 150 phr in the composition."

#### (4) Comparison/Judgment

##### (4-1) Comparison between Amended Invention and Cited Invention

"A cross-linkable or cross-linked rubber composition which is usable for constituting the tire tread," "a hydrocarbon plasticizing resin" having "a glass transition temperature (T<sub>g</sub>) of 30°C to 100°C," "an emulsion-prepared styrene-butadiene copolymer in a quantity more than 50 phr and less or equal to 100 phr," "polybutadiene having a cis-1,4 linkage content of greater than 95% in a quantity 0 phr or more and less than 50 phr," "paraffinic or aromatic plasticizing oils," "silica as a reinforcing white filler," and "a tire" in Cited Invention respectively correspond to "a rubber composition," "a hydrocarbon resin having a T<sub>g</sub> of greater than 20°C," "50 to 100 phr" of "a styrene-butadiene copolymer emulsion 'E-SBR'," "0 to 50 phr of another diene elastomer as a second diene elastomer," "a plasticizer as a liquid at 20°C," "silica," and "a tire" in Amended Invention.

In addition, the blending amount of the hydrocarbon plasticizing resin in the Cited Invention is 5 to 35 phr, whereas the content A of the hydrocarbon resin is 10 to 60 phr in Amended Invention. Thus, the two numerical ranges overlap and correspond to each other.

Furthermore, the blending amount of the plasticizing oil in the Cited Invention is 30 phr or less, whereas the content B of the plasticizer as a liquid at 20°C is 10 to 60 phr in Amended Invention. Thus, the two numerical ranges overlap and correspond to each other.

The total blending amount of the hydrocarbon plasticizing resin and the plasticizer as a liquid at 20°C in the Cited Invention takes a numerical range of 5 to 65 phr, corresponding to the total blending amount of the blending amount of 5 to 35 phr of the hydrocarbon plasticizing resin and 30 phr or less of the plasticizing oil, whereas the total A + B of the contents A and B of the hydrocarbon resins is 50 to 100 phr in the Amended Invention. The two numerical ranges overlap and correspond to each other in the range of 50 to 65 phr.

The blending amount of silica in the Cited Invention is 50 to 150 phr, whereas the blending amount of silica in the Amended Invention is 105 to 145 phr. Thus, the two numerical ranges overlap and correspond to each other.

The blending amount of the carbon black in the Cited Invention is 0 phr.

The "hydrocarbon plasticizing resin" in the Cited Invention is miscible with the diene elastomer and has a number average molecular weight of 400 g/mol to 2000 g/mol. In view of the statement of Claim 1, the hydrocarbon resin in the Amended Invention is miscible with the diene elastomer and does not exclude the hydrocarbon resin having a number average molecular weight of 400 g/mol to 2000 g/mol. In this respect, therefore, the Cited Invention is not different from the Amended Invention.

In the Cited Invention, furthermore, the "emulsion-prepared styrene-butadiene copolymer" has a glass transition temperature (T<sub>g</sub>) of -65°C to -10°C, whereas the "polybutadiene having a cis-1,4 linkage content of greater than 95%" has a glass transition temperature (T<sub>g</sub>) of -110°C to -80°C. In the Amended Invention, likewise, "a styrene-butadiene copolymer emulsion 'E-SBR'" and "0 to 50 phr of another diene elastomer as a second diene elastomer" do not exclude copolymers or elastomers having the above specific T<sub>g</sub>. In this respect, therefore, the Cited Invention and the Amended Invention are not different from each other.

Furthermore, the "tire" in the Cited Invention is of passenger-vehicle or of heavy-vehicle type, whereas the word "tire" recited in the Amended Invention does not exclude any of tires of passenger-vehicle or of heavy-vehicle type. In this respect, therefore, the Cited Invention and the Amended Invention are not different from each other.

Hence, the Amended Invention and the Cited Invention correspond to each other in the following points:

"A tire whose tread comprises a rubber composition comprising at least:

- 50 to 100 phr of a styrene-butadiene copolymer emulsion "E-SBR" as a first diene elastomer;

- 0 to 50 phr of another diene elastomer as a second diene elastomer;

- 105 to 145 phr of silica;

- 0 phr of carbon black

and

- a plasticizing system, wherein

the plasticizing system comprises:

- a hydrocarbon resin with a content A of 10 to 35 phr and a Tg of higher than 20°C; and

- a plasticizer provided as a liquid at 20°C with a content B of 10 to 30 phr,

- provided that A + B is 50 to 65 phr."

The Invention and the Cited invention tentatively differ from each other in the following Different Features 1 to 3:

- Different Feature 1: The Amended Invention specifies the first diene elastomer as one having a content of butadienyl 1,4-trans units more than 50% by mass of the entire butadienyl units, whereas there is no such specified matter in the Cited Invention.

- Different Feature 2: Amended Invention specifies that the glass transition temperature (Tg) of the plasticizer as a liquid at 20°C is lower than -20°C, whereas the Cited Invention does not include such a specified matter.

- Different Feature 3: Amended Invention specifies that as the second diene elastomer, one containing 35 to 50 phr of polybutadiene (BR) is excluded, whereas the Cited Invention does not include such a specified matter.

(4-2) Examination on Different Feature 1

Different Feature 1 will now be discussed below.

Indication (2-5) of Publication 1 includes an emulsion-prepared styrene-butadiene copolymer (E-SBR A) having a trans linkage content of 72.1% as a specific example (COMPOSITION I1) of the emulsion-prepared styrene-butadiene copolymer specified in Claims 5 and 7 of Publication 1.

Therefore, Different Feature 1 is not a substantial difference, or even if it is substantial, those skilled in the art could easily conceive the feature according to Indication (2-5).

#### (4-3) Examination on Different Feature 2

Different Feature 2 will now be discussed below.

As a paraffinic or aromatic plasticizing oil used in the rubber composition of a tire tread, one having a Tg of  $-20^{\circ}\text{C}$  or less was a well-known technical matter (U.S. Patent No. 7259205 (corresponding to Cited Document 5 in the original examination), a table in column 4, lines 21-35; International Publication No. WO2011 / 000797 (corresponding to Cited Document 6 in the original examination), claim 15, page 13, lines 16-18; Japanese Patent Application Publication No. 2007-84626, paragraph [0019]; and Japanese patent Application Publication No. 2008-150426, paragraphs [0002] and [0010]), Those skilled in the art could easily conceive of applying the above known technical matter to a plasticizing oil in the Cited Invention to make it having a Tg of  $-20^{\circ}\text{C}$  or less.

In the Cited Invention, any effect obtained by using a plasticizing oil having a Tg of  $-20^{\circ}\text{C}$  or less cannot be regarded as a particularly distinguishing effect.

#### (4-4) Examination on Different Feature 3

Different Feature 3 will be discussed below.

Indication (2-5) of Publication 1 states an example including 80 phr of E-SBR A as "an emulsion-prepared styrene-butadiene copolymer having a glass transition temperature (Tg) of  $-65^{\circ}\text{C}$  to  $-10^{\circ}\text{C}$ " and 20 phr of BR-A as "polybutadiene in a quantity having a cis-1,4 linkage content of greater than 90% and having a glass transition temperature (Tg) of  $-110^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$ ," which are included in the Amended Invention.

Since the example includes 20 phr of polybutadiene, Different Feature 3 cannot be said to be substantial. In addition, even if it is substantial, it is not possible to recognize special technical significance or critical significance carried out by the Amended Invention which defines the numerical range. Therefore, those skilled in the art could easily arrive at the polybutadiene content within the numerical range of 0 to 35 phr based on the numerical range of "0 phr or more and less than 50 phr" of the polybutadiene content according to the above example, as specified in the Amended Invention.

#### (5) Summary

As stated above, the Amended Invention could be easily invented by those skilled in the art based on the Cited Invention and known technical matters. Therefore, the appellant should not be granted a patent independently at the time of patent application under the provisions of Article 29(2) of the Patent Act.

#### 4. Conclusion of Decision to Dismiss Amendment

As stated above, since the Amendment violates the provisions of Article 126(7) of the Patent Act which is applied *mutatis mutandis* pursuant to the provisions of 17-2(6) of the Patent Act, the Amendment shall be dismissed under the provisions of Article 53(1) of the Patent Act applied *mutatis mutandis* by replacing certain terms pursuant to Article 159(1) of the Patent Act.

Therefore, the decision is made in accordance to the Conclusion of Decision to Dismiss Amendment.

#### No. 3 Appellant's allegation

The Appellant argues in the written demand for trial, "4 (2) (i) Combination of Cited Document 1 and Cited Documents 5 to 7," as stated below. Cited Document 1 discloses that silica and carbon black are equivalent as a reinforcing filler used in combination with S-SBR or E-SBR. Based on Cited Document 1, those skilled in the art could not easily conceive of the Amended Invention that defines distinguish the amount of silica and the amount of carbon black as reinforcing fillers to be combined with E-SBR to fall within their respective specific ranges. The specification of the patent application discloses that the wet grip performance is improved when using E-SBR compared to using S-SBR in combination with silica and carbon black in their respective specific ranges. Therefore, such an effect is an advantageous effect that could not be predicted by those skilled in the art from the disclosed contents of Cited Document 1.

In short, the Appellant's assertion can be said to assert the establishment of a selective invention in which an unpredictable effect is obtained by combining E-SBR with the specific blending amounts of silica and carbon black in a rubber composition.

However, from the experimental data in the specification, it is not possible to recognize a specific effect due to the combination of the above materials. Comparing the compositions C.2 and C.3 in the specification of the patent application, it can be recognized that braking on wet roads can be further improved while keeping rolling resistance by C.3 using the emulsion SBR (E-SBR) than by C.2 using the solution SBR (S-SBR). In this case, however, the blending amounts of both silica and carbon black are the same. Therefore, this experimental data only shows that braking on wet roads is



better with E-SBR than with S-SBR. The effect cannot be recognized as a unique effect by combining E-SBR with the specific blending amounts of silica and carbon black.

Based on the above understanding, the Amended Invention will be examined in more detail as to whether or not a selection invention is established for Publication 1.

Indication (2-5) of Publication 1 states COMPOSITION I1 in which 80 phr of E-SBR is mixed in the composition as Example 1. Then, a tire using the composition has good braking performance on wet ground and good rolling resistance. It can be therefore said that the effects produced by Amended Invention are the obvious effects produced by the Example 1.

In this regard, the Appellant asserts that Example 1 does not show E-SBR and the specific blending amount of silica. It can be recognized that the effects of Amended Invention are the effects of using E-SBR instead of S-SBR. However, as stated above, it is not recognized that the effects are unique due to the combination of E-SBR and the specific blending amount of silica.

Furthermore, Claim 2 of Publication 1 states, in parallel, an emulsion-prepared styrene-butadiene copolymer and a styrene-butadiene copolymer prepared in solution as a diene elastomer having a Tg of  $-65^{\circ}\text{C}$  to  $-10^{\circ}\text{C}$ . In Examples of Publication 1, both the example with E-SBR and the example of S-SBR can be found.

However, as stated above, Publication 1 also states the actual use of E-SBR in a specific example. The invention disclosed in Publication 1 is considered to feature improvements in rolling resistance and wet-grip performance as stated in Indications (2-3) and (2-5). In other words, the problem to be solved by the invention in Publication 1 is similar to the one solved by Amended Invention of the patent application. For the purpose of improving rolling resistance and wet-grip performance, those skilled in the art could easily select and use E-SBR as a diene elastomer by performing experiments or the like in Publication 1. Therefore, no effect on this point can be recognized as an unpredictable one.

As stated above, therefore, the Amended Invention cannot be recognized as a selection invention for the invention disclosed in Publication 1 with respect to the matters including E-SBR and silica. Thus, these matters cannot be recognized as substantially different features.

Therefore, the Appellant's arguments stated above cannot be accepted.

#### No. 4 The Invention of the Patent Application

As stated above, the written amendment dated on November 8, 2016 has been dismissed.

The inventions recited in Claims 1 to 12 of the patent application are recognized as those specified by the matters stated in Claim 1 to 12 of the scope of claims amended by the written amendment submitted on March 16, 2016. Thus, the invention recited in Claim 1 (hereinafter, referred to as "the Invention of the patent application" or "the Invention") is recognized as follows:

"[Claim 1]

A tire whose tread comprises a rubber composition comprising at least:

- 40 to 100 phr of a styrene-butadiene copolymer emulsion 'E-SBR' as a first diene elastomer with a content of butadienyl 1,4-trans units greater than 50% by weight of the total butadienyl units;
  - optionally, 0 to 60 phr of another diene elastomer as a second diene elastomer;
  - 90 to 150 phr of a reinforcing inorganic filler; and
  - a plasticizing system,
- wherein the plasticizing system comprises:
- a hydrocarbon resin with a content A of 10 to 60 phr and having a Tg of higher than 20°C;
  - a plasticizer provided as a liquid at 20°C with a content B of 10 to 60 phr and having a Tg of lower than -20°C;
  - provided that A + B is 50 to 100 phr."

#### No. 5 Summary of Reasons for Refusal of the Examiner's Decision

For this, the summary of the reasons for refusal notified on December 11, 2015 is that the Invention of the patent application could have been easily invented by those skilled in the art based on the invention disclosed in Publication 1 (Japanese Translation of PCT International Application Publication No. 2004-518806) and the technical matters known in the art. Thus, the appellant should not be granted a patent for the Invention in accordance with the provisions of Article 29(2) of the Patent Act.

#### No. 6 Judgement by the Body

Publication 1 describes the matters stated in the above No. 2.3(2) and the invention stated in the above No. 2.3(3).

The Amended Invention stated in the above No. 2.3 (1) restricts the Invention of the patent application by limitation. In other words, therefore, the Invention of the patent application evidently includes the above Amended Invention.

Therefore, the Amended Invention including all the matters specifying the Invention of the patent application and subjected to further limitative restriction could be easily invented by those skilled in the art based on the Cited Invention and technical matters known in the art as stated in the above No. 2.3(4) and (5). For the same reason, therefore, the Invention of the patent application could also be easily invented by those skilled in the art based on the Cited Invention and matters known in the art.

#### No. 7 Closing

As stated above, the appellant should not be granted a patent for the Invention of the patent application; i.e., the invention recited in Claim 1 of the patent application, under the provisions of Article 29(2) of the Patent Act. Due to this reason, therefore, the application should be rejected without examining inventions recited in other claims.

Hence, the appeal decision shall be made as described in the conclusion.

October 2, 2017

Chief administrative judge: OSHIMA Shogo  
Administrative judge: KATO Tomoya  
Administrative judge: HORI Hiroki