Trial decision

Invalidation No. 2014-800141

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The case of trial for invalidation of Japanese Patent No. 4587606, entitled “Flame-retardant polycarbonate resin composition" between the parties above has resulted in the following conclusion:

Conclusion
1 The correction shall be approved in accordance with the corrected description and scope of claims attached to the written correction request as to each group of claims.
2 The demand for trial of the case shall be groundless.
3 The costs in connection with the trial shall be borne by the demandant.

Reason
No. 1 Demand

The demandant demands the trial decision that the patent for the inventions according to Claims 1 to 7 of Patent No. 4587606 shall be invalidated, and the costs in connection with the trial shall be borne by the demandee.

No. 2 Main history of the procedures:

1 The demandee is a patentee regarding Japanese Patent No. 4587606 (The number of Claims is 7, hereinafter referred to as the "Patent"), entitled “Flame-retardant polycarbonate resin composition". The patent application of the Patent was filed on June 27, 2001 (Japanese Patent Application No. 2001-194654), and the establishment of patent right was registered on September 17, 2010.

2(1) On August 28, 2014, the demandant demanded trial for patent invalidation against the inventions according to Claims 1 to 7 of the Patent (hereinafter referred to as the "Patent 1" to "Patent 7" respectively.) In replay to this, the demandee submitted a written reply and a written correction request of the scope of claims and the description of the Patent on November 17, 2014. In reply to this, the demandant submitted a

written refutation of a trial case on January 5, 2015.
(2) On February 3, 2015, the chief administrative judge in charge notified both parties of matters to be examined on the oral proceeding (i.e. notification of trial examination). In reply to this, the demandant submitted an oral proceedings statement brief on March 13, 2015 (amended by a written statement dated March 27, 2015), and the demandee submitted an oral proceedings statement brief on the same day.
(3) First oral proceeding was held on March 27, 2015 in the presence of the attorneys of the demandant and the attorneys of the demandee.

3 Advance notice of the trial decision dated April 15, 2015 under the provisions of Article 164-2(1) of the Patent Act was notified.

4(1) The demandee submitted a written statement and a written correction request to amend the description and scope of claims of the Patent on June 22, 2015 (hereinafter referred to as the "Correction of the case"). With the Correction of the case, the request for correction with the written correction request on November 17, 2014 shall be deemed withdrawn (Article 134-2(6) of the Patent Act).
(2) On June 29, 2015, the chief administrative judge asked the demandant whether there were opinions regarding request for Correction of the case, then the demandant submitted a written refutation of the trial case on July 30, 2015.

No. 3 Correction of the case
1 Demand of Correction by demandee

The demand is shown in Conclusion 1 above. That is, the demandee requests to amend the description and scope of claims attached to the application in accordance with the corrected description and scope of claims attached to the written correction request as to each group of claims.

2 Summary of correction

According to the description of written correction request, the correction requested by the demandee is essentially as follows.

(1) Correction A

To amend Claim 1 as follows.

- Before amendment

"A flame-retardant polycarbonate resin composition comprising:
(A) 100 parts by weight of a polycarbonate resin,

(B) 1 to 4.5 parts by weight of a polyorganosiloxane-containing graft copolymer obtained by polymerizing at least one vinyl monomer (b-2) in the presence of polyorganosiloxane particles (b-1),
(C) 0.05 to 1 part by weight of a fluororesin, and
(D) 0 to 2 parts by weight of an antioxidant,

wherein the content of silicon is 0.3 to 1.5% by weight with respect to 100% by weight of the total content of the resin composition."

- After amendment

"A flame-retardant polycarbonate resin composition comprising:
(A) 100 parts by weight of a polycarbonate resin,
(B) 1 to 3 parts by weight of a polyorganosiloxane-containing graft copolymer obtained by polymerizing at least one vinyl monomer (b-2) in the presence of polyorganosiloxane particles (b-1),
(C) 0.05 to 1 part by weight of a fluororesin, and
(D) 0 to 2 parts by weight of an antioxidant,

wherein the polyorganosiloxane particles (b-1) have an average particle diameter of 0.008 to 0.6 μm, and the content of silicon is 0.7 to 1.5% by weight with respect to 100% by weight of the total content of the resin composition."

(2) Correction B

To amend Claim 2 as follows.

- Before amendment

"The flame-retardant polycarbonate resin composition according to Claim 1, wherein the polyorganosiloxane particles (b-1) have an average particle diameter of 0.008 to 0.6 μm."

- After amendment

"The flame-retardant polycarbonate resin composition according to Claim 1, wherein the polyorganosiloxane particles (b-1) have an average particle diameter of 0.008 to 0.6 μm, and the polyorganosiloxane-containing graft copolymer is a graft copolymer obtained by polymerizing 60 to 10% by weight of the vinyl monomer (b-2) in the presence of 40 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight)."

(3) Correction C

To amend Claim 4 as follows.

- Before amendment

"The flame-retardant polycarbonate resin composition according to Claim 1 or 2, wherein the polyorganosiloxane-containing graft copolymer is a graft copolymer obtained by polymerizing 60 to 10% by weight of the vinyl monomer (b-2) in the presence of 40 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight)."

- After amendment

"The flame-retardant polycarbonate resin composition according to Claim 1 or 2, wherein the polyorganosiloxane-containing graft copolymer is a graft copolymer obtained by polymerizing 40 to 10% by weight of the vinyl monomer (b-2) in the presence of 60 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight)."

(4) Correction D

To amend Claims 2 to 7, which are dependent on Claim 1, Claims 3 to 5 and 7, which are dependent on Claim 2, and Claims 5 and 7, which are dependent on Claim 4, in accordance with Corrections A to C above.

(5) Correction E

To amend paragraph [0009] in the description as follows.

- Before amendment

"That is to say, the present invention is related to
a flame-retardant polycarbonate resin composition comprising:
(A) 100 parts by weight of a polycarbonate resin,
(B) 1 to 4.5 parts by weight of a polyorganosiloxane-containing graft copolymer obtained by polymerizing at least one vinyl monomer (b-2) in the presence of polyorganosiloxane particles (b-1),
(C) 0.05 to 1 part by weight of a fluororesin, and
(D) 0 to 2 parts by weight of an antioxidant,
wherein the content of silicon is 0.3 to 1.5% by weight with respect to 100% by weight of the total content of the resin composition (Claim 1),
the flame-retardant polycarbonate resin composition according to Claim 1,
wherein the polyorganosiloxane particles (b-1) have an average particle diameter of 0.008 to 0.6 μm (Claim 2),
the flame-retardant polycarbonate resin composition according to Claim 1 or 2,
wherein the polyorganosiloxane particles have coefficient of variation of 10 to 70% (Claim 3),

the flame-retardant polycarbonate resin composition according to Claim 1 or 2,
wherein the polyorganosiloxane-containing graft copolymer is a graft copolymer obtained by polymerizing 60 to 10% by weight of the vinyl monomer (b-2) in the presence of 40 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight) (Claim 4),
the flame-retardant polycarbonate resin composition according to Claim 1, 2, or 4,
wherein the polyorganosiloxane particles (b-1) are in the form of a latex (Claim 5),
the flame-retardant polycarbonate resin composition according to Claim 1,
wherein the vinyl monomer (b-2) has a solubility parameter of 9.15 to 10.15 $(\text{cal/cm}^3)^{1/2}$ (Claim 6), and
the flame-retardant polycarbonate resin composition according to Claim 1, 2, 4, or 5,
wherein the vinyl monomer (b-2) is at least one monomer selected from the group consisting of an aromatic vinyl monomer, a vinyl cyanide monomer, a (meth)acrylic ester monomer, and a carboxyl-containing vinyl monomer (Claim 7)."

- After amendment

"That is to say, the present invention relates to
a flame-retardant polycarbonate resin composition comprising:
(A) 100 parts by weight of a polycarbonate resin,
(B) 1 to 3 parts by weight of a polyorganosiloxane-containing graft copolymer obtained by polymerizing at least one vinyl monomer (b-2) in the presence of polyorganosiloxane particles (b-1),
(C) 0.05 to 1 part by weight of a fluororesin, and
(D) 0 to 2 parts by weight of an antioxidant,
wherein the polyorganosiloxane particles (b-1) have an average particle diameter of 0.008 to 0.6 μm, and the content of silicon is 0.7 to 1.5% by weight with respect to 100% by weight of the total content of the resin composition (Claim 1),
the flame-retardant polycarbonate resin composition according to Claim 1,
wherein the polyorganosiloxane particles (b-1) have an average particle diameter of 0.008 to 0.6 μm, and the polyorganosiloxane-containing graft copolymer is a graft copolymer obtained by polymerizing 60 to 10% by weight of the vinyl monomer (b-2) in the presence of 40 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight) (Claim 2),
the flame-retardant polycarbonate resin composition according to Claim 1 or 2,
wherein the polyorganosiloxane particles have coefficient of variation of 10 to 70% (Claim 3),
the flame-retardant polycarbonate resin composition according to Claim 1 or 2,

wherein the polyorganosiloxane-containing graft copolymer is a graft copolymer obtained by polymerizing 40 to 10% by weight of the vinyl monomer (b-2) in the presence of 60 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight) (Claim 4),
the flame-retardant polycarbonate resin composition according to Claim 1, 2, or 4, wherein the polyorganosiloxane particles (b-1) are in the form of a latex (Claim 5),
the flame-retardant polycarbonate resin composition according to Claim 1,
wherein the vinyl monomer (b-2) has a solubility parameter of 9.15 to 10.15 $(cal/cm^3)^{1/2}$ (Claim 6), and
the flame-retardant polycarbonate resin composition according to Claim 1, 2, 4, or 5, wherein the vinyl monomer (b-2) is at least one monomer selected from the group consisting of an aromatic vinyl monomer, a vinyl cyanide monomer, a (meth)acrylic ester monomer, and a carboxyl-containing vinyl monomer (Claim 7)."

(6) Correction F

To amend paragraph [0076] in the description as follows.

- Before amendment

"The results are shown in Table 3."

- After amendment

"The results are shown in Table 3. Example 6 is a reference example."

3 Judgment on suitability of Corrections of the case

(1) Regarding Correction A

A In accordance with Correction A,

(i) regarding the "polyorganosiloxane particles (b-1)", which is the matter specifying the invention of Claim 1, it is limited to the "polyorganosiloxane particles (b-1)" having an average particle diameter of "0.008 to 0.6 μm" while its average particle diameter is not specified before Correction,

(ii) regarding the content of the polyorganosiloxane-containing graft copolymer (B), it is limited to "1 to 3 parts by weight" while it is "1 to 4.5 parts by weight" before Correction, and,

(iii) regarding the ratio of the content of silicon with respect to 100% by weight of the total content of the resin composition, it is limited to of "0.3 to 1.5% by weight" while it is "0.7 to 1.5% by weight" before Correction.

Thus, the purpose of the correction is restriction of the scope of Claims. Besides, the corresponding matters are described, before Correction, in Claim 2 according to the scope of claims and paragraph [0059] in the description attached to the application, for example.

B Therefore, it can be concluded that the purpose of Correction A is restriction of the scope of claims, Correction A is conducted within the scope of the matters disclosed in the description or the scope of claims attached to the application, and it does not substantially enlarge or change the scope of the claims.

(2) Regarding Correction B

A In accordance with Correction B, regarding "polyorganosiloxane-containing graft copolymer", which is the matter specifying the invention according to Claim 1 on which Claim 2 is dependent, the correction is to limit "polyorganosiloxane-containing graft copolymer” to be a graft copolymer obtained by polymerizing 60 to 10% by weight of the vinyl monomer (b-2) in the presence of 40 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight).

Thus, the purpose of correction is restriction of the scope of claims. Besides, the structure relating to such limitation is described, before Correction, in paragraph [0040] in the description attached to the application, for example.

B Therefore, it can be concluded that he purpose of Correction B is restriction of the scope of claims, Correction B is conducted within the scope of the matters described in the description or the scope of claims attached to the application, and it does not substantially enlarge or change the scope of the claims.

(3) Regarding Correction C

A In accordance with Correction C, regarding the lower limit of an amount (% by mass) of the "polyorganosiloxane particles (b-1)", which is the matter specifying the invention according to Claim 4, it is limited to "60" from "40", and regarding the upper limit of an amount (% by mass) of the "vinyl monomer (b-2)", it is limited to "40" from “60”.

Thus, the purpose of Correction C is restriction of the scope of the claims. Besides, the structure relating to such limitation is described, before Correction, in paragraph [0040] in the description attached to the application, for example.

B Therefore, it can be concluded that the purpose of Correction C is restriction of the scope of claims, Correction C is conducted within the scope of the matters described in the description or the scope of claims attached to the application, and it does not substantially enlarge or change the scope of the claims.

(4) Regarding Correction D

With reasons similar to the reasons examined in (1) to (3) above, the purpose of Correction D complies with matters in accordance with item (i) of the proviso to Article 134-2(1) of the Patent Act, and it can be said that Correction D does not violate the provisions of Article 126(5) and 126(6) of the Patent Act which are applied mutatis mutandis pursuant to the provisions of Article 134-2(9).

(5) Regarding Corrections E and F

The corrections are to provide consistency between description of paragraphs [0009] and [0076] in the description and description of the scope of claims.
Thus, the purpose of Corrections E and F are clarification of ambiguous description, Corrections E and F are conducted within the scope of the matters described in the description or the scope of claims attached to the application, and they do not substantially enlarge or change the scope of the claims.

(6) Summary

As described in (1) to (5) above, the purpose of the corrections according to the Corrections A to F complies with the matters in accordance with item (i) or (iii) of the proviso to Article 134-2(1) of the Patent Act, and the corrections do not violate the provisions of Article 126(5) and 126(6) of the Patent Act which are applied mutatis mutandis pursuant to the provisions of Article 134-2(9).

Therefore, as described in Conclusion 1 above, the Corrections of the case shall be approved.

No. 4 Summary of respective inventions of the case

Since the Corrections of the case shall be approved as described in No. 3 above, the inventions of the Patent to be referred in the trial decision are the inventions after Correction of the case.
Thus, they are specified by the matters described in Claims 1 to 7 according to the scope of claims as follows. (Hereinafter, referred to each invention as the "Corrected invention 1 of the case" according to claim number, and collectively referred to inventions according to Claims 1 to 7 as the "Corrected invention of the case", in some cases.).

"[Claim 1]

A flame-retardant polycarbonate resin composition comprising:
(A) 100 parts by weight of a polycarbonate resin,
(B) 1 to 3 parts by weight of a polyorganosiloxane-containing graft copolymer obtained

by polymerizing at least one vinyl monomer (b-2) in the presence of polyorganosiloxane particles (b-1),

(C) 0.05 to 1 part by weight of a fluororesin, and

(D) 0 to 2 parts by weight of an antioxidant,

wherein the polyorganosiloxane particles (b-1) have an average particle diameter of 0.008 to 0.6 μm, and the content of silicon is 0.7 to 1.5% by weight with respect to 100% by weight of the total content of the resin composition.

[Claim 2]

The flame-retardant polycarbonate resin composition according to Claim 1,

wherein the polyorganosiloxane particles (b-1) have an average particle diameter of 0.008 to 0.6 μm, and the polyorganosiloxane-containing graft copolymer is a graft copolymer obtained by polymerizing 60 to 10% by weight of the vinyl monomer (b-2) in the presence of 40 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight).

[Claim 3]

The flame-retardant polycarbonate resin composition according to Claim 1 or 2,

wherein the polyorganosiloxane particles have coefficient of variation of 10 to 70%.

[Claim 4]

The flame-retardant polycarbonate resin composition according to Claim 1 or 2,

wherein the polyorganosiloxane-containing graft copolymer is a graft copolymer obtained by polymerizing 40 to 10% by weight of the vinyl monomer (b-2) in the presence of 60 to 90% by weight of the polyorganosiloxane particles (b-1) (total 100% by weight).

[Claim 5]

The flame-retardant polycarbonate resin composition according to Claim 1, 2, or 4,

wherein the polyorganosiloxane particles (b-1) are in the form of a latex.

[Claim 6]

The flame-retardant polycarbonate resin composition according to Claim 1,

wherein the vinyl monomer (b-2) has a solubility parameter of 9.15 to 10.15 $(cal/cm^3)^{1/2}$.

[Claim 7]

The flame-retardant polycarbonate resin composition according to Claim 1, 2, 4, or 5,

wherein the vinyl monomer (b-2) is at least one monomer selected from the group consisting of an aromatic vinyl monomer, a vinyl cyanide monomer, a (meth)acrylic ester monomer, and a carboxyl-containing vinyl monomer."

No. 5 Decision on acceptance or non-acceptance of amendment of statement of the demand and allegation by parties

1 Decision on acceptance or non-acceptance of amendment

Amendment of the statement of the demand according to the written refutation of the trial case submitted by the demandant on July 30, 2015 (allegation to add reasons for invalidation of the violations of enablement requirement and support requirement, pp. 8 to 12) shall not be accepted (Article 131-2(2) of the Patent Act).

2 Demandant's allegation as to reasons for invalidation

As already notified in the notification of trial examination, the demandant insists that there are the following reasons for invalidation;

Reason 1: regarding novelty and inventive step based on Exhibit A No. 1 which is a primarily cited document,

Reason 2: regarding novelty and inventive step based on Exhibit A No. 5 which is a primarily cited document,

Reason 3: regarding so-called practicability requirement, and

Reason 4: regarding so-called support requirement.

As described in (1) to (2) below, the demandant insists that Patents 1 to 7 shall be invalidated in accordance with Reason 2 under the provisions of Article 123(1)(ii) of the Patent Act.

The demandant withdraws the allegation regarding the Reasons 1, 3, and 4 for invalidation (see first oral proceeding record or according to all contents of allegation).

The demandant submitted documentary evidences, Exhibit A No. 5 to A No. 14 as described in (3) below. The demandant withdraws Exhibit A No. 1 to A No. 4 (see first oral proceeding record).

(Note by the body: While the demandant alleges lack of novelty (applicability to Article 29(1)(iii) of the Patent Act) and lack of inventive step (satisfaction of requirements for Article 29(2) of the Patent Act) as the Reason 2 for invalidation, for the convenience of trial decision, hereinafter, the reason for invalidation relating to novelty is referred as the "Reason 2A for invalidation", and the reason for invalidation relating to inventive step is referred as the "Reason 2B for invalidation".)

(1) Reason 2A for invalidation (lack of novelty)

Since the Corrected inventions 1 to 7 of the case falls under the provisions of Article 29(1)(iii) of the Patent Act, the demandee should not be granted a patent for the Corrected inventions 1 to 7 of the case. That is, the Corrected inventions 1 to 7 of the case are disclosed in Exhibit A No. 5.

(2) Reason 2B for invalidation (lack of inventive step)

Even if it can be said that the Reason 2A for invalidation is groundless, the demandee should not be granted a patent for the Corrected inventions 1 to 7 of the case under the provisions of Article 29(2) of the Patent Act. That is, a person skilled in the art could easily arrive at the Corrected inventions 1 to 7 of the case on the basis of the invention disclosed in Exhibit A No. 5.

(3) Lists of exhibits

- Exhibit A No. 5 Japanese Unexamined Patent Application Publication No. H8-259791
- Exhibit A No. 6 Certificate ② of experimental results prepared by Sohei UEKI, sub-chief researcher, Resin Development Center, Otake Research Laboratories, Mitsubishi Rayon Co., Ltd, March 11, 2014
- Exhibit A No. 7 Japanese Unexamined Patent Application Publication No. H9-286911
- Exhibit A No. 8 Japanese Unexamined Patent Application Publication No. H10-130484
- Exhibit A No. 9 Japanese Unexamined Patent Application Publication No. H11-349796
- Exhibit A No. 10 Certificate ③ of experimental results prepared by Yuichiro FUJIKAWA, researcher, Resin Development Center, Otake Research Laboratories, Mitsubishi Rayon Co., Ltd., March 11, 2015
- Exhibit A No. 11 Certificate ④ of experimental results prepared by Yuichiro FUJIKAWA, researcher, Resin Development Center, Otake Research Laboratories, Mitsubishi Rayon Co., Ltd., March 25, 2015
- Exhibit A No. 12 "Guide for plastics/ Materials and Sub-materials" edited by Kaoru YOSHIMOTO, Industrial research Co., Ltd., November 15, 1974
- Exhibit A No. 13 "Handbook for flame-retardant materials -problems and techniques for flame- retardant treatment- (supervised by Hitoshi NISHIZAWA and Kunihiko TAKEDA), Technonet Co., Ltd., May 25, 2002
- Exhibit A No. 14 Certificate ⑤ of experimental results prepared by Yuichiro FUJIKAWA, researcher, Resin Development Center, Otake Research Laboratories, Mitsubishi Rayon Co., Ltd., July 30, 2015

3 The demandee's allegation

The demandee requests the trial decision that "The demand for trial of the case be groundless. The costs in connection with the trial shall be borne by the demandant", and alleges that neither Reasons 2A or 2B for invalidation alleged by the demandant have grounds.

The demandee accepts the withdrawal by the demandant's allegation according to 2 above (see first oral proceeding record).

No. 6 Judgment by the body

The body understands neither Reasons 2A or 2B for invalidation regarding the Patent have grounds as mentioned below.

1 Regarding Corrected invention of the case

(1) Summary of Corrected inventions of the case

As is in No. 4 above.

(2) Problems to be solved, technical significance of Corrected inventions of the case, etc.

A Regarding the Corrected invention 1 of the case, which is independent, there are the following descriptions in corrected descriptions. (Underlines added by the body, the same shall apply hereinafter.)

"[Background Art]

Polycarbonate resins are extensively used as electrical/electronic parts, in OA apparatus and domestic articles, and as building materials by virtue of their excellent properties including impact resistance, heat resistance, and electrical properties. Polycarbonate resins have higher flame retardancy than polystyrene resins and other resins. However, attempts are being made to improve the flame retardancy of polycarbonate resins by the addition of various flame retardants so as to make the resins suitable for use in applications where high flame retardancy is required, mainly in the field of electrical/electronic parts, OA apparatus, etc. For example, organic halogen compounds and organophosphorus compounds have been added extensively. However, most of the organic halogen compounds and organophosphorus compounds have a problem concerning toxicity and, in particular, the organic halogen compounds have a problem that they generate a corrosive gas upon combustion. Because of these reasons, there recently is a growing desire for a technique for imparting flame retardancy with a nonhalogenated phosphorus-free flame retardant.

Use of polyorganosiloxane compounds (also called silicones) as nonhalogenated phosphorus-free flame retardants has been proposed. ...

Recently, it has been noted that a polyorganosiloxane-containing graft copolymer has effect for providing high flame retardancy compared with the silicone resin. ..."

([0002] to [0004])

"[Problem to be solved by the invention]

However, in flame-retardant polycarbonate resin compositions described in prior art documents, 5 parts by weight or more of a polyorganosiloxane-containing graft copolymer with respect to 100 parts by weight of a polycarbonate resin is required in order to obtain high flame retardancy. Thus, there was the problem that, when using a large amount of the polyorganosiloxane-containing graft copolymer, cost of a flame-retardant composition was increased and mold processability was poor."

([0007])

"[Means for solving the problem]

The present inventors have conducted repeated painstaking studies about the problems, and as a result, they have found that a resin composition comprising a polycarbonate resin, a polyorganosiloxane-containing graft copolymer, a fluororesin, and an antioxidant, in which the content of silicon in the resin composition is prepared to a specific amount, has high flame retardancy even though the content of the polyorganosiloxane-containing graft copolymer is smaller than the conventional one, and the resin composition is a flame-retardant polycarbonate resin composition advantageous in cost and mold processability." ([0008])

"The polyorganosiloxane-containing graft copolymer (B) is an ingredient serving as a flame retardant. It is obtained by polymerizing at least one vinyl monomer (b-2) in the presence of polyorganosiloxane particles (b-1).

The polyorganosiloxane particles (b-1) to be used for producing the polyorganosiloxane-containing graft copolymer (B) have an average particle diameter, as determined by the light scattering method or electron microscopy, of preferably 0.008 to 0.6 μm, more preferably 0.008 to 0.2 μm, even more preferably 0.01 to 0.15 μm, most preferably 0.01 to 0.1 μm, from the standpoint of imparting flame retardancy. Polyorganosiloxane particles having an average particle diameter smaller than 0.008 μm are difficult to obtain. On the other hand, use of polyorganosiloxane particles having an average particle diameter exceeding 0.6 μm tends to result in impaired flame retardancy. The polyorganosiloxane particles have desirably been regulated so as to have a particle diameter distribution in which the coefficient of variation [100×(standard deviation)/(average particle diameter)] (%) is preferably 10 to 70%, more preferably 20 to 60%, most preferably 20 to 50%, from the standpoint of enabling the resin composition of the invention, which contains the flame retardant, to produce a molding having a satisfactory surface appearance.

The term "polyorganosiloxane particles (b-1)" is used herein as a conception which includes not only particles made of a polyorganosiloxane alone but also particles made of a modified polyorganosiloxane containing up to 5% of one or more other (co)polymers. Namely, the polyorganosiloxane particles may contain, for example, poly(butyl acrylate), a butyl acrylate-styrene copolymer, or the like therein in an amount of up to 5%." ([0012] to [0014])

"For the graft polymerization, normal seed emulsion polymerization can be employed and radical polymerization of the vinyl monomer (b-2) can be conducted in the latex of polyorganosiloxane particles (b-1). The vinyl monomer (b-2) can be polymerized in one step or in two or more steps." ([0043])

"The fluororesin (C), which is a polymer resin having fluorine atoms, is an ingredient serving as an antidripping agent during burning. ..." ([0057])

The antioxidant (D) in the invention is an ingredient used not only for inhibiting the resin from oxidatively decomposing during molding but also for improving flame retardancy. ..." ([0058])

"The flame-retardant polycarbonate resin composition of the invention is obtained by compounding 100 parts of the polycarbonate resin (A) with 1 to 4.5 parts, preferably 2 to 3 parts, of the polyorganosiloxane-containing graft copolymer (B), 0.05 to 1 part, preferably 0.1 to 0.5 parts, of the fluororesin (C), and 0 to 2 parts, preferably 0.1 to 1 part, of the antioxidant (D). With respect to the total amount of 100% of the composition, it is required to prepare the composition of a polyorganosiloxane-containing graft copolymer so that the content of silicon is 0.3 to 1.5%, preferably 0.7 to 1.4%. When the amount of the polyorganosiloxane-containing graft copolymer (B) is too small, the content of silicon in the composition tends to be too small and the flame retardancy tends to become poor. When the amount of the polyorganosiloxane-containing graft copolymer (B) is too large, the content of silicon in the composition tends to be too large, the mold processability tends to be poor, and the value in the market tends to be decreased. The content of silicon can be analyzed by an elementary analysis method. When the amount of the fluororesin (C) is too small, the flame retardancy tends to be poor; on the other hand, when the amount is too large, the surface of a molded article tends to be a rough surface. When the amount of an antioxidant (D) is too small, effect for improving flame retardancy tends to be poor; on the other hand, when the amount is too large, the mold processability tends to be poor." ([0059])

"Compounding ingredients for general use can be added in producing the composition. Examples thereof include plasticizers, stabilizers, lubricants, ultraviolet absorbers, pigments, glass fibers, fillers, polymeric processing aids, polymeric lubricants, and impact modifiers. Preferred examples of the polymeric processing aids include methacrylate (co)polymers such as methyl methacrylate-butyl acrylate copolymers. Preferred examples of the impact modifiers include butadiene rubber impact modifiers (MBS resins), butyl acrylate rubber impact modifiers, and impact modifiers based on a butyl acrylate rubber/silicone rubber composite. One or more other flame retardants may also be used. Preferred examples of the flame retardants which may be used in combination with the flame retardant according to the invention include phosphorus compounds such as triphenyl phosphate, polyphosphates, and stabilized red phosphorus, triazine compounds such as cyanuric acid and melamine cyanurate, and boron compounds such as boron oxide and zinc borate. The amount of such compounding ingredients to be used is preferably 0.1 to 20 parts, more preferably 0.2 to 10 parts, most preferably 0.3 to 5 parts, with respect to 100 parts of the thermoplastic resin from the standpoint of an effect-cost balance." ([0061])

"[Average Particle Diameter]

Polyorganosiloxane particles and a graft copolymer both in a latex form were examined for average particle diameter. Each particulate material was analyzed with MICROTRAC UPA, manufactured by LEED & NORTHRUP INSTRUMENTS, by the light scattering method to determine the number-average particle diameter (μm) and the coefficient of variation of the particle diameter distribution (100×standard deviation/number-average particle diameter) (%).

[Content of silicon]

The content of silicon in the polyorganosiloxane-containing graft copolymer was calculated from the fed amount and polymerization conversion ratio, and the content of silicon in the composition was calculated from the content above and the ratios of the composition. ..." ([0066])

B As described in A above, as for the Corrected inventions of the case (especially, Corrected invention 1 of the case), the following matters are recognized.

(a) Regarding a polycarbonate resin, recently there is a growing desire for a technique for imparting flame retardancy with a nonhalogenated phosphorus-free flame retardant; use of polyorganosiloxane compounds (silicones) has been suggested, and it has been noted that a polyorganosiloxane-containing graft copolymer has an effect for providing high flame retardancy compared with the silicone resin. On the other hand, 5 parts by weight or more of a polyorganosiloxane-containing graft copolymer with respect to 100 parts by weight of a polycarbonate resin is required to obtain high flame retardancy. Thus, there was the problem that, when using a large amount of the polyorganosiloxane-containing graft copolymer, cost of a flame-retardant composition was increased and the mold processability was poor.

(b) A resin composition of the Corrected invention 1 of the case comprises a polycarbonate resin, a polyorganosiloxane-containing graft copolymer, a fluororesin, and an antioxidant. Even if the content of the polyorganosiloxane-containing graft copolymer is 1 to 3 parts by weight, using a polyorganosiloxane-containing graft copolymer in which the content of silicon in the resin composition with respect to the total content of the composition of 100% by weight is 0.7 to 1.5% by weight solves the problem described in (a) above, that is to say, a smaller amount of the polyorganosiloxane-containing graft copolymer compared with conventional ones exhibits high flame retardancy, and the resin composition is advantageous in cost and mold processability.

Further, the fluororesin in the Corrected invention 1 of the case is a component used as an anti-drip agent during burning. Considering that when the amount is too small, the flame retardancy tends to become poor, and when the amount is too large, the surface of a molded article tends to be a rough surface, the content of fluororesin with respect to 100 parts by weight of a polycarbonate resin is 0.05 to 1 part by weight.

In addition, the polyorganosiloxane-containing graft copolymer is used in the Corrected invention 1 of the case as a flame retardant. Regarding the polyorganosiloxane particles used in the polyorganosiloxane-containing graft copolymer, the average particle diameter of less than 0.008 μm is difficult to attain; on the other hand, the average particle diameter of over 0.6 μm tends to make the flame retardancy impaired, and thus the average particle diameter of the polyorganosiloxane particles is 0.008 to 0.6 μm.

(c) Taking into consideration the description of paragraph [0061] in the description, it can be said that the resin composition of the Corrected invention 1 of the case does not exclude the addition of phosphorus compounds such as triphenyl phosphate as an optional component.

(d) As described above, in the Corrected invention 1 of the case, even if the content of the polyorganosiloxane-containing graft copolymer is 1 to 3 parts by weight, using a polyorganosiloxane-containing graft copolymer in which the content of silicon in the resin composition with respect to the total content of the composition of 100% by weight is 0.7 to 1.5% by weight solves the problem. However, with respect to specifying the content of the polyorganosiloxane-containing graft copolymer to 1 to 3 parts by weight, even if taking into consideration the description after correction, critical significances of the upper and lower limits cannot be found. Comparing Examples 1 to 5 with Comparative Examples 1 to 7, it can be understood that when the content of the polyorganosiloxane-containing graft copolymer is "0.5 part by weight" (Comparative Examples 1 to 5), there is a problem in the flame retardancy; on the other hand, when the content is "6 parts by weight" (Comparative Example 6), there is a problem in mold processability. However, these comparative examples do not satisfy the content of silicon in the resin composition of "0.7 to 1.5% by weight", which is the matter specifying the Corrected invention 1 of the case.

2 Regarding exhibits

(1) Description of Exhibit A No. 5

In Exhibit A No. 5, which is a publication distributed in Japan before the application of the Patent, there are the following descriptions.

"[Claim 1] A flame-retardant resin composition comprising , with respect to 100 parts by weight of (A) a polycarbonate resin, 1 to 20 parts by weight of (B) a phosphate ester compound, and (C) 0.1 to 50 parts by weight of a composite rubber-based graft copolymer,

wherein the composite rubber-based graft copolymer is obtained by graft polymerization of at least one vinyl monomer in a composite rubber,

wherein the composite rubber comprises 30 to 99% by weight of a polyorganosiloxane component and 70 to 1% by weight of a polyalkyl(meth)acrylate rubber component, and the total content of the polyorganosiloxane component and polyalkyl(meth)acrylate rubber component is 100% by weight." ([Scope of claims])

"[Means for solving the problem] The present inventors have conducted repeated painstaking studies about the purpose for obtaining a polycarbonate resin composition having excellent impact resistance even when being molded to thin thickness, and excellent flame retardancy, and they have found that blending a specific phosphate ester compound and composite rubber-based graft copolymer in the polycarbonate resin achieves the purposes." ([0004])

"Next, a composite rubber-based graft copolymer (C) used in the present invention is a copolymer prepared by graft polymerization of at least one vinyl monomer in a composite rubber, in which the composite rubber comprises 30 to 99% by weight of a polyorganosiloxane component and 99 to 30% by weight of a polyalkyl(meth)acrylate rubber component (the total content of each component is

100% by weight)." ([0013])

"An average particle diameter of the composite rubber is preferably in the range of 0.01 to 0.6 μm. When the average particle diameter is less than 0.01 μm, impact resistance of a molded article obtained by the resin composition is poor, and when the average particle diameter is over 0.6 μm, impact resistance of a molded article obtained by the resin composition is poor and the appearance of a molded surface is poor. When producing a composite rubber having such an average particle diameter, an optimum method is an emulsion polymerization method. It is preferable that first, a polyorganosiloxane latex is prepared, synthesis monomers for alkyl(meth)acrylate rubber are impregnated into polyorganosiloxane latex particles, and polymerization of the synthesis monomers is performed." ([0015])

"The polymerization of polyalkyl(meth)acrylate rubber components is as follows. To a latex of the polyorganosiloxane component which has been neutralized by an addition of an alkaline aqueous solution such as sodium hydroxide, potassium hydroxide, sodium carbonate, or the like, the above-mentioned alkyl(meth)acrylate, cross-linking agent, and graft-linking agent are added and these are impregnated into the polyorganosiloxane particles. Then, polymerization is carried out by subjecting a normal radical polymerization initiator to act on the system. With the progress of polymerization, a crosslinking network of polyalkyl(meth)acrylate rubber mutually entangled in a crosslinking network of polyorganosiloxane is formed, and a composite rubber latex in which the polyorganosiloxane component and the polyalkyl(meth)acrylate rubber component cannot be substantially separated is obtained. In the present invention, the compound rubber with a main frame of the polyorganosiloxane rubber component having recurring units of dimethylsiloxane and with a main frame of the polyalkyl(meth)acrylate rubber component having recurring units of n-butyl acrylate is preferably used." ([0031])

"Examples of vinyl monomers subjected to graft polymerization of this composite rubber include: aromatic alkenyl compounds such as styrene, α-methylstyrene, vinyl toluene; methacrylates such as methyl methacrylate, 2-ethylhexyl methacrylate; acrylates such as methyl acrylate, ethyl acrylate, n-butyl acrylate; and vinyl cyanides such as acrylonitrile and methacrylonitrile. These vinyl monomers can be used alone or in combination. Among these vinyl monomers, methacrylate is preferable, and methyl methacrylate is more preferable.

Regarding ratios of the composite rubber and vinyl monomer in the graft copolymer, on the basis of weight of the graft copolymer, the composite rubber is 30 to 95% by weight, preferably 40 to 90% by weight, and the vinyl monomer is 5 to 70% by weight, preferably 10 to 60% by weight. When the vinyl monomer is less than 5% by weight, dispersibility of the graft copolymer in a resin composition is not sufficient, and when the vinyl monomer is over 70% by weight, realization of impact strength is poor." ([0033] to [0034])

"The content of the component (C) with respect to 100 parts by weight of the component (A) is 0.1 to 50 parts by weight, preferably 0.5 to 20 parts by weight. A smaller amount than the range does not exhibit effect of the present invention sufficiently." ([0036])

"A resin composition of the present invention can also comprise an anti-drip agent. A fluorinated polyolefin which can be used as such an anti-drip agent can be commercially obtained, or can be produced by a well-known method. ... The content of fluorinated polyolefin with respect to 100 parts by weight of the component (A) is preferably 0.01 to 2 parts by weight, more preferably 0.05 to 1.0 part by weight." ([0037])

"In the resin composition of the present invention, so long as physical properties are not impaired, a conventional additive such as pigments, dyes, a reinforcing agent (such as glass fiber, carbon fiber), a filler (such as carbon black, silica, titanium oxide), a heat resistance improver, an antioxidant, a weather proofing agent, a lubricant, a mold releasing agent, a crystalline nucleating agent, a plasticizer, a flowability modifier, an antistatic agent, and the like can be added, during mixing or molding a resin according to the purposes." ([0039])

"(Reference Example 1) Production of polyorganosiloxane latex (L-1)

2 parts of tetraethoxysilane, 0.5 part of γ-methacryloyloxypropyldimethoxymethylsilane and 97.5 parts of octamethylcyclotetrasiloxane were mixed to obtain 100 parts of a siloxane mixture. 100 parts of the siloxane mixture was added to a solution prepared by dissolving 1 part of sodium dodecylbenzenesulfonate and 1 part of dodecylbenzenesulfonic acid in 200 parts of distilled water. The mixture was preliminary stirred with a homomixer at 10,000 rpm, and then passed through a homogenizer at a pressure of 300 kg/cm^2 to emulsify and disperse it, thereby obtaining an organosiloxane latex. The mixture was transferred to a separable flask equipped with a condenser and a stirring blade, was heated to 80 degrees for 5 hours while mixing and stirring, left under 20 degrees after the heat, neutralized with a solution of sodium hydroxide after 48 hours so that pH of the latex is 7.4, and the polymerization was completed, thereby obtaining a polyorganosiloxane latex. The polymerization rate of obtained polyorganosiloxane was 89.5% and the average particle diameter of polyorganosiloxane is 0.16 μm.

(Reference Example 2) Production of composite rubber-based graft copolymer (C-1)

33.5 parts of the polyorganosiloxane latex (L-1) and 123.2 parts of distilled water were transferred to a separable flask equipped with a stirrer, replaced by nitrogen and heated to 50 degrees. A mixture of 73.5 parts of n-butyl acrylate, 1.5 parts of allyl methacrylate, and 0.56 part of tert-butyl hydroperoxide was fed to the separable flask and stirred for 30 minutes, and the mixture was impregnated into polyorganosiloxane particles. Next, a mixture of 0.002 part of ferrous sulfate , 0.006 part of ethylenediaminetetraacetic acid disodium salt, 0.26 part of Rongalite, and 5 parts of distilled water was fed to start radical polymerization, the inside temperature kept at 70 degrees for 2 hours, and then the polymerization was completed, thereby obtaining a composite rubber latex. Regarding part of this latex, the average particle diameter of a composite rubber was 0.22μm. This latex was dried so as to obtain solid matter. The solid matter was extracted with toluene at 90 degrees for 12 hours, and the content of gel was 97.3% by weight.

Into this composite rubber latex, a mixture of 0.06 part of tert-butyl hydroperoxide and 15 parts of methyl methacrylate was dropped at 70 degrees for 15 minutes, and kept at 70 degrees for 4 hours, and then graft polymerization for a composite rubber was completed. The polymerization rate of methyl methacrylate was 96.4%. The obtained graft copolymer latex was dropped into 200 parts of hot water dissolving 1.5% by weight of calcium chloride. The graft copolymer latex was coagulated, separated, washed, and dried at 75 degrees for 16 hours, thereby obtaining 96.9 parts of a powdery composite rubber-based graft copolymer." ([0045] to [0047])

"(Reference Example 4) Production of composite rubber-based graft copolymer (C-3)

The same procedure as in Reference Example 1 (Note by the body: it is understood as ‘Reference Example 2’.) was carried out except that the contents of polyorganosiloxane latex (L-1), distilled water, n-butyl acrylate, allyl methacrylate, and tert-butyl hydroperoxide were 167.5 parts, 27.5 parts, 24.5 parts, 0.5 part, and 0.19 part, respectively to polymerize a composite rubber latex, and a composite rubber-based graft copolymer was obtained." ([0049])

"(Examples 1 to 3, Comparative Examples 1 to 2 (Note by the body: it is understood as ‘Examples 1 to 6, Comparative Examples 1 to 4’)) Each component were mixed at ratio indicated in Table 1, and this mixture was melted and kneaded using a one-screw extruder (screw diameter 65 mmφ) set at 280 degrees and 100 rpm so as to obtain a pellet. Next, this pellet was injected and molded (set temperature: 280 degrees, mold temperature: 80 degrees) to produce a molded article. Regarding the obtained molded article, the Izod impact strength and flame retardancy were evaluated. The results are shown in Table 1." ([0050])

"[Table 1]

	組成					燃焼試験		アイゾット衝撃強度（kg·cm/cm）	
	(A) PC 1)（部）	(B) TPP 2)（部）	(C) 種類	(C)（部）	テフロン30J 3)（部）	燃焼時間（秒）	燃焼等級	23℃	－40℃
実施例1	100	11	C－2	5	0.3	2	V－0	82	80
実施例2	100	11	C－2	10	0.3	0	V－0	83	83
実施例3	100	11	C－2	20	0.3	9	V－0	74	73
実施例4	100	11	C－3	5	0.3	2	V－0	80	79
実施例5	100	11	C－3	10	0.3	1	V－0	80	80
実施例6	100	11	C－3	20	0.3	5	V－0	72	71
比較例1	100	11	－	－	0.3	30	V－0	5	5
比較例2	100	11	C－1	5	0.3	11	V－0	85	22
比較例3	100	11	C－1	10	0.3	31	V－0	85	23
比較例4	100	11	C－1	20	0.3	89	V－1	75	20

1）ＰＣ樹脂（日本ＧＥプラスチック（株）製、レキサン、固有粘度0．5dl/g（塩化メチレン中、25℃））
2）ＴＰＰ（トリフェニルホスフェート）
3）ポリテトラフルオロエチレン（三井デュポンフロロケミカル社製）

実施例１	Example 1
実施例２	Example 2
実施例３	Example 3
実施例４	Example 4
実施例５	Example 5
実施例６	Example 6
比較例１	Comparative Example 1
比較例２	Comparative Example 2
比較例３	Comparative Example 3
比較例４	Comparative Example 4

組成	composition
ＰＣ（部）	PC (part)
ＴＰＰ（部）	TPP (part)
種類	type
（部）	(part)
テフロン３０Ｊ（部）	Teflon 30J (part)
燃焼試験	flame test
燃焼時間	burn time

燃焼等級　　burn grade
アイゾット衝撃強度　　Izod impact strength
１）ＰＣ樹脂（日本ＧＥプラスチック（株）製、レキサン、固有粘土０．５ｄｌ／ｇ（塩化メチレン中、２５℃））　1) PC resin (manufactured by GE Plastics, Lexan, intrinsic viscosity 0.5 dl/g (25 degrees in methylene chloride))
２）ＴＰＰ（ｔｒｉｐｈｅｎｙｌ ｐｈｏｓｐｈａｔｅ）　2) TPP (triphenyl phosphate)
３）ポリテトラフルオロエチレン（三井デュポンフロロケミカル社製）
polytetrafluoroethylene (Du Pont-Mitsui Fluorochemicals Co., Ltd.)
" ([0051])

(2) Invention diclosed in Exhibit A No. 5

As described in (1) above, especially in Example 4 using the composite rubber-based graft copolymer (C-3) described in paragraphs [0037] and [0049], the following invention (hereinafter referred to as the "Exhibit A No. 5 invention") is disclosed.

"Specific embodiment of a flame-retardant composition comprising, with respect to 100 parts by weight of a polycarbonate resin, 1 to 20 parts by weight of a phosphate ester compound, 0.1 to 50 parts by weight of a composite rubber-based graft copolymer, and 0.05 to 1.0 part by weight of a fluorinated polyolefin being an anti-drip agent,

wherein the composite rubber-based graft copolymer is obtained by graft polymerization of at least one vinyl monomer in a composite rubber,

wherein the composite rubber comprises 30 to 99% by weight of a polyorganosiloxane component and 70 to 1% by weight of a polyalkyl(meth)acrylate rubber component, and the total content of the polyorganosiloxane component and polyalkyl(meth)acrylate rubber component is 100% by weight,

wherein the polycarbonate resin is 100 parts by weight of Lexan manufactured by GE Plastics (intrinsic viscosity 0.5 dl/g (25 degrees in methylene chloride)), the phosphate ester compound is 11 parts by weight of triphenyl phosphate, the fluorinated polyolefin is 0.3 part by weight of polytetrafluoroethylene (Du Pont-Mitsui Fluorochemicals Co., Ltd.), and the composite rubber-based graft copolymer is 5 parts by weight of a composite rubber-based graft copolymer prepared by following steps a to d (hereinafter referred to as ‘a composite rubber-based graft copolymer (C-3)’.).

a a step of mixing 2 parts of tetraethoxysilane, 0.5 part of γ-methacryloyloxypropyldimethoxymethylsilane, and 97.5 parts of octamethylcyclotetrasiloxane to obtain 100 parts of a siloxane mixture.

b a step of adding 100 parts of the siloxane mixture to a solution prepared by dissolving

1 part of sodium dodecylbenzenesulfonate and 1 part of dodecylbenzenesulfonic acid in 200 parts of distilled water, preliminarily stirring the mixture with a homomixer at 10,000 rpm, passing the mixture through a homogenizer at a pressure of 300 kg/cm^2 to emulsify and disperse it so as to obtain an organosiloxane latex, transferring the mixture to a separable flask equipped with a condenser and a stirring blade, heating the mixture to 80 degrees for 5 hours while mixing and stirring, leaving the mixture at 20 degrees after the heat, neutralizing with a solution of sodium hydroxide after 48 hours so that pH of the latex is 7.4, and completing the polymerization, thereby obtaining a polyorganosiloxane latex having a polymerization rate of 89.5% and an average particle diameter of 0.16 μm.
c a step of transferring 167.5 parts of the polyorganosiloxane latex and 27.5 parts of distilled water to a separable flask equipped with a stirrer, replacing by nitrogen and heating the mixture to 50 degrees, feeding a mixture of 24.5 parts of n-butyl acrylate, 0.5 parts of allyl methacrylate, and 0.19 part of tert-butyl hydroperoxide to the separable flask and stirring for 30 minutes, impregnating the mixture into polyorganosiloxane particles, feeding a mixture of 0.002 part of ferrous sulfate, 0.006 part of ethylenediaminetetraacetic acid disodium salt, 0.26 part of Rongalite, and 5 parts of distilled water to start radical polymerization, keeping the inside temperature at 70 degrees for 2 hours, and completing the polymerization, thereby obtaining a composite rubber latex.
d a step of dropping a mixture of 0.06 part of tert-butyl hydroperoxide and 15 parts of methyl methacrylate into the composite rubber latex at 70 degrees for 15 minutes, keeping at 70 degrees for 4 hours, completing graft polymerization for a composite rubber latex, dropping the obtained graft copolymer latex into 200 parts of hot water, dissolving 1.5% by weight of calcium chloride, coagulating, separating, washing the graft copolymer latex, and drying at 75 degrees for 16 hours, thereby obtaining a powdery composite rubber-based graft copolymer (C-3)."

3 Regarding Reason 2A for invalidation (lack of novelty)
(1) Regarding Corrected invention 1 of the case
A Corresponding features and differences

Comparing the Corrected invention 1 of the case with Exhibit A No. 5 invention, since "a composite rubber latex" obtained in the production step c of the composite rubber-based graft copolymer (C-3) in the Exhibit A No. 5 invention corresponds to "polyorganosiloxane particles (b-1)" in the Corrected invention 1 of the case and "methyl methacrylate" in the production step d corresponds to "vinyl monomer (b-2)", it can be said that "a composite rubber-based graft copolymer (C-3)" in the Exhibit A No. 5 invention corresponds to "a polyorganosiloxane-containing graft copolymer obtained by polymerizing at least one vinyl monomer (b-2) in the presence of polyorganosiloxane particles (b-1)" in the Corrected invention 1 of the case.

Further, "polytetrafluoroethylene (Du Pont-Mitsui Fluorochemicals Co., Ltd.)" as a fluorinated polyolefin being an anti-drip agent in the Exhibit A No. 5 invention corresponds to "a fluororesin" in the Corrected invention 1 of the case.

In addition, from Exhibit A No. 11, since it is recognized that an average particle diameter of the composite rubber latex (polyorganosiloxane particles (b-1)) obtained in the production step c of the composite rubber-based graft copolymer (C-3) in the Exhibit A No. 5 invention is 0.18 μm, this number is within the range of "0.008 to 0.6μm of an average particle diameter of the polyorganosiloxane particles (b-1)" in the Corrected invention 1 of the case.

Meanwhile, the content of silicon with respect to the total amount of the flame-retardant resin composition of 100% by weight in the Exhibit A No. 5 invention recognized based on Example 4 in Exhibit A No. 5 is calculated as "0.89% by weight" (A derivation formula is followed by the description of Exhibit A No. 6), this number is within the range of "0.7 to 1.5% by weight of the content of silicon with respect to the total amount of a resin composition of 100% by weight". However, as described in 4(1)B(b) below, the Exhibit A No. 5 invention does not satisfy both conditions at the same time, a condition that the content of silicon with respect to the total amount of the flame-retardant resin composition of 100% by weight is within the range of "0.7 to 1.5% by weight" and a condition that the content of the composite rubber-based graft copolymer (C-3) with respect to 100 parts by weight of the polycarbonate resin is within the range of "1 to 3 parts by weight".

The Exhibit A No. 5 invention comprises a phosphate ester compound (triphenyl phosphate) as an essential component, as described in 1(2)B(c) above; it can be said that the Corrected invention 1 of the case does not exclude the addition of a phosphate ester compound, and this point is not a different feature between the Corrected invention 1 of the case and the Exhibit A No. 5 invention.

Thus, the corresponding features and difference (difference 1) between the Corrected invention 1 of the case and the Exhibit A No. 5 invention are as follows.

- Corresponding features

A flame-retardant polycarbonate resin composition comprising 100 parts by weight of a polycarbonate resin, a polyorganosiloxane-containing graft copolymer obtained by polymerizing at least one vinyl monomer in the presence of polyorganosiloxane particles, and 0.05 to 1 part by weight of a fluororesin,

wherein an average particle diameter of the polyorganosiloxane particles is in a range of 0.008 to 0.6 μm.

- Difference 1

In the Corrected invention 1 of the case, the content of the polyorganosiloxane-containing graft copolymer (composite rubber-based graft copolymer (C-3)), with respect to 100 parts by weight of the polycarbonate resin, is "1 to 3 parts by weight", and the content of silicon, with respect to the total content of the resin composition of 100% by weight, is "0.7 to 1.5% by weight". On the other hand, in the Exhibit A No. 5 invention, the content of the polyorganosiloxane-containing graft copolymer is "5 parts by weight", and the content of silicon is "0.89% by weight".

B Examination on difference 1

(a) As described above, since the Corrected invention 1 of the case and the Exhibit A No. 5 invention are substantially different in at least the content of the polyorganosiloxane-containing graft copolymer, it cannot be said that both are identical.

(b) The demandant alleges that since "0.5 to 5 parts by weight", as the content of the composite rubber-based graft copolymer (C-3), is described in Exhibit A No. 5, the Corrected invention 1 of the case is the invention disclosed in Exhibit A No. 5 (oral proceedings statement brief, p. 7).

However, the range alleged by the demandant is a range which is arbitrarily extracted and set among numbers described in Exhibit A No. 5 with respect to the content of the composite rubber-based graft copolymer, and this setting is not reasonable. Further, as described in A above, the Exhibit A No. 5 invention does not satisfy both conditions at the same time, a condition that the content of silicon with respect to the total amount of the flame-retardant resin composition of 100% by weight is within the range of "0.7 to 1.5% by weight" and a condition that the content of the composite rubber-based graft copolymer (C-3) with respect to 100 parts by weight of the polycarbonate resin is within the range of "1 to 3 parts by weight".

The demandant's allegation cannot be accepted.

C Summary

As mentioned above, it could not be concluded that the Corrected invention 1 of the case is disclosed in Exhibit A No. 5.

(2) Regarding Corrected inventions 2 to 7 of the case

Claims 2 to 7 are directly or indirectly dependent on Claim 1. As described above, it cannot be said that the Corrected invention 1 of the case according to Claim 1 is the invention described in Exhibit A No. 5, and thus it could not be concluded that the Corrected inventions 2 to 7 of the case according to Claims 2 to 7 is the invention disclosed in Exhibit A No. 5.

(3) Summary

As mentioned above, Reason 2A for invalidation alleged by the demandant is groundless.

4 Regarding Reason 2B for invalidation (lack of inventive step)
(1) Regarding Corrected invention 1 of the case
A The corresponding features and different features (difference 1) between the Corrected invention 1 of the case and the Exhibit A No. 5 invention are as recognized in 3(1)A above.
B Difference 1 is examined.
(a) As recognized in 2(2) above, the Exhibit A No. 5 invention is the invention of a specific embodiment of "a flame-retardant composition comprising, with respect to 100 parts by weight of a polycarbonate resin, 1 to 20 parts by weight of a phosphate ester compound, 0.1 to 50 parts by weight of a composite rubber-based graft copolymer, and 0.05 to 1.0 part by weight of a fluorinated polyolefin being an anti-drip agent, wherein the composite rubber-based graft copolymer is obtained by graft polymerization of at least one vinyl monomer in a composite rubber, and wherein the composite rubber comprises 30 to 99% by weight of a polyorganosiloxane component and 70 to 1% by weight of a polyalkyl(meth)acrylate rubber component, and the total content of the polyorganosiloxane component and polyalkyl(meth)acrylate rubber component is 100% by weight" (that is to say, a flame-retardant composition used in Example 4 of Exhibit A No. 5). The content of the composite rubber-based graft copolymer (C-3) is "5 parts by weight" within the range of "0.1 to 50 parts by weight".
(b) Incidentally, in the Exhibit A No. 5 invention in which the polyorganosiloxane-containing graft copolymer (composite rubber-based graft copolymer (C-3)) with respect to 100 parts by weight of a polycarbonate resin is "5 parts by weight", the content of silicon with respect to the total amount of the flame-retardant resin composition of 100% by weight is calculated as "0.89% by weight" (A derivation formula is followed by the description of Exhibit A No. 6) (3(1) above). When the content of the composite rubber-based graft copolymer (C-3) with respect to 100 parts by weight of the polycarbonate resin in the Exhibit A No. 5 invention is "3 parts by weight", the content of silicon is calculated as 0.54% by weight from Exhibit A No. 6.

That is to say, when the content of the composite rubber-based graft copolymer (C-3) with respect to 100 parts by weight of a polycarbonate resin in the Exhibit A No. 5 invention is "1 to 3 parts by weight" specified in the Corrected invention 1 of the case, the content of silicon is smaller than 0.54% by weight, and the Exhibit A No. 5 invention does not satisfy a condition of "the content of silicon with respect to the total amount of the flame-retardant resin composition of 100% by weight is 0.7 to 1.5% by weight", which is the matter specifying the Corrected invention 1 of the case.

Thus, the Exhibit A No. 5 invention does not satisfy the following conditions A and B at the same time: the condition(A) that the content of silicon with respect to the total amount of the flame-retardant resin composition of 100% by weight is within the range of "0.7 to 1.5% by weight" and the condition(B) that the content of the composite rubber-based graft copolymer (C-3) with respect to 100 parts by weight of the polycarbonate resin is within the range of "1 to 3 parts by weight", and it cannot be said that the constitution relating to the difference 1 could be easily arrived from the Exhibit A No. 5 invention.

In addition, as described in 1(2)B above, in the Corrected invention 1 of the case, even if the content of the polyorganosiloxane-containing graft copolymer is 1 to 3 parts by weight, using a polyorganosiloxane-containing graft copolymer in which the content of silicon in the resin composition with respect to the total content of the composition of 100% by weight is 0.7 to 1.5% by weight solves the problem. That is to say, a smaller amount (1 to 3 parts by weight) of the polyorganosiloxane-containing graft copolymer compared with conventional ones exhibits high flame retardancy, and the resin composition is advantageous in cost and mold processability. From evidences including Exhibit A No. 5, it could not have been obvious for a person skilled in the art at the time of the application that the problem similar to the Corrected invention 1 of the case is solved by noting the content of silicon with respect to the total amount of the resin composition and appropriately setting the content.

Thus, it has to be said that to satisfy both conditions at the same time, the condition that the content of silicon with respect to the total amount of the flame-retardant resin composition of 100% by weight is within the range of "0.7 to 1.5% by weight" and the condition that the content of the composite rubber-based graft copolymer (C-3) with respect to 100 parts by weight of the polycarbonate resin is within the range of "1 to 3 parts by weight", by appropriately adjusting the composition of the composite rubber-based graft copolymer (C-3) in the Exhibit A No. 5 invention, would be hindsight.

(c) Further, it cannot be said that the configuration relating to the difference 1 could be easily arrived at as mentioned below.

While the purpose of examples described in Exhibit A No. 10 is measurement of flame retardancy, impact resistance and mold processability of Example 4 in Exhibit A No. 5 (that is to say, a molded article molded by using a resin composition of the Exhibit A No. 5 invention), and a molded article produced using the same procedure as in Example 4 except that the amount of a composite rubber-based graft copolymer (C-3) changes to 3 parts, 4.5 parts, and 6 parts. According to experimental results (Table 1) in Exhibit A No. 10, there is no significant difference in flame retardancy (burn time) and impact resistance between Examination 3 (corresponding to Example 4 in Exhibit A No. 5, the amount: 5 parts by weight) and Examination 2 (the amount: 4.5 parts by weight); on the other hand, flame retardancy (burn time) and impact resistance in Examination 1 (the amount: 3 parts by weight) are significantly poor compared with the case of Examination 3.

Thus, as described in paragraph [0004] in Exhibit A No. 5, the problem to be solved by the Exhibit A No. 5 invention is to obtain a polycarbonate resin composition having excellent impact resistance and flame retardancy. In the Exhibit A No. 5 invention in which the content of polyorganosiloxane-containing graft copolymer (composite rubber-based graft copolymer (C-3)) with respect to 100 parts by weight of a polycarbonate resin, is "5 parts by weight", changing the content to "4.5 parts by weight" (Note by the body: from Exhibit A No. 6, the content of silicon is calculated as 0.81% by weight.) could be easily arrived at by a person skilled in the art. On the other hand, modifying the content to "3 parts by weight" or less worsens an effect for making flame retardancy (burn time) and impact resistance. Thus it is recognized as disincentive.

That is, in Exhibit A No. 5, it is described that the content of the composite rubber-based graft copolymer is a range of "0.1 to 50 parts by weight". However, regarding the Exhibit A No. 5 invention (flame-retardant resin composition) using the composite rubber-based graft copolymer (C-3), a person skilled in the art who sets the content to the range of "0.1 to 50 parts by weight" could easily understand that the flame retardancy (burn time) and impact resistance become poor in setting the content to "3 parts by weight" or less, from experiments similar to those described in Exhibit A No. 10. As described above, the problem to be solved in the Exhibit A No. 5 invention is to obtain a polycarbonate resin composition having excellent impact resistance and flame retardancy. Thus, it can be said that a person skilled in the art will not select the range that worsen flame retardancy (burn time) and impact resistance.

(d) The demandant alleges that: it has been known that flame retardants generally make impact resistance impaired (Exhibit A No. 12 to A No. 13); regarding the substance which excludes triphenyl phosphate (phosphate ester compound) from the Exhibit A No.

5 invention, and the content of the composite rubber-based graft copolymer (C-3) is "3 parts by weight", the impact resistance is not poor compared with the Exhibit A No. 5 invention (Exhibit A No. 14); impaired impact resistance is due to the presence of a phosphate ester compound, not due to changing the content of the composite rubber-based graft copolymer (C-3); and modifying the content of the composite rubber-based graft copolymer (C-3) in the Exhibit A No. 5 invention from "5 parts by weight" to "3 parts by weight" has no obstructing factors (written refutation of a trial case submitted on July 30, 2015, p. 2 to 4).

However, taking into consideration the description of Exhibit A No. 5, since the Exhibit A No. 5 invention comprises a phosphate ester compound (triphenyl phosphate) as an essential ingredient, the demandant's allegation on the assumption of the Exhibit A No. 5 invention that excludes such an essential ingredient cannot be accepted. Further, from Exhibit A No. 10, it is recognized that impact resistance of the substance comprising triphenyl phosphate (phosphate ester compound) becomes poor due to changing (decreasing) the content of the composite rubber-based graft copolymer (C-3), and thus the demandant's allegation that impaired impact resistance is not due to changing the content of the composite rubber-based graft copolymer (C-3) is groundless and unreasonable.

C Therefore, it could not be concluded that the Corrected invention 1 of the case could be easily arrived at by a person skilled in the art on the basis of the invention described in Exhibit A No. 5.

(2) Regarding Corrected inventions 2 to 7 of the case

Claims 2 to 7 are directly or indirectly dependent on Claim 1. As described above, it cannot be said that the Corrected invention 1 of the case according to Claim 1 could be easily arrived at by a person skilled in the art on the basis of the invention described in Exhibit A No. 5, and thus it could not be concluded that the Corrected inventions 2 to 7 of the case according to Claims 2 to 7 could be easily arrived at by a person skilled in the art on the basis of the invention described in Exhibit A No. 5.

(3) Summary

As described above, the Reason 2B for invalidation alleged by the demandant is groundless.

No. 7 Closing

As described above, both Reasons 2A and 2B for invalidation alleged by the demandant are groundless, and on the basis of the reasons the Patents 1 to 7 cannot be invalidated.

The costs in connection with the trial shall be borne by the demandant under the provisions of Article 61 of the Code of Civil Procedure which is applied mutatis mutandis in the provisions of Article 169(2) of the Patent Act.

Therefore, the trial decision shall be made as described in the conclusion.

October 13, 2015

Chief administrative judge: TAGUCHI, Masahiro
Administrative judge: SUTO, Yasuhiro
Administrative judge: ONODERA, Tsutomu