Trial decision

Invalidation No. 2016-800013

Demandant	Chang Chun Petrochemical Co., Ltd.
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With respect to the trial decision dated September 13, 2016 rendered in a trial for patent invalidation regarding Japanese Patent No. 4580627, entitled "A group of saponified ethylene-vinyl acetate copolymer pellets and use thereof" between the above parties, the Intellectual Property High Court rescinded the trial decision in a trial for patent invalidation (2017 (Gyo-Ke) No. 10029; rendition of judgment: December 26, 2017) and the court decision has become final and binding. Therefore, further examination was conducted and the case has resulted in the following trial decision.

Conclusion

Correction of the scope of claims for Japanese Patent No. 4580627 regarding Claims [1 to 3] is approved as in the corrected scope of claims attached to the written correction request.

The patent according to Claims 1 and 3 of Japanese Patent No. 4580627 is invalidated.

The demand for trial with respect to the patent according to Claim 2 of Japanese Patent No. 4580627 is dismissed.

The costs in connection with the trial shall be borne by the Demandee.

Reasons

No. 1 History of the procedures

1. History of the procedure until the first trial decision

The application for inventions according to Claims 1 to 3 of Japanese Patent No. 4580627 (hereinafter, referred to as "the Patent") is a patent application filed July 16, 2003. The establishment of patent right thereof was registered on September 3, 2010.

History of main procedures until the trial decision dated September 13, 2016 (hereinafter, referred to as "the first trial decision") is as follows:

February 2, 2016:	Demand for a trial for invalidation (Demandant)
April 19, 2016:	Written Reply in Trial for Invalidation (Demandee)
June 29, 2016:	Notification of Matters to be Examined
July 19, 2016:	Oral Proceedings Statement Brief (Demandant and Demandee)
August 9, 2016:	First oral proceedings
August 30, 2016:	Notice of the conclusion of proceedings
September 13, 2016:	The first trial decision

2. The first trial decision

The conclusion of the first trial decision is such that "The trial of the case was groundless. The costs in connection with the trial shall be borne by the Demandant."

3. Suit against the trial decision

On January 23, 2017, the Demandant brought a suit to the Intellectual Property High Court asking for cancellation of the above first trial decision.

In the Intellectual Property High Court, the trial was carried out as 2017 (Gyo-Ke) No. 10029, resulting in a court decision whose key decision is "1. The trial decision rendered on September 13, 2016 by the Japan Patent Office for the case of Invalidation No. 2016-800013 is cancelled, and 2. The cost for the suit shall be borne by the Defendant." (hereinafter, referred to as the "the court decision for cancellation") and, later, the court decision became final and binding.

4. History of main procedures after the court decision of rescindment of the trail became final and binding

History of main procedures after the court decision of rescindment of the trail became final and binding is as follows:

December 26, 2018: Motion for Request of correction (Demandee)
January 16, 2019: Notification of resuming of a trial examination (including notification of a designated period of time for filing a request for correction)
January 25, 2019: Written Request for correction (Demandee)
February 21, 2019: Written amendment (Demandee)
March 1, 2019: Questioning (to Demandee)
March 15, 2019: Written reply (Demandee)
May 21, 2019: Written refutation in the trial (Demandant)
June 26, 2019: Notice of reasons for not allowing the demand for correction (to Demandee)
Notification of the result of proceedings by the body's own authority (to Demandant)
July 29, 2019: Written opinion (Demandee)
September 30, 2019: Questioning (to both Demandant and Demandee)
October 15, 2019: Written reply (Demandee)
October 28, 2019: Written reply (Demandant)
December 11, 2019: An advance notice of a trial decision
February 14, 2020: Written correction request and written statement (Demandee)
April 21, 2020 (accepted on April 22, 2020):
Written refutation in the trial (Demandant)

In addition, the demand by the written correction request filed on January 25, 2019 is deemed to be withdrawn under the provisions of Article 134-2(6) of the Patent Act.

No. 2 Judgment on Propriety of Correction

1 Contents of correction

The contents of the correction requested by Demandee (hereinafter referred to as the "Correction") are as follows (corrected parts are underlined):

(1) Correction A

"A group of saponified ethylene-vinyl acetate copolymer pellets characterized in that the content of fine powder passing through a 32 mesh (opening 500 μ) sieve is 0.1% by weight or less" in Claim 1 in the scope of claims is corrected to "A group of saponified ethylene-vinyl acetate copolymer pellets for molding laminate products characterized in that the content of fine powder passing through a 32 mesh (opening 500 μ) sieve is 0.1% by weight or less, wherein: the saponified ethylene-vinyl acetate copolymer comprises boron compounds, an acidic substance (A) having a melting point of 200°C or less, and an alkali metal (B),
the content of the boron compounds is 0.001 to 1% by weight in terms of boron relative to the saponified ethylene-vinyl acetate copolymer,
the content of the acidic substance (A) having a melting point of 200°C or less is 0.001 to 0.05% by weight relative to the saponified ethylene-vinyl acetate copolymer, and
the content of the alkali metal (B) is 0.001 to 0.5% by weight in terms of metal relative to the saponified ethylene-vinyl acetate copolymer."

In addition, claim 3 that directly cites Claim 1 in the scope of claims is corrected in line with the correction to Claim 1.

(2) Correction B

Claim 2 in the scope of claims is deleted.

(3) Correction C

"The group of saponified ethylene-vinyl acetate copolymer pellets of Claim 1 or 2" in Claim 3 in the scope of claims is corrected to " The group of saponified ethylene-vinyl acetate copolymer pellets of Claim 1."

In addition, since Claims 2 and 3 before the correction directly or indirectly cite Claim 1 before the correction, Claims 1 to 3 before the correction are a group of claims, and the corrections of the case are made for the group of claims, and comply with the provisions of Article 134-2(3) of the Patent Act.

2 Propriety of the purpose of the correction, whether the correction is within the scope of matters stated in the description or the scope of claims attached to the application,

and whether the scope of claims is extended or changed

(1) Regarding Correction A

Since Correction A specifies that "saponified ethylene-vinyl acetate copolymer" of the invention according to Claim 1 before the correction "comprises boron compounds, an acidic substance (A) having a melting point of 200°C or less, and an alkali metal (B),
the content of the boron compounds is 0.001 to 1% by weight in terms of boron relative to the saponified ethylene-vinyl acetate copolymer,
the content of the acidic substance (A) having a melting point of 200°C or less is 0.001 to 0.05% by weight relative to the saponified ethylene-vinyl acetate copolymer, and
the content of the alkali metal (B) is 0.001 to 0.5% by weight in terms of metal relative to the saponified ethylene-vinyl acetate copolymer," and, further, specifies the use of the "group of saponified ethylene-vinyl acetate copolymer pellets" in the invention according to Claim 1 before the correction to "for molding laminate products," Correction A is for restriction of the claims under the provision of Article 134-2(1), proviso item 1 of the Patent Act.

In addition, Correction A is made within the scope of matters stated in the description or the scope of claims attached to the application of the patent ([0006] and [0021] to [0024] of the description attached to the application for the Patent) and complies with the provisions of Article 126(5) of the Patent Act applied mutatis mutandis by Article 134-2(9) of the Patent Act.

Furthermore, Correction A does not substantially extend or change the scope of claims and complies with the provisions of Article 126(6) of the Patent Act applied mutatis mutandis by Article 134-2(9) of the Patent Act.

(2) Regarding Correction B

Since Correction B deletes Claim 2 before the correction, it is for restriction of the scope of claims under the provision of Article 134-2(1), proviso, item 1 of the Patent Act.

In addition, it is clear that Correction B is made within the scope of matters stated in the description or the scope of claims attached to the application of the patent and complies with the provisions of Article 126(5) of the Patent Act applied mutatis mutandis by Article 134-2(9) of the Patent Act.

Furthermore, Correction B does not substantially extend or change the scope of claims and complies with the provisions of Article 126(6) of the Patent Act applied mutatis mutandis by Article 134-2(9) of the Patent Act.

(3) Regarding Correction C

Since Correction C deletes citation of Claim 2, it is for restriction of the scope of claims under the provision of Article 134-2(1), proviso, item 1 of the Patent Act.

In addition, Correction C is made within the scope of matters stated in the description or the scope of claims attached to the application of the patent and complies with the provisions of Article 126(5) of the Patent Act applied mutatis mutandis by Article 134-2(9) of the Patent Act.

Furthermore, Correction C does not substantially extend or change the scope of claims and complies with the provisions of Article 126(6) of the Patent Act applied mutatis mutandis by Article 134-2(9) of the Patent Act.

3. Closing

As explained above, Corrections A to C are for the purpose of matters set forth in Article 134-2(1), proviso, item 1 of the Patent Act, and comply with the provisions of Article 126(5) and (6) applied mutatis mutandis pursuant to Article 126(9) of the Patent Act.

Therefore, as stated in the conclusion, it is approved to correct the scope of claims of the Patent to Claims [1 to 3] after the correction as shown in the corrected scope of claims attached to the written correction request.

No. 3 The Inventions

Since the Correction is approved as explained in above No. 2, inventions according to Claims 1 to 3 of the Patent (hereinafter, referred to as "Invention 1" and the like in sequence; or, collectively as "the Inventions") are as specified by the following matters stated in Claims 1 to 3 in the corrected scope of claims attached to the written correction request.

"[Claim 1]

A group of saponified ethylene-vinyl acetate copolymer pellets for molding laminate products characterized in that the content of fine powder passing through a 32 mesh (opening 500 μ) sieve is 0.1% by weight or less, wherein: the saponified ethylene-vinyl acetate copolymer comprises boron compounds, an acidic substance (A) having a melting point of 200 °C or less, and an alkali metal (B),

the content of the boron compounds is 0.001 to 1% by weight in terms of boron relative to the saponified ethylene-vinyl acetate copolymer,

the content of the acidic substance (A) having a melting point of 200°C or less is 0.001 to 0.05% by weight relative to the saponified ethylene-vinyl acetate copolymer, and
the content of the alkali metal (B) is 0.001 to 0.5% by weight in terms of metal relative to the saponified ethylene-vinyl acetate copolymer,
[Claim 2]
(Deleted), and
[Claim 3]
A laminate product comprising at least a layer prepared by molding the group of pellets of saponified ethylene-vinyl acetate copolymer of Claim 1."

No. 4 The Demandant's allegation and means of proof

1 Demandant demands a trial decision, "The patent for the invention according to Claims 1 to 3 of Patent No. 4580627 shall be invalidated. The costs in connection with the trial shall be borne by the Demandee" asserting as the reason therefore that the Inventions should be invalidated due to the following reasons for invalidations 1, 2, 3 and 5, and submitted the following documentary evidence as the means of proof.

Incidentally, the reasons for invalidation 4, 6 and 7 asserted by the Demandant in the written demand for trial have subsequently been withdrawn.

(1) Reason for invalidation 1 (Requirement provided by Order of the Ministry of Economy, Trade and Industry and enablement requirement; Article 36(4)(i) of the Patent Act)

The statement in the detailed description of the invention is not stated in accordance with the provisions as provided by Order of the Ministry of Economy, Trade, and Industry, and is not stated clear and sufficient to enable a person ordinarily skilled in the art to which the Inventions belong (hereinafter, referred to as "a person skilled in the art") to work Inventions 1 to 3.

Therefore, since the patent for the inventions according to Claims 1 to 3 of the Patent has been granted to the application that does not comply with the requirement set forth in Article 36(4)(i) of the Patent Act (Requirement in Ministerial Ordinance as to disclosure and enablement requirement), it falls under the provisions of Article 123(1)(iv) of the Patent Act and should be invalidated.

(2) Reason for invalidation 2 (Support requirement; Article 36(6)(i) of the Patent Act)

Inventions 1 to 3 cannot be deemed to have been described in the detailed description of the invention.

Therefore, since the patent for the inventions according to Claims 1 to 3 of the Patent has been granted to the application that does not comply with the requirement set forth in Article 36(6)(i) of the Patent Act (Support requirement), it falls under the provisions of Article 123(1)(iv) of the Patent Act and should be invalidated.

(3) Reason for invalidation 3 (Clarity requirement; Article 36(6)(ii) of the Patent Act)

Inventions 1 to 3 are not sufficiently clear.

Therefore, since the patent for the inventions according to Claims 1 to 3 of the Patent has been granted to the application that does not comply with the requirement set forth in Article 36(6)(ii) of the Patent Act (Clarity requirement), it falls under the provisions of Article 123(1)(iv) of the Patent Act and should be invalidated.

(4) Reason for invalidation 5 (inventive step; Article 29(2) of the Patent Act)

Since Inventions 1 to 3 could have easily been invented by a person skilled in the art before filing the application of the Patent based on Evidence A Nos. 1 to 3, design matter, and well-known conventional art, Demandee should not be granted a patent for the Inventions in accordance with the provisions of Article 29(2) of the Patent Act.

Therefore, the patent for inventions according to Claims 1 to 3 of the Patent falls under the provisions of Article 123(1)(ii) of the Patent Act and should be invalidated.

2 Means of proof

Evidence A No. 1: Japanese Unexamined Patent Application Publication No. 2000-63528

Evidence A No. 2: U.S. Patent No. 6174949

Evidence A No. 3: "TEST METHOD TO DETERMINE THE CONTENT OF FINES AND STREAMERS IN PLASTIC PELLETS, FEDERATION EUROPEENNE DE LA MANUTENTION (FEM)"

Evidence A No. 4: Japanese Unexamined Patent Application Publication No. H11-293079

Evidence A No. 5: Japanese Unexamined Patent Application Publication No. 2002-293948

Evidence A No. 6: U.S. patent publication No. 2002/0135098

Evidence A No. 7: U.S. patent publication No. 2002/0100997

Evidence A No. 8: U.S. patent publication No. 2002/0028871

Evidence A No. 9: Print-out of website: "What's Causing Your Gels? Plastics Technology" URL: http://www.ptonline.com/articles/what's-causing-your-gels

Evidence A No. 10: Japanese Unexamined Patent Application Publication No. 2003-96173

Evidence A No. 11: Japanese Unexamined Patent Application Publication No. 2003-192779

Evidence A No. 12: Japanese Unexamined Patent Application Publication No. 2003-138022

Evidence A No. 13: Japanese Unexamined Patent Application Publication No. 2003-136527

Evidence A No. 14: Japanese Unexamined Patent Application Publication No. 2002-361806

Evidence A No. 15: Print-out of one item in the purchase record database controlled by Chanchun Petchem Co., Ltd. (Managing software for database: "Changchun ERP System: Purchase system")

Evidence A No. 16: Print-out of one item in the charge record database controlled by Changchun Petchem Co., Ltd. (Managing software for database: "Changchun ERP System: Purchase system")

Evidence A No. 17: A copy of a debit note from Asahi Denka Kogyo Co., Ltd. (current ADEKA Corporation) to Changchun Petchem Co., Ltd.

Evidence A No. 18: Survey report prepared by SGS Far East Ltd., Taiwan (Report on sampling/witnessed test)

Evidence A No. 19: Supplemental report prepared SGS Far East Ltd., Taiwan (Report on sampling/witnessed test)

Evidence A No. 20: Test report prepared by SGS Far East Ltd., Taiwan

Evidence A No. 21: Product catalog for "EVAL" of Kuraray Co., Ltd.

Evidence A No. 22: "Technical Bulletin No. 100 " MOISTURE ABSORPTION AND DRYING OF EVAL RESINS" of EVAL Company of America (U.S. corporation belonging to Kuraray Group)

Evidence A No. 23: Japanese Unexamined Patent Application Publication No. 2001-40034

Evidence A No. 24: "MATERIAL SAFETY DATA SHEET" of Kuraray Co., Ltd.

Evidence A No. 25: Report on EVOH PELLET manufacture test and sieving test (Sample collection/test supervising report)

Evidence A No. 26-1: Print-out of Custom's homepage "Request for import suspension of intellectual property rights: Patent rights," (Ethylene-vinyl alcohol copolymer (EVOH) resin"

Evidence A No. 26-2: "Expert's opinion on interference of Japanese Patent No.

4580627," by Uchida & Samejima Law Firm
Evidence A No. 27: Notarial document, dated November 18, 2011, prepared by Notary Public, Takashi Otani, Heisei 23-No. 495
Evidence A No. 28: Print-out of website of European material handling federation, "About," URL: http://www.fem-eur.com/about/
Evidence A No. 29: Print-out of website of European material handling federation, "About" - "MISSION & OBJECTIVES," URL: http://www.fem-eur.com/about/mission-objectives/
Evidence A No. 30: Japanese Unexamined Patent Application Publication No. H11-60874
Evidence A No. 31: Japanese Unexamined Patent Application Publication No. H11-43572
Evidence A No. 33: Japanese Unexamined Patent Application Publication No. H9-327851
Evidence A No. 34: Japanese Patent No. 2565508
Evidence A No. 35: Japanese Patent No. 2667830
Evidence A No. 36: Japanese Patent Publication H5-41094
Evidence A No. 37: Japanese Unexamined Patent Application Publication No. H11-342569
Evidence A No. 38: Japanese Unexamined Patent Application Publication No. 2001-253426
Evidence A No. 39: Japanese Unexamined Patent Application Publication No. 2001-200124
Evidence A No. 40: Kuraray's leaflet for EVAL
Evidence A No. 41: Written reply in trial case (Invalidation No. 2016-800013)
Evidence A No. 42: Notification of Matters to be Examined (Invalidation No. 2016-800013)
Evidence A No. 43: Demandee's Oral Proceedings Statement Brief
Evidence A No. 44: Taiwanese Patent No. I356069
Evidence A No. 45: Prosecution history of Taiwanese Patent No. I356069
Evidence A No. 46: General catalog for Pelectron deduster
Evidence A No. 47: DeDusting tests for all bulk solid materials
Evidence A No. 48: Report on classification results - 100% inspection of a group of EVOH pellets, 25 kg packed in a bag
Evidence A No. 49: Report on classification results - Partial inspection (sampling inspection) of a group of EVOH pellets, 25 kg packed in a bag

Evidence A No. 49-1: 25 kg of EVOH measuring method and result (measuring method of Evidence A No. 49)
Evidence A No. 50: A picture of the inside of the silver plastic bag after a group of EVOH pellets is taken out
Evidence A No. 51: A picture of the inside of the silver plastic bag after a group of EVOH pellets is taken out
(hereinafter, referred to as "Evidence A No. 1 in sequence")

No. 5 The Demandee's allegation & means of proof
1 Demandee demands a trial decision, "The appeal of the case was groundless. The costs in connection with the trial shall be borne by the Demandant." Demandee alleges as the reasons therefor that above reasons for invalidation 1 to 3 and 5 are groundless and submits the following documentary evidence as means of proof.

2 Means of proof
Evidence B No. 1: Kuraray EVAL, Kuraray Co., Ltd., Functional Resin Sales Department, April 1996
Evidence B No. 2: Kuraray's website, "Why does <EVAL> have excellent gas barrier properties?" renewed on September 17, 2003. Printed by Demandee's representative on April 14, 2016. Print-out of website,
http://www.kuraray.co.jp/products/question/plastic/eval.html
Evidence B No. 3: Certificate by President, Representative Director of The Nippon Synthetic Chemical Industry Co., Ltd. (duplicate)
Evidence B No. 4: Testimony by the inventor, Kuniyoshi Asano (duplicate)
Evidence B No. 5: A schematic diagram for explaining the mechanism of occurrence of gels due to a disturbance at the interface of EVOH layer
Evidence B No. 6: Shinpan kobunshijiten (Polymer Dictionary, New edition), The Society of Polymer Science, Japan, edited by Kobunshijiten Henshu Iinkai, published by Asakura Publishing Co., Ltd., November 25, 1988, first edition, first printing, page 421
Evidence B No. 7: Testing methods for polyvinyl alcohol, JIS K 6726, deliberated by Japanese Industrial Standards Committee, amended on June 1, 1996, page 12 (duplicate)
Evidence B No. 8: Kuraray's website "Characteristics of EVAL," date of renewal not known. Printed by Demandee's representative on April 18, 2016.
Print-out of website of http://www.eval.jp/jp/%E7%89%B9%E6%80%A7.aspx

Evidence B No. 9: A picture of external appearance of Kuraray EVAL (dated August 10, 2010)

Evidence B No. 10: Japanese Unexamined Patent Application Publication No. 2002-161212

Evidence B No. 11: Kuraray's website, "EVAL EVOH gas-barrier resin and film" catalog. Date of renewal not known. Printed by Demandee's representative on July 19, 2016. Print-out of website of http://www.eval.jp/media/122399/______evoh____________.pdf

Evidence B No. 12: International Publication No. WO 2005/014716

Evidence B No. 13: Japanese Unexamined Patent Application Publication No. 2002-370323

Evidence B No. 14: Japanese Unexamined Patent Application Publication No. 2001-234008

Evidence B No. 15: Japanese Unexamined Patent Application Publication No. S64-66262

(hereinafter, referred to as "Evidence B No. 1 in sequence")

No. 6 Judgment by the body

1. Binding power of the court decision on rescindment of the trail

Binding power of the court decision to rescind the trial decision extends over finding of fact and judgment on legal elements that are necessary for deriving the main text of the judgment (Decision of April 28, 1992 by Supreme Court, Third Petty Bench, Minshu vol. 46, No. 4, p. 245).

Therefore, the examination by the body is bound by the judgment of the court decision for rescindment, especially by the following judgment.

(1) Regarding the problem to be solved by the Invention

· "There is no other way, but to deem that the meaning of 'a gel due to a disturbance at an interface of an EVOH layer' in the Invention is unclear, and, even if common technical knowledge as of the filing of the application for the Patent is taken into consideration, there is no other way but to deem that the problem to be solved by the Invention, 'there is no generation of gels due to a disturbance at an interface of an EVOH layer when the pellet is melt-molded into a molded article, and an excellent molded article is obtained ' cannot be understood". (page 74, lines 11 to 14)

(2) Invention described in Evidence A No. 1 (Invention A-1)

· "A saponified ethylene-vinyl acetate copolymer pellet obtained, after immersion in aqueous solution of acetic acid, by contacting with nitrogen gas using a tower-type batch-wise fluidized-bed drier in which pellet the weight of fine powder passed through a 100 µm sieve is less than 0 to 2 g (less than 0 to 0.008% by weight) after 25 kg of the saponified ethylene-vinyl acetate copolymer pellets is put into a blender and the blender is rotated for 10 hours under room temperature". (page 82, line 2 from the bottom to page 83, line 3)

2. Statements in the Description

With respect to the Inventions, the Description has the following statements.

(1) "[Technical field]

[0001]

The present invention relates to a group of saponified ethylene-vinyl acetate copolymer (hereinafter, abbreviated as "EVOH") pellets and laminate products using the same, more particularly, to a group of EVOH pellets having excellent moldability in which generation of gels due to a disturbance at an interface of an EVOH layer is suppressed during molding, and laminate products using the same."

(2) "[Background Art]

[0002]

Generally, EVOH is excellent in transparency, gas barrier properties, aroma retention, solvent resistance, oil resistance, and the like, and is used after being molded into films, sheets, or containers such as bottles as a food packaging material, a pharmaceutical packaging material, an industrial chemical packaging material, an agricultural chemical packaging material, or the like using such characteristics.

[0003]

When such EVOH is melt-molded and processed into various molded articles, gels and/or scorch of EVOH may be generated at the time of molding, and a long-run property and an appearance property of a molded article (particularly, films, sheets, or the like) may be deteriorated.

As a countermeasure, it has been attempted to incorporate a metal salt into EVOH. For example, there are a method in which viscosity behavior of EVOH is controlled by combining a fixed amount of a salt of a metal of group 2 of the periodic table and an acidic substance with 3.5 or more pka and the boiling point under a constant pressure of 120°C or less with EVOH (See Patent Document 1, for example) and a method in which specific amounts of boric acid, sodium acetate, and magnesium acetate are included into EVOH (See Patent Document 2, for example), and, as well, it has also been tried to combine boron compounds such as potassium borate and calcium borate with EVOH (See Patent Document 3, for example).

[0004]

[Patent Document 1] Japanese Unexamined Patent Application Publication No. S64-66262

[Patent Document 2] Japanese Unexamined Patent Application Publication No. H11-60874

[Patent Document 3] Japanese Unexamined Patent Application Publication No. H11-43572

(3) "[Problem to be solved by the invention]

[0005]

However, it became clear that the thermal stability of molten EVOH is improved and generation of gels and scorches due to long-run molding are suppressed with the methods disclosed in above Patent Documents 1 to 3, but, when applied to various laminate products, there is a risk of generation of gels or the like caused by a disturbance at the interface of EVOH layer due to instability of feed to an extruder."

(4) "[Means for solving the problem]

[0006]

Accordingly, in view of such situation, as a result of concentrated study of behavior of pellets of EVOH at the feed section, the inventors of the present invention have found that a group of EVOH pellets in which the content of fine particles that pass through a 32 mesh (opening 500 μ) sieve is 0.1% by weight or less can suppress generation of above-mentioned gel, and thus completed the present invention.

In the present invention, it is preferred that EVOH contains boron compounds and EVOH contains an acidic substance (A) having a melting point of 200°C or less and an alkali metal (B) and a weight ratio thereof (A/B) is 1 to 50."

(5) "[Advantage of the Invention]

[0007]

The group of EVOH pellets of the present invention keeps a specific fine powder below a specific amount, so that there is no generation of gels due to a disturbance at an interface of an EVOH layer when the pellet is melt-molded into a molded article, and an excellent molded article is obtained, which is useful as a multilayer film. It is especially useful for various types of molding applications, including applications such as films, sheets, tubes, bags, containers, etc. for packaging foods, pharmaceuticals, agricultural chemicals, and industrial chemicals."

(6) "[Best Mode for Carrying Out the Invention]
[0008]

The present inventions are described in detail below.

The group of EVOH pellets of the present invention has a content of fine powder passing through a 32 mesh (opening 500 μ) sieve of 0.1% by weight or less, and when the content exceeds 0.1% by weight, the purpose of the present invention cannot be achieved, and it is preferred that EVOH molded into EVOH pellets has an ethylene content of 5 to 70% by mol (more preferably 15 to 60% by mol, especially preferably 20 to 55% by mol, and particularly preferably 25 to 50% by mol), and, if the ethylene content is less than 5% by mol, the gas barrier property at high humidity tends to be lowered, and conversely, if it exceeds 70% by mol, ordinary gas barrier properties, oil resistance, chemical resistance, and the like tend to be lowered, which is not preferable.
... (omitted) ...
[0011]

The EVOH is obtained by saponification of an ethylene-vinyl acetate copolymer and ethylene-vinyl acetate copolymer is produced by any known polymerization method, for example, solution polymerization, suspension polymerization, emulsion polymerization, or the like, and the saponification of an ethylene-vinyl acetate copolymer can be performed by a known method.
... (omitted) ...
[0013]

The EVOH pellets used in the present invention are usually obtained by copolymerizing ethylene and vinyl acetate in an alcohol solvent, saponifying them with an alkali or the like, precipitating them in a strand form in a methanol/water coagulation bath, and then cutting them.
[0014]

The EVOH pellets are then washed with water, and the water washing is carried out in a water tank at 10 to 60°C. By such washing, oligomers and impurities are removed, and the contents of an acidic substance (A) and an alkali metal (B) to be described later can be adjusted by washing with water. Usually, such water washing is carried out at from 200 to 1000 parts by weight (preferably 300 to 600 parts by weight) per 100 parts by weight of EVOH pellets, and from 20 to 50°C (25 to 35°C) for 0.5 to 5 hours, 1 to 5 times (preferably, 1 time).

[0015]

After that, the EVOH pellets are dried by a known method such as flow drying and/or static drying and practically used as EVOH pellets, but in the present invention, the EVOH pellets are passed through a 32 mesh (opening 500 μ) sieve, and the most important feature of the present invention is that the proportion of the fine powder passing through the sieve is 0.1% by weight or less (still preferably 0.05% by weight or less, and particularly preferably 0.03% by weight or less) relative to the whole, and, if the ratio of such fine powder exceeds 0.1% by weight, it becomes difficult to achieve the purpose of the present invention. Although the lower limit of the ratio of the fine powder is not particularly limited, it is preferably 0.0005% by weight (more preferably 0.001% by weight) in consideration of the slipperiness of the pellets during molding.

[0016]

For making the ratio of fine powder passing through a 32 mesh (opening 500 μ) sieve 0.1% by weight or less, there are several methods, including a method of sieving EVOH pellets obtained by a conventional method to remove such fine powder, a method of classifying with wind using a cyclone or the like, a method of washing with a solvent and drying to remove fine powder, a method of spraying water to pellets and drying at high temperature, and the like.

[0017]

Thus, the group of EVOH pellets of the present invention is obtained, but in the present invention, boron compounds are contained in the above EVOH pellets. In addition, it is preferred that the pellets contain an acidic substance (A) having a melting point of 200°C or less (more preferably 0 to 130°C, particularly preferably 0 to 65°C) and an alkali metal (B), from the viewpoint that the effect of the present invention can be further improved, and methods to include such substances is explained below.

... (omitted) ...

[0019]

The content of such boron compounds is not particularly limited but it is preferred that the content is 0.001 to 1% by weight (more preferably 0.001 to 0.2% by weight and particularly preferably 0.02 to 0.1% by weight) in terms of boron relative to EVOH. If such content is less than 0.001% by weight, the effect of addition is poor, and conversely, if it exceeds 1% by weight, a gel or a streak tends to be generated in the molded article, which is not preferable.

[0020]

For making EVOH comprises boron compounds, if the EVOH pellets obtained as explained above are contacted with aqueous solution of boron compounds, the pellets comprise boron compounds, and it is usually preferable to include boron compounds into the pellets by putting the above EVOH pellets into the above aqueous solution while stirring the whole.

[0021]

On the other hand, acetic acid (melting point 17°C), adipic acid (melting point 28°C), phosphoric acid (melting point 42°C), benzoic acid (melting point 122°C), citric acid (melting point 153°C), succinic acid (melting point 185°C) and the like can be pointed out as acidic substances (A) with a melting point at 200°C or less, and acetic acid and phosphoric acid are especially suitable.

[0022]

Furthermore, alkali metals such as sodium and potassium and alkali earth metals such as magnesium and calcium can be pointed out as alkali metals (B), and, in including them into EVOH, they may be used as a metallic salt with an organic acid such as acetic acid, propionic acid, butyric acid, lauric acid, stearic acid, oleic acid, or behenic acid, or an inorganic acid such as sulfuric acid, sulfurous acid, carbonic acid, or phosphoric acid.

[0023]

It is preferred to make the content of such acidic substance (A) 0.001 to 0.05% by weight (more preferably, 0.001 to 0.03% by weight, and especially preferably 0.002 to 0.01% by weight) relative to EVOH, and if the content is less than 0.001% by weight, the effect of addition is poor, and conversely, if it exceeds 0.05% by weight, a gel or a streak tends to be generated in the molded article, which is not preferable.

[0024]

In addition, it is preferred to make the content of alkali metal (B) 0.001 to 0.5% by weight (more preferably, 0.001 to 0.05% by weight) relative to EVOH, and if the content is less than 0.001% by weight, the effect of addition is poor, and conversely, if it exceeds 0.5% by weight, there is a risk of unfavorable coloring.

[0025]

Furthermore, it is preferable to set the content weight ratio (A/B) of the above acidic substance (A) and alkali metal (B) to 1 to 50 (more preferably, 1 to 20, and especially preferably 1 to 10), and if such weight ratio is less than 1, there is a risk of offensive odor at the time of molding due to thermal decomposition, and conversely, if the weight ratio exceeds 50, there is a risk of unfavorable corrosion in the screw or the die in the molding machine.

... (omitted) ...

[0027]

Thus, obtained group of EVOH pellets of the present invention has an effect that, when melt molding is carried out using the pellets, no gel is generated in obtained molded articles. As melt molding methods, extrusion molding methods (T-die extrusion, inflation extrusion, blow molding, melt spinning, profile extrusion, and the like) and injection molding are mainly adopted. The temperature for melt molding is often selected from the range of 150 to 300°C.

In addition, the EVOH pellets are frequently used in laminate applications, and are used as laminate products obtained by laminating a thermoplastic resin layer on at least one side of a layer composed of EVOH.

[0028]

In manufacturing laminate products, another substrate is laminated on one or both sides of a layer composed of EVOH. As laminating methods, there are pointed out, for example, a method of melt-extruding a thermoplastic resin onto a film or sheet of EVOH, a method of melt-extruding the EVOH onto a substrate of a thermoplastic resin, or the like, a method of co-extruding the EVOH and another thermoplastic resin. Furthermore, there can be pointed out a method of dry laminating a film, sheet of EVOH obtained by the present invention, and a film, a sheet of another substrate using a known adhesive such as an organic titan compound, isocyanate compound, polyester compound, and a polyurethane compound."

(7) "[Examples]

[0035]

The present invention is specifically described in detail with reference to working examples below.

In the Examples, "parts" means "parts by weight," and "%" means "% by weight" unless otherwise noted.

[0036]

Example 1

EVOH having an ethylene content of 32% by mol, a saponification degree of 99.6% by mol, and MFR 3 g/10 min (measured at 210°C, and with a load of 2160 g) was uniformly dissolved in a mixed solvent of water/methanol (1/1 weight ratio), and, then extruded and precipitated as a strand in a coagulation liquid of water at 10°C and cut to obtain EVOH pellets. The pellets were immersed in an aqueous solution containing 0.03% acetic acid and 0.04% sodium acetate, and further immersed in aqueous solution containing 0.013% boric acid, and EVOH pellets comprising 0.03%

boric acid in terms of boron, 0.045% acetic acid, and 0.015% sodium acetate in terms of sodium (sodium acetate = 13/1) respectively relative to EVOH were obtained.

Then, obtained EVOH pellets were classified by passing through a 32 mesh (opening 500 μ) sieve, and the group of EVOH pellets of the present invention was obtained by mixing 100 parts of 32 mesh-on EVOH pellets and 0.03 parts (0.03%) of 32 mesh passing EVOH pellets.

[0037]

Using the obtained group of EVOH pellets, multilayer films were prepared with the following procedures, and evaluation of the moldability was carried out as explained below.

[Preparation of multilayer films]

The EVOH pellets (I), Nylon-6 ["NOVAMID 1022-1" produced by Mitsubishi Engineering Plastics] (II), polypropylene ["FL6CK" produced by Japan Polychem Corporation] (III) and an adhesive resin ["ADMER QF500" produced by Mitsui Chemicals Inc.; maleic anhydride-modified polypropylene] (IV) were fed to a feed block type co-extrusion multilayer film molding machine (produced by Gunze Sangyo, Inc.) to obtain a multilayer film having a layer structure of (II)/(I)/(IV)/(III) = 10/10/10/120 (μm; thickness).

[0038]

(Moldability)

A film of 10 cm x 10 cm was taken from the obtained multilayer film after 48 hours in the above production, and the state of occurrence of gels due to the disturbance in the EVOH layer was visually observed and evaluated as follows:

◎ ... generated 4 or fewer gels
○ ... generated 5 to 10 gels
× ... generated 11 or more gels

[0039]

Example 2

Using EVOH with a content of ethylene of 40% by mol, a saponification degree of 99.4% by mol, and MFR 15 g/10 min (measured at 210°C, a load of 2160 g), EVOH pellets were obtained in accordance with Example 1. The group of EVOH pellets of the present invention was obtained, and evaluation was carried out in the same manner except that the pellets were immersed in an aqueous solution containing 0.05% acetic acid and 0.03% sodium acetate, and EVOH pellets comprising 0.06% acetic acid and 0.013% sodium acetate in terms of sodium (acetic acid/sodium = 20/1) respectively relative to EVOH were obtained.

[0040]

Example 3

In Example 1, the EVOH pellets were classified by passing through a 32 mesh (opening 500 µ) sieve, and the group of EVOH pellets of the present invention was obtained by mixing 100 parts of 32 mesh-on EVOH pellets and 0.08 parts (0.08%) of 32 mesh passing EVOH pellets and evaluation was carried out in the same manner.

[0041]

Example 4

In Example 1, other than that spheric EVOH pellets were obtained by subjecting EVOH to under-water cutting in water/methanol solution, a group of EVOH pellets of the present invention in which the ratio of fine powder passing through a 32 mesh (opening 500 µ) sieve is 0.02% was obtained and evaluation was carried out in the same manner as in Example 1.

[0042]

Comparative Example 1

In Example 1, a group of EVOH pellets was evaluated without classifying with a 32-mesh sieve. The ratio of fine powder passing through a 32 mesh (opening 500 µ) sieve in the group of EVOH pellets was 0.2%.

[0043]

Evaluation results of Examples and Comparative Example are shown in Table 1.

[0044]

[Table 1]

	成形性
実施例 1	◎
〃 2	◎
〃 3	○
〃 4	◎
比較例 1	×

成型性	Moldability
実施例	Example
比較例	Comparative Example

"

(8) "[Industrial applicability]
[0045]

In the group of EVOH pellets of the present invention, since the amount of the specific fine powder is kept to or below a specific amount, when melt molded into molded articles, excellent molded articles in which no gel or scorch is generated can be obtained, and it is very useful for multilayer film application and various molding applications including films, sheets, tubes, bags, and containers for packaging foodstuffs, drugs, agricultural chemicals, and industrial chemicals."

3 Reason for invalidation 1 (Requirement provided by Order of the Ministry and enablement requirement; Article 36(4)(i) of the Patent Act)

(1) Regarding Requirement provided by Order of the Ministry

A Considering first the binding power of the court decision on rescindment of the trial, as explained in No. 2 above, since the Correction is for the purpose of restricting the scope of claims, the statement in paragraph [0007] of the detailed description of the invention in the Description, "there is no generation of gels due to a disturbance at an interface of an EVOH layer when the pellet is melt-molded into a molded article, and an excellent molded article is obtained," which seems to be the problem to be solved by the Invention does not change before and after the Correction, and, moreover, the Correction does not correct the detailed description of the invention in the Description.

Therefore, even if the Correction is allowed, the binding power in the court decision on rescindment of the trail mentioned in 1, (1) above may not be blocked.

B While there is a statement, "the thermal stability of molten EVOH is improved and generation of gels and scorches due to long-run molding are suppressed with the methods disclosed in above Patent Documents 1 to 3" in paragraph [0005] of the detailed description of the invention in the Description, there is a statement, "when applied to various laminate products, there is a risk of generation of gel or the like caused by a disturbance at the interface of EVOH layer due to instability of feed to an extruder."

C According to the statement in paragraph [0038] of the detailed description of the invention in the Description, the state of occurrence of gels due to the disturbance in the

EVOH layer can be visually observed and the number of gels can be counted as stated there in a 10 cm X 10 cm large film:

"◎ ... generated 4 or fewer gels

○ ... generated 5 to 10 gels

× ... generated 11 or more gels."

It is acknowledged that paragraph [0044] describes that the number is 10 or less in all of Examples 1 to 4, while the number is 11 or more in Comparative Example 1, and evaluated that, if it is 10 or less, moldability is good.

D As described in paragraphs [0002] to [0044] of the detailed description of the invention in the Description, Evidence B No. 15 that is mentioned in the Description as a background arts that "during the same period, no stripe-like object was generated and gel-like butsu (butsu means defects in the form of small ball like a fish eye) recognizable by the naked eye was generated in an amount of 0.1 to 0.3 $/m^2$ and no tendency of increase over time was observed" (p. 7, lower left column, ll. 8 to 4 from the bottom).

E As explained in B above, although it is stated in the detailed description of the invention in the Description that "a gel due to a disturbance at an interface of an EVOH layer" is generated by a cause different from the cause of the gels due to long-run molding, the Description does not have any statement that makes clear how "a gel due to a disturbance at an interface of an EVOH layer" is different in its shape, structure, and the like from the gel that is the cause of "gel-like butsu" in Evidence B No. 15.

In addition, as explained in C above, in the detailed description of the invention in the Description, it is mentioned that "a gel due to a disturbance at an interface of an EVOH layer" can be visually observed and "gel-like butsu" in Evidence B No. 15 is mentioned as recognizable by the naked eye, but, since the Description does not have any definition of "visually observed" and there is no specific statement that the latter can be recognized by the naked eye and the former includes objects that cannot be recognized by the naked eye, it cannot be understood that "a gel due to a disturbance at an interface of an EVOH layer" in the Invention and "gel" in the background art (Evidence B No. 15) can be discriminated from each other by the method of observation.

Thus, although the detailed description of the invention in the Description has a statement that "a gel due to a disturbance at an interface of an EVOH layer" in the Inventions is generated by a cause that is different from the cause of the gel due to long-run molding which can be suppressed by an art prior to filing of the application for the

Patent, there is no other way but to deem that the distinction between the gel and the gel caused by long-run molding is murky according to the statement alone.

Then, there is no other way but to deem that the meaning of "a gel due to a disturbance at an interface of an EVOH layer" in the Invention is not clear, and, even if common technical knowledge as of the filing of the application for the Patent is taken into consideration, the problem to be solved by the Invention, "there is no generation of gels due to a disturbance at an interface of an EVOH layer when the pellet is melt-molded into a molded article, and an excellent molded article is obtained," cannot be understood (binding power of the court decision on rescindment of the trail).

F In addition, even if the binding power of the court decision on rescindment of the trail is blocked by the Correction, in order to understand the problem to be solved by the Invention it is necessary to clarify the meaning of "a gel due to a disturbance at an interface of an EVOH layer," and, therefore, it is necessary to discriminate between "a gel due to long-run molding" and "A gel due to a disturbance at an interface of an EVOH layer" in this case, too.

Namely, even if the Invention has a matter specifying the invention, "the saponified ethylene-vinyl acetate copolymer comprises boron compounds, an acidic substance (A) having a melting point of 200 °C or less and an alkali metal (B), the content of the boron compounds is 0.001 to 1% by weight in terms of boron relative to the saponified ethylene-vinyl acetate copolymer, the content of the acidic substance (A) having a melting point of 200°C or less is 0.001 to 0.05% by weight relative to the saponified ethylene-vinyl acetate copolymer, and the content of the alkali metal (B) is 0.001 to 0.5% by weight in terms of metal relative to the saponified ethylene-vinyl acetate copolymer" and, because of this, "the gel due to long-run molding" is suppressed, judging from the fact that paragraphs [0038] and [0044] of the detailed description of the invention in the Description evaluated that if the number of generated gels is 10 or fewer, it is judged that there is no gel generation, it is natural to consider that the number of "a gel due to long-run molding" does not become zero. Then, it should be deemed that it is still necessary to discriminate "the gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer" by the observing method.

In addition, as stated in E above, it is not clear whether "a gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer" can be discriminated by the description in the detailed description of the invention in the Description.

Therefore, there is no other way but to deem that the meaning of "a gel due to a disturbance at an interface of an EVOH layer" in the Invention is not clear, and, therefore, even if common technical knowledge as of the filing of the application for the Patent is taken into consideration, the problem to be solved by the Invention, "there is no generation of gels due to a disturbance at an interface of an EVOH layer when the pellet is melt-molded into a molded article, and an excellent molded article is obtained" still cannot be understood.

G　Therefore, since the detailed description of the invention in the Description does not describe the problem to be solved by the Invention so that a person skilled in the art can understand it, it does not comply with the provisions of Article 24-2 of the Regulations under the Patent Act.

(2) Demandee's allegation

Demandee alleges in its written statement filed on February 14, 2020 substantially as follows:

A　The advance notice of the trial decision referred to the binding power of the court decision on rescindment of the trail and stated that there is no other way but to deem that the problem to be solved by the Invention cannot be understood. However, since the Corrected Inventions have a different constitution from that of the claims that was the premise of the court decision for cancellation, the binding authority of the court decision for cancellation does not apply to it (Written statement, No. 2, 4, (1)).

B　Regardless of whether or not "a gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer" can be discriminated from each other, since the Corrected Inventions disclose a means for solving that can suppress generation of both types of gels, it is not necessary to discriminate between "a gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer" in understanding the problem to be solved by the Corrected Invention(s), and whether it is difficult to discriminate between both types of gels has nothing to do with understanding the essence of the Corrected Inventions (Written statement, No. 2, 4, (2)).

C　Advance notice of the trial decision, page 10, (B) judged that "it is unreasonable to understand that generation of gels and scorches are suppressed" in paragraph [0005] of the Description means that "no gel is generated," and states, as the ground for the judgement, that gels and the like were generated in Comparative Examples 3 and 7 in

Evidence A No. 30 and Comparative Example 1 in Evidence A 31 in which boron compounds were contained, and, therefore, it is necessary to discriminate between a "gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer."

However, Comparative Examples 3 and 7 in Evidence A No. 30 and Comparative Example 1 in Evidence A 31 are not any art that the Corrected Inventions apply for suppressing generation of gel and scorch due to long-run molding.

Therefore, since the generation of gels and the like in Comparative Examples 3 and 7 in Evidence A No. 30 and Comparative Example 1 in Evidence A 31 has nothing to do with interpretation of the Description, the judgment by the advance notice of the trial decision that it is necessary to discriminate between "a gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer" is groundless (Written statement, No. 2, 4, (3)).

D The advance notice of the trial decision, page 10, (A) points out that Demandee already alleged in the suit resulted in the court decision for cancellation that it is not necessary to discriminate between "a gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer," and, based on such allegation, the court decision for cancellation has become final and binding, but this is a mistake of fact (Written statement, No. 2, 4, (4)).

The above allegation is examined below.

Regarding A

As stated in (1), A above, it can be deemed that the binding authority of court decision for cancellation is not interrupted.

Therefore, Allegation A cannot be adopted.

Regarding B

It is as already explained in (1) above that it is necessary to discriminate between "a gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer" in understanding the problem to be solved by the Invention.

Therefore, allegation B cannot be adopted.

Regarding C

Even if evidence and common technical knowledge are taken into consideration, it cannot be understood that the number of gels due to long-run molding becomes zero without fail with respect to the Inventions when the Inventions specify only the matters: "the saponified ethylene-vinyl acetate copolymer comprises boron compounds, an acidic substance (A) having a melting point of 200°C or less and an alkali metal (B), the content of the boron compounds is 0.001 to 1% by weight in terms of boron relative to the saponified ethylene-vinyl acetate copolymer, the content of acidic substance (A) having a melting point of 200°C or less is 0.001 to 0.05% by weight relative to the saponified ethylene-vinyl acetate copolymer, and, the content of the alkali metal (B) is 0.001 to 0.5% by weight in terms of metal relative to the saponified ethylene-vinyl acetate copolymer."

In addition, right from the beginning, the advance notice of the trial decision, page 10, (B) judges from the statement in paragraph [0038] of the detailed description of the invention in the Description that it is unreasonable to understand that "generation of gels and scorches are suppressed" of paragraph [0005] of the detailed description of the invention in the Description means that "no gel is generated," and Comparative Examples 3 and 7 in Evidence A No. 30 and Comparative Example 1 in Evidence A 31 have been pointed out just as collateral evidences to support such judgment.

Therefore, it cannot be concluded that, even if the Inventions have the above matter specifying the invention, there is no "gel due to long-run molding," and it should be deemed that for judging that generation of "gels due to a disturbance at an interface of an EVOH layer" is suppressed, it is necessary to discriminate between "a gel due to long-run molding" and "a gel due to a disturbance at an interface of an EVOH layer."

Accordingly, the allegation C cannot be adopted.

Regarding D

According to the court decision, page 61, lines 20 to 22, Demandee asserted during the suit resulting in the court decision that "since 'a disturbance at an interface of an EVOH layer' is not defined as a matter specifying the invention, Plaintiff's assertion that it is necessary to discriminate between gels on the interface of an EVOH layer and other gels is groundless." It cannot be deemed that the advance notice of the trial decision has a mistake of fact.

Accordingly, the allegation D cannot be adopted.

(3) Summary

As explained above, with respect to the Inventions, it cannot be deemed that the statement in the detailed description of the invention in the Description is, in accordance with Ordinance of the Ministry of Economy, Trade and Industry, clear and sufficient as to enable any person ordinarily skilled in the art to which the invention pertains to work the invention.

Therefore, since the patent for inventions according to Claims 1 and 3 of the Patent has been granted to a patent application that does not comply with the requirement set forth in Article 36(4)(i) of the Patent Act, it falls under Article 123(1)(iv) of the Patent Act and should be invalidated.

4. Reason for invalidation 2 (Support requirement; Article 36(6)(i) of the Patent Act)

(1) Criteria for the support requirement

It is understood that whether the statement of the scope of claims satisfies the Support Requirement of a Description should be determined by considering, through comparison of the statement of the scope of claims and the statement of the detailed explanation of the invention, whether the invention described in the scope of claims is the invention described in the detailed explanation of the invention that is within the scope for which a person ordinarily skilled in the art can recognize, based on the statement of the detailed explanation of the invention, that the invention can solve the problem to be solved by the invention, and also by considering whether the invention described in the scope of claims is an invention within the scope for which a person ordinarily skilled in the art can recognize, in light of the common general technical knowledge as of the time of filing the application, that the invention can solve the problem to be solved by the invention, even without the statement and indication thereof.

(2) Judgment

As explained in 3, (1), G above, the detailed description of the invention in the Description does not describe the problem to be solved by the Inventions so that a person skilled in the art can understand. Therefore, it cannot be acknowledged that the invention described in the scope of claims is within the scope that a person skilled in the art can recognize that the problem to be solved by the invention can be solved with the statement in the detailed description of the invention, and also it cannot be acknowledged that the invention described in the scope of claims is within the scope which a person skilled in the art can recognize that the problem to be solved by the invention can be solved in the light of common technical knowledge as of the filing of the application even without any description or suggestion in the detailed description of the invention.

Therefore, with respect to the Inventions, it cannot be deemed that the statement in the scope of claims complies with the support requirement.

(3) Summary

As explained above, with respect to the Inventions, it cannot be deemed that the description in the scope of claims comply with the support requirement.

Therefore, since the patent for the inventions according to Claims 1 and 3 of the Patent has been granted to the application that does not comply with the requirement set forth in Article 36(6)(i) of the Patent Act, it falls under the provisions of Article 123(1)(iv) of the Patent Act and should be invalidated.

5. Reason for invalidation 3 (Clarity; Article 36(6)(ii) of the Patent Act)

Descriptions in the scope of claims of the case including descriptions, "fine powder" and "0.1% by weight," are clear and, even if new fine powder may be generated in the sieving process, it is not impossible to know whether they belong to the technical scope of the Inventions or not.

Therefore, it cannot be deemed that the patent for the inventions according to Claims 1 and 3 of the Patent has been granted to the application that does not comply with the requirement set forth in Article 36(6)(ii) of the Patent Act, and it cannot be deemed to fall under the provisions of Article 123(1)(iv) of the Patent Act and should be invalidated.

6 Reason for invalidation 5 (inventive step; Article 29(2) of the Patent Act)

(1) Matters described in Evidence A No. 1 and Invention A1

A Matters described in Evidence A No. 1

Evidence A No. 1 (Japanese Unexamined Patent Application Publication No. 2000-63528) has substantially the following statement with respect to "saponified ethylene-vinyl acetate copolymer pellet."

· "[0001]

[Field of the Invention] The present invention relates to a saponified ethylene-vinyl acetate copolymer (hereinafter, referred to as "EVOH") pellet, and more particularly to an EVOH pellet in which fusion, cracking, chipping, and generation of fine powder during transportation occurs very seldomly, and is excellent in melt moldability."

· "[0003]

[Problem to be solved by the invention] However, in transporting EVOH pellets, they are normally packaged in kraft paper or the like which is moisture-proof by an aluminum inner bag or the like. In certain cases, depending on a temperature change, a state of loading, a vibration, and the like during transportation, fusion, cracking, chipping, and generation of fine powders of the pellets may occur, resulting in difficulty in stable melt molding."

· "[0005]
[Embodiments of the invention] The present invention is described in detail below. The EVOH pellets of the present invention have a storage elastic modulus of 8×10^7 to 1×10^9 (even 9×10^7 to 5×10^8) Pa at 20°C. Any storage elastic modulus less than 8×10^7 Pa or larger than 1×10^9 Pa is not appropriate, since fusion between pellets tends to occur during transportation if the storage elastic modulus is less than 8×10^7 Pa, and the pellets tend to be cracked, chipped, and fine powder tends to be generated during transportation if the storage elastic modulus exceeds 1×10^9 Pa.
[0006] In addition, the storage elastic modulus is a value measured when vibration of 10 Hz is applied and can be measured by DMA (Dynamic Mechanical Analyzer) or the like. In the present invention, while increasing the temperature of EVOH pellets from 10 to 50°C at the rate of 3°C /min, the storage elastic modulus was continuously measured with the DMA, and the measurement at 20°C was taken as storage elastic modulus of the EVOH pellets."

· "[0022] Furthermore, in the case in which molded articles such as films, sheets, and the like are obtained from EVOH pellets obtained with the method of the present invention, and the molded article is extrusion-coated to another base material, or is laminated with a film, sheet, and the like of another base material using an adhesive, arbitrary basic material other than above thermoplastic resin (paper, metallic foil, uniaxial or biaxial extended plastic film or sheet, woven fabric, non-woven fabric, cotton-like metal material, woody material, and the like) can be used. The layer structure of the laminate products can be such that, defining a layer of EVOH as x (x_1, x_2, ...), and a layer of another basic material such as thermoplastic resin for example as y (y_1, y_2, ...), for films, sheets, or bottles, not only two-layer structure of x/y, but also arbitrary combinations such as y/x/y, x/y/x, $x_1/x_2/y$, $x/y_1/y_2$, $y_2/y_1/x/y_1/y$, and the like are possible, and in the case of filament-like shape, arbitrary combination of a bimetal-like structure of x and y, core (x) - sheath (y) type, core (y) - sheath (x) type, or eccentric core-sheath type is possible."

· "[0027]

[Examples] The present invention is described in detail with reference to working examples. In the working examples, "part" means "parts by weight" and "%" means "% by weight" unless otherwise noted.

Example 1

1,000 parts of 40% methanol solution of ethylene-vinyl acetate copolymer with a content of ethylene 40% by mol were put in a pressure-resistant reactor and heated to 110°C while stirring. Subsequently, 40 parts of 6% methanol solution of sodium hydroxide and 2,500 parts of methanol were continuously charged, and a saponification reaction was carried out for 2.5 hours while distilling off methyl acetate and excess methanol as by-products from the system, thereby obtaining a saponified solution of a saponified ethylene-vinyl acetate copolymer having a saponification degree of vinyl acetate component of 99.0% by mol. Next, 600 parts of an aqueous methanol solution having a water content of 30% were supplied to the solution under azeotropic conditions, and methanol was distilled out at a temperature of 100 to 110°C and a pressure of 3 kg/cm 2 G until the concentration of the resin component in the solution reached 40% to obtain a transparent methanol/water homogeneous solution (methanol in the solution 40%). A methanol solution of the saponified product was extruded from a nozzle into a water tank in a strand form. After completion of the coagulation, the strand-like material was cut with a cutter to produce white pellets (1) having a diameter of 4 mm and a length of 4 mm. The methanol content of the pellet (1) was 38%, the content of acetic acid (a) was 3000 ppm, and the content of sodium acetate (b) was 15000 ppm.

[0028] Next, 100 parts of the obtained pellet (1) were charged into 400 parts of warm water at 30°C., stirred for about 60 minutes, washed with water, and then immersed in 400 parts of 1% acetic acid aqueous solution after washing with water. After immersion, the methanol content of the pellets was 5000 ppm, the content of acetic acid (a) was 2500 ppm, and the content of sodium acetate (b) was 500 ppm. Using a tower-type batch-wise fluidized-bed drier, nitrogen gas was contacted in a 120°C atmosphere for 22 hours, and EVOH pellets with a content of methanol 100 ppm, a content of acetic acid (a) 200 ppm, and a content of sodium acetate (b) 500 ppm [(a)/(b) = 0.4 (ratio by weight)] were obtained. The storage elastic modulus of the obtained EVOH pellets at 20°C was 1 x 10^8 Pa.

[0029] For obtained EVOH pellets, evaluation of the pellets and the moldability of the EVOH film for which the pellets were used were carried out in the following manner.

... (omitted) ...

(B) Crack and chipping of pellets

25 kg of pellets were placed in a blender and the blender was rotated at room temperature for 10 hours, and then, the pellets were taken out and visually evaluated as follows:

○ ... No cracking or chipping of the pellets was observed.

△ ... 1 to 10 instances of cracking and/or chipping were observed.

× ... 11 or more instances of cracking and/or chipping were observed.

(C) Generation of fine powder

The content obtained by rotating for 10 hours at a room temperature in the above method was taken out and sieved with a 100 μm sieve. The weight of fine powder that passed through the sieve was measured and the pellets were evaluated as follows.

○ ... less than 0 to 2 g

△ ... less than 2 to 10 g

× ... 10 g or more."

· "[0030] On the other hand, obtained EVOH pellets were supplied to a single screw extruder equipped with a T-die, and an EVOH film having a thickness of 40 μm was continuously formed for 96 hours, and evaluated as shown below. Conditions for forming the film using a single screw extruder were as shown below."

· "[0031]

(D) Torque fluctuation

It was obtained from fluctuation in screw torque A (in ampere) as a motor load of the extruder (rotation speed of the screw 40 rpm) during continuous film formation and evaluated as follows:

○ ... Fluctuation less than ±5%

△ ... Fluctuation of ±5 to± 10%

× ... Fluctuation greater than ±10%

(E) Change in discharge amount

Fluctuation of the discharge amount of the extruder during continuous film forming (40 rpm) was obtained and evaluated as follows:

○ ... Fluctuation less than ±5%

△ ... Fluctuation of ±5 to ±10%

× ... Fluctuation greater than ±10%"

· "[0032]

(F) Change in film thickness

Film thickness in MD (longitudinal) direction was measured every hour, and the variation ratio was determined and evaluated as follows:

○ ... Fluctuation less than ±5%

△ ... Fluctuation of ±5 to ±10%

× ... Fluctuation greater than ±10%"

(G) External appearance of film

The number of fisheyes in 100 cm^2 of film (10 cm x 10 cm) was measured, and the pellets were evaluated as follows:

○ ... 0 to 3

△ ... 4 to 20

× ... 21 or more."

· "[0033] Example 2

EVOH with a degree of saponification 99.0% by mol was obtained in the same manner as Example 1. Next, 600 parts of an aqueous methanol solution having a water content of 30% were supplied to the solution under azeotropic conditions, and methanol was distilled out at a temperature of 100 to 110°C and a pressure of 3 kg/cm2 G until the concentration of the resin component in the solution reached 40%, to obtain a transparent methanol/water homogenous solution (methanol in the solution was 40%). A methanol solution of the saponified product was extruded from a nozzle into a water tank in a strand form. After completion of the coagulation, the strand-like material was cut with a cutter to produce white pellets (1) having a diameter of 4 mm and a length of 4 mm. The methanol content of the pellet (1) was 38%, the content of acetic acid (a) was 3000 ppm, and the content of sodium acetate (b) was 15,000 ppm. Then, 100 parts of the obtained pellets (1) were charged into 400 parts of warm water at 30°C and the mixture was stirred for about 60 minutes and washed with water. After washing with water, the pellets were immersed in 400 parts of 0.3% acetic acid aqueous solution. After immersion, the methanol content of the pellet was 5000 ppm, acetic acid (a) content was 1000 ppm, and sodium acetate (b) content was 500 ppm. Using a tower-type batch-wise fluidized-bed drier, nitrogen gas was contacted in 118°C atmosphere for 20 hours, and EVOH pellets with a content of methanol 120 ppm, a content of acetic acid (a) 300 ppm, and a content of sodium acetate (b) 500 ppm [(a)/(b) = 0.6 (ratio by weight)] were obtained. The storage elastic modulus of obtained EVOH pellets at 20°C was 9 x 107 Pa. Using such EVOH pellets, similar evaluation was carried out."

· "[0034] Example 3

An experiment was conducted in accordance with Example 1 except that an ethylene-vinyl acetate copolymer with an ethylene content of 30% by mol was used, to produce white pellets (1). The methanol content of the pellets (1) was 20%, an acetic acid (a) content was 3000 ppm, and a sodium acetate (b) content was 15,000 ppm.

[0035] Then, 100 parts of the obtained pellets (1) were charged into 700 parts of warm water at 30°C and the mixture was stirred for about 60 minutes and washed with water. After washing with water, the pellets were immersed in 400 parts of 1% acetic acid aqueous solution. After immersion, the methanol content of the pellet was 4000 ppm, acetic acid (a) content 2300 ppm, and sodium acetate (b) content 400 ppm. Using a tower-type batch-wise fluidized-bed drier, nitrogen gas was contacted in a 120°C atmosphere for 20 hours, and EVOH pellets with a methanol content of 80 ppm, an acetic acid (a) content of 200 ppm, and a sodium acetate (b) content of 400 ppm [(a)/(b) = 5 (ratio by weight)] were obtained. The storage elastic modulus of obtained EVOH pellets at 20°C was 2 x 108 Pa. Using such EVOH pellets, similar evaluation was carried out."

· "[0036] Comparative Example 1

In Example 1, 100 parts of the obtained pellets (1) were charged into 100 parts of warm water at 30°C and the mixture was stirred for about 60 minutes to obtain water-washed pellets. After washing with water, the pellets were immersed in 400 parts of 1% acetic acid aqueous solution. After immersion, the methanol content of the pellet was 7000 ppm, acetic acid (a) content 2500 ppm, and sodium acetate (b) content 700 ppm. Next, using a tower-type batch-wise fluidized-bed drier, nitrogen gas was contacted in a 105°C atmosphere for 16 hours, EVOH pellets with a methanol content of 2000 ppm, an acetic acid (a) content of 300 ppm, and a sodium acetate (b) content of 700 ppm [(a)/(b) = 0.73 (ratio by weight)] were produced. The storage elastic modulus of obtained EVOH pellets at 20°C was 5 x 10^7 Pa. Using such EVOH pellets, similar evaluation was carried out."

· "[0037] Comparative Example 2

In Example 1, 100 parts of the obtained pellets (1) were charged into 600 parts of warm water at 40°C and the mixture was stirred for about 60 minutes to obtain water-washed pellets. After washing with water, the pellets were immersed in 400 parts of

2% acetic acid aqueous solution. After immersion, the methanol content of the pellet was 4000 ppm, acetic acid (a) content 3000 ppm, and sodium acetate (b) content 20 ppm. Using a tower-type batch-wise fluidized-bed drier, nitrogen gas was contacted in a 135°C atmosphere for 36 hours, EVOH pellets with a methanol content of 0.01 ppm, an acetic acid (a) content of 10 ppm, and a sodium acetate (b) content of 20 ppm [(a)/(b) = 0.5 (ratio by weight)] was produced. The storage elastic modulus of obtained EVOH pellets at 20°C was 3 x 10^9 Pa. Using such EVOH pellets, similar evaluation was carried out. Results of evaluation in the working examples and the comparative example are shown in Tables 1 and 2."

· "[0038]
[Table 1]

	(イ) ペレットの融着	(ロ) ペレットの割れ、欠け	(ハ) 微粉の発生
実施例1	○	○	○
〃 2	○	○	○
〃 3	○	○	○
比較例1	×	△	○
〃 2	○	×	×

実施例	Example
比較例	Comparative Example
（イ）pellet の融着	(A) Fusion of pellets
（ロ）pellet の割れ、欠け	(B) Cracking and chipping of pellets
（ハ）微粉の発生	(C) Generation of fine powder

"

· "[0039]
[Table 2]

	(ニ) トルク変動	(ホ) 吐出量変化	(ヘ) 膜厚変化	(ト) フィルム外観
実施例1	○	○	○	○
〃 2	○	○	○	○
〃 3	○	○	○	○
比較例1	×	×	×	×
〃 2	×	×	×	○

実施例	Example
比較例	Comparative Example
（ニ）トルク変動	(D) Fluctuation in torque
（ホ）吐出量変化	(E) Change in discharge amount
（ヘ）膜厚変化	(F) Change in film thickness
（ト）フィルム外観	(G) External appearance of film

"

· "[0040]

[Advantage of the Invention] Since EVOH pellets of the present invention have specific physical properties, the pellets do not undergo any fusion due to the change in temperature, the state of the loading, the vibration, and the like, during the transportation of the pellets, and the generation of the cracking, the chipping, and the fine powder is reduced. The pellets have excellent melt moldability and fluctuation of torque and change in discharge amount are small at the time of melt molding. Therefore, it is possible to obtain molded articles such as films and sheets that have excellent uniformity of thickness. The pellets are especially useful for applications such as films, sheets, tubes, bags, containers, and the like of packaging foodstuffs, medicines, agricultural chemicals, and industrial chemicals."

B Invention A-1

Summarizing descriptions in Evidence A No. 1, it is acknowledged that Evidence A No. 1 describes the following invention (hereinafter, referred to as "Invention A-1").

"A saponified ethylene-vinyl acetate copolymer pellet obtained, after emersion in aqueous solution of acetic acid, by contacting with nitrogen gas using a tower-type batch-wise fluidized-bed drier in which the weight of fine powder of pellets passed through a 100 μm sieve is less than 0 to 2 g (less than 0 to 0.008% by weight) after 25 kg of the saponified ethylene-vinyl acetate copolymer pellets is put into a blender and the blender is rotated for 10 hours under room temperature" (binding power in the court decision of cancellation).

(2) Matters described in Evidence A No. 3

A Evidence A No. 3 ("A test method for measuring the details of a fine powder steamer for plastic pellets," European materials handling federation (FEM)) has substantially the following statement (Excerpt of the original text is omitted, and only the translation is shown below).

(A) " A test method for measuring the details of fine powder/streamer for plastic pellets," translation of Evidence A No. 3 submitted by Demandant (hereinafter, simply referred to as "Translation", page 1)

(B) "1. Purport

The purport of this document is to determine, and sets standards for analysis methods for fine powders, streamers (angel hair), and degradation amount of products that might occur in the process of pneumatical transportation, mixing, screening, storage, and the like of plastic pellets, and determine causes of these problems.

The objective of the above standards is to set objective standards for working on these problems from viewpoints of both of designers and end-users.

It has been verified that realistic data are reliably provided with respect to details of specks by the analytical method that forms the basis for the standards. If any special apparatus is used or produced for this objective, the manufacturer must accurately confirm the function of such apparatus based on this document" (Translation, p. 1).

(C) "2. Introduction

Degradation of plastic pellets occurs in plastic pelletizing processes (extruding and cutting) and subsequent handling procedures (pneumatic transportation, mixing, storage, injecting, screening, feeding, and bagging). The results of such degradation are classified into three sizes, fine powder, streamer (sometimes, referred to as "bisai (fine)"), and cutting mistake or fragment, and the areas and size of each of them significantly differ.

Degradation of products mainly depends on the type of grade of the product. Cutting mistake and fine powder occurs in all kinds of plastic materials, but streamer occurs only when certain polymers such as polyethylene and polypropylene get deteriorated.

All of above deteriorations could cause serious negative effects in transformation from plastic pellet into the final product. Nearly all polymer manufacturers use a pellet clean system for improving the quality of final products" (Translation, p. 1).

(D) "3.1 Definition of fine powder

Fine powder as the object of FEM2482 is defined as fragments of particles whose size is 500 µm or less. The lower limit for this fragment must be selected based on the following table, depending on whether any downstream process is necessary.

種類	下限	上限
A	63 µm	500 µm
B	45 µm	500 µm
C	20 µm	500 µm

種類	Type
下限	Lower limit
上限	Upper limit

"

(Translation, page 2).

(E) "3.2 Definition of streamer

· Fragments of particles in the size of 500 µm or larger having a shape different from that of normal pellets are referred to as streamer content (Example: streamer, angel hair, film, foil).

· Pellets of too small size, and cutting mistake or damaged pellets in the size of 500 µm or more are not included in the object of the present analytical method" (Translation, page 2).

(F) "3.3 Mechanism of separation

The purpose of the analytical process shown in this document is to recognize all types of dust defined in the preceding section and particles of streamer fragments. The mechanism of separation is explained below.

If the particle size considerably exceeds the diameter of the pellet, streamer content is determined by dry screening.

In gaseous phase, since the adhesive force between fine powder and a pellet (van der Waals force, and electrostatic force) is strong, it becomes exceedingly difficult to separate fine powder from the surface of a pellet). However, since it becomes rather easy to overcome such adhesive forces in liquid phase, in this classification step, wet process is effective.

The whole process is composed of the following steps.

1. Reducing adhesive force between solid substances
2. Effectively dispersing solids in suspension
3. Separating fine powder from pellets
4. Separating fine powder from liquid

· 1: Achieved by adding liquid

· 2: Fluidization with liquid stream (when the density of the liquid is higher than that of the test object), or surfacing by air injection

· 3: Executed by different Stokes speeds of particles to be separated, or a sieve in the flow of suspension liquid

· 4: Executed with a filter, a sieve, or a set of sieves" (Translation, pages 2 and 3).

(G) "4. Sample collection

Fine powder content of plastic pellet is sometimes within the range of 10 to 2000 ppm (Note by the trial decision: 0.001 to 0.2 % by mass). In the case of plastic pellets, reliable results can be obtained from a sample of 1 liter or more.

In case of measurement of streamer (angel hair) deterioration, for keeping influence by group of streamers at a minimum level, the sample size must be at least 50 liters.

However, it is necessary to pay special attention to the first step of the present analysis for preventing possible occurrence of separation of dust content in charging, unloading, and transportation of the sample. For example, with a pellet sample with a mass of 1 kg, fine powder of a mass of 10 to 2000 mg is generated in certain cases. While this small absolute mass must be measured, influence of a group of dust, dust agglomerates become exceptionally large. Therefore, the way of viewing sample collection differs depending on whether there is any change in production, or an absolute amount is determined. In such case, a method of collecting a sample greatly depends on the circumstance of the plant, and it can be appropriately learnt only with knowledge of mechanical engineering processes (See FEM2481)" (Translation, page 3).

(H) "5. <u>Overview of test equipment for measuring fine powder content</u>

5.1 <u>Overview</u>

The purpose of the measuring instrument mentioned below (See Figure 1) is to separate all dust from the pellets of a test sample. This measuring instrument operates by flowing washing liquid in recirculating mode.

The configuration of the above measuring instrument is shown below.

· Column C1: Used for products contaminated by dust
· Column C2: Separates dust from washing liquid
· A draining pipe connecting column C1 and column C2 in the upper part
· A pump equipped with a throttle valve and a flow meter connecting C2 and C1 in the lower part

By dispersing pellets in the washing liquid in C1, dust is separated from the pellets and sent to C2 together with the washing liquid through the draining pipe. Subsequently, depending on measured fine powder/fragments, dust is separated from washing liquid by a water retention agent with an ordinary pore size consisting of a water absorptive resin (See Section 3, Types A to C)" (Translation, page 3).

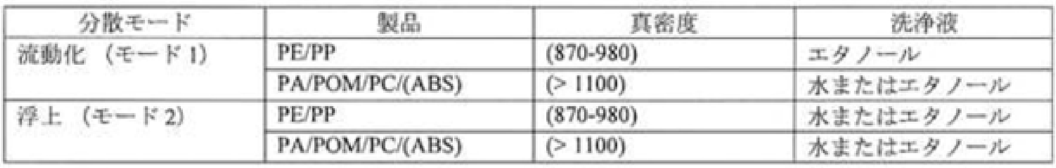
(I) "5.3.4.2 Dispersion by surfacing (Mode 2)

... (omitted) ...

For reliably separating dust from the pellets and retaining the pellets in C1, it is necessary to equip the column C1 with a sieve at the upper part of the column C1. This screen must be selected so that, if fragments to be separated are rather large, such fragments can be allowed (500 µm; see Section 3).

... (omitted) ...

The following table shows the overview of combinations of the type of products and the washing liquid that are deemed appropriate.



分散モード	製品	真密度	洗浄液
流動化（モード1）	PE/PP	(870-980)	エタノール
	PA/POM/PC/(ABS)	(> 1100)	水またはエタノール
浮上（モード2）	PE/PP	(870-980)	水またはエタノール
	PA/POM/PC/(ABS)	(> 1100)	水またはエタノール

分散モード	Dispersive mode
流動化（モード１）	Fluidization (mode 1)
浮上（モード２）	Surfacing (mode 2)
製品	Product
真密度	Real density
洗浄液	Washing liquid
エタノール	Ethanol
水またはエタノール	Water or ethanol

" (Translation pages 5 and 6)

(J) "

図 1

プラスチック コンテント内の塵埃コンテント測定用の試験装置

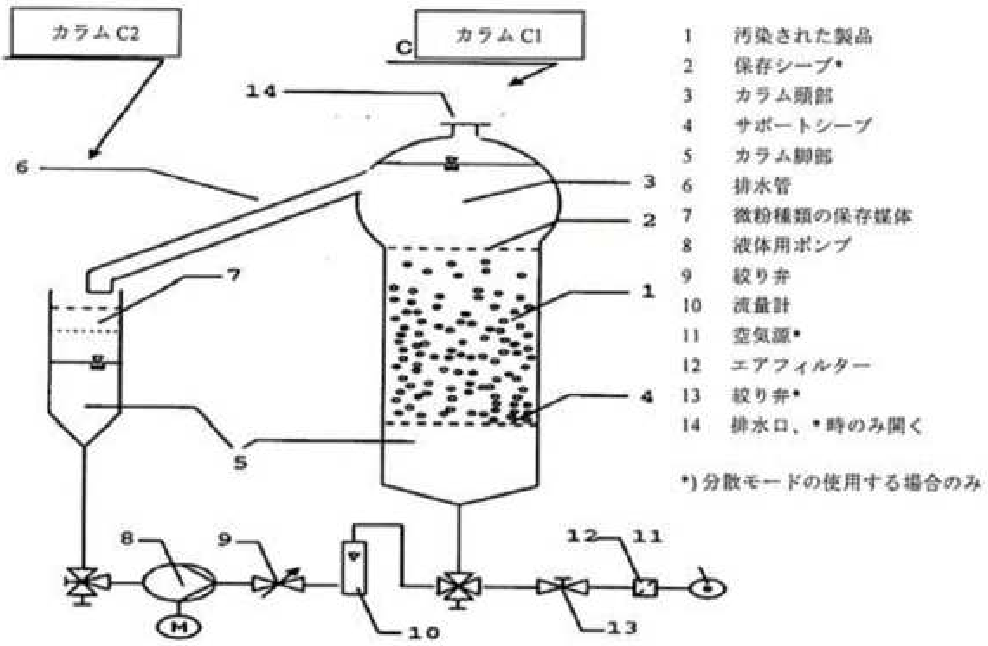


図１　Figure 1

プラスチックコンテント内の塵埃コンテント測定用の試験装置　Testing apparatus for measuring dust content in the plastic content

カラム	Column
１　汚染された製品	1 Contaminated products
２　保存シーブ＊	2 Retention sieve*
３　カラム頭部	3 Head part of the column
４　サポートシーブ	4 Support sieve
５　カラム脚部	5 Bottom part of the column
６　排水管	6 Draining pipe
７　微粉種類の保存媒体	7 Storage medium for fine powder
８　液体用ポンプ	8 Pump for liquid
９　絞り弁	9 Throttle valve
１０　流量計	10 Flow meter
１１　空気源＊	11 Air source*

１２　エアフィルター	12 Air filter
１３　絞り弁＊	13 Throttle valve*
１４　排水口、＊時のみ開く	14 Discharge outlet, to be opened only when*
＊）分散モードの使用する場合のみ	*) Only when used in the dispersive mode

". (Translation, page 13)

B According to the above description, it is acknowledged that Evidence A No. 3 describes that fine powder is defined as particle fragments with a particle size of 500 μm or less, all kinds of plastic materials have fine powder, and fine powder causes serious negative effects on conversion from pellets to final products.

(3) Matters described in Evidence A Nos. 28 and 29

A Evidence A No. 28 described substantially the following matters with respect to "What is FEM" of "About FEM" (Excerpt from the original text is omitted and only translation is shown).

· "What is FEM.

FEM is a federation of European manufacturers of equipment for processing, transportation, and storage of materials, and was established in 1953. FEM is a non-profit trade association (non-profit organization under Belgian laws) established in Brussels and its purpose is to make the relationship of members of FEM and their fellow traders with the European organizations and European partners good.

Currently, members of FEM consist of Russia and Turkey in addition to 13 EU countries. These members are an important driving force in promoting commonization of FEM industries, and in maintaining their leadership with respect to processing, transportation, and storage facilities of European materials in the world market.

European industries have about 60.000,000,000 Euro of annual turnover. Looking at as a whole, FEM is a representative of more than 1,000 companies having 160,000 employees that correspond to more than 80% of companies existing in Europe. This accounts for more than a half of industrial products around the world." (page 1, lines 2 to 13).

B Evidence A No. 29 describes substantially the following matters regarding "MISSION OBJECTIVE" (Excerpt of the original text is omitted, and only translation is shown below).

· "Mission

To represent and protect technical, economic, and political interests of European industries relevant to processing and transportation of materials and equipment for storage of materials.

To provide opportunities to exchange information on market trends and technological development.

For mutual benefits, to cooperate with other industrial fields and international trading partners.

Objectives

In the material processing industry, promotion of technological development, safe operation, sustainable developments, and energetic efficiency.

Aggressive establishment of technical standards at the European and international level.

Promotion of establishment of European laws in industrial fields.

Promotion of mutual cooperation among industrial manufacturers for material processing and storage equipment in Europe and the world." (page 1, lines 2 to 4).

(4) Matters described in Evidence A Nos. 30 and 31

A Matters described in Evidence No. 30

Evidence A No. 30 describes substantially the following matters with respect to "Saponified ethylene-vinyl acetate copolymer composition and multilayer structures for which the composition is used."

· "[Claim 1] A saponified ethylene-vinyl acetate copolymer composition comprising 0.001 to 0.1% by weight in terms of boron of boron compounds (A), 0.001 to 0.1% by weight in terms of metal of sodium acetate (B), and 0.001 to 0.1% by weight in terms of metal of magnesium acetate (C).

[Claim 2] The saponified ethylene-vinyl acetate copolymer composition of Claim 1, further comprising 0.01% by weight of acetic acid.

[Claim 3] The saponified ethylene-vinyl acetate copolymer composition of either one of Claims 1 and 2, comprising 0.005 to 0.5% by weight in terms of boron of boron compounds (A), 0.001 to 0.5% by weight in terms of metal of sodium acetate (B), and 0.001 to 0.5% by weight in terms of metal of magnesium acetate (C).

[Claim 4] The saponified ethylene-vinyl acetate copolymer composition of any one of Claims 1 to 3, wherein the ratio by weight between boron and sodium (boron/sodium) is 0.5 to 10.0.

[Claim 5] A laminate product comprising a layer of the saponified ethylene-vinyl acetate copolymer composition of any one of Claims 1 to 4, on at least one surface of which a thermoplastic resin is laminated."

· "[0001]

[Field of the Invention] The present invention relates to a saponified ethylene-vinyl acetate copolymer composition and multilayer structures for which the composition is used, and, more specifically, provides a saponified ethylene-vinyl acetate copolymer composition that has excellent long-run properties in melt molding, has little generation of fish eyes or the like when molded into films and the like, and is suitable for manufacturing beautiful transparent molded articles with little stripes, and laminate products in which generation of stripes over time does not occur to an excessive extent."

· "[0003]

[Problem to be solved by the invention] According to studies by the inventor of the present invention, however, in the art described in Japanese Unexamined Patent Application Publication No. S64-66262, if a saponified ethylene-vinyl acetate copolymer is retained in molten state for a long time period, there occurs a phenomenon of coloring of films obtained by long-run molding due to degradation of resin, and particularly in thick molded articles such as sheets, bottles, and tubes, coloring is significant, resulting in remarkable damage to value of commodities, which has become a serious industrial problem. In addition, if boric acid is used as the specific acid in the method described by the above-mentioned Japanese Patent Application, there is a drawback that fisheyes in obtained molded article increase.

[0004] In other words, in the recent years, molded articles with high degree of functions and quality are required, and, therefore, a saponified ethylene-vinyl acetate copolymer composition that has good long-run properties in melt molding and provides molded articles with good properties (fisheyes, transparency, and stripes) is required.

[0005]

[Means for solving the problem] Under such circumstances, as a result of concentrated study, the inventor of the present invention found out that, if saponified ethylene-vinyl acetate copolymer is made to contain 0.001 to 1.0% by weight in terms of boron of a boron compound (A), and sodium acetate (B) and magnesium acetate (C), respectively for 0.001 to 0.1% by weight in terms of metal, the above drawback can be overcome and the obtained copolymer is useful for the above usage, and thereby completed the present invention."

· "[0027]
[Examples] The method of the present invention is further explained in detail with reference to working examples. Unless otherwise noted, "parts" and "%" below mean parts by weight and % by weight, respectively.
Example 1

One thousand parts of 40% methanol solution of ethylene-vinyl acetate copolymer with a content of ethylene 32% by mol were put in a pressure-resistant reactor and heated to 110°C while stirring. Subsequently, 40 parts of 6% methanol solution of sodium hydroxide and 2,500 parts of methanol were continuously charged, and a saponification reaction was carried out for 2.5 hours while distilling off methyl acetate and excess methanol as by-products from the system, thereby obtaining a saponified solution of a saponified ethylene-vinyl acetate copolymer having a saponification degree of vinyl acetate component of 99.8% by mol. A water/methanol solution of the saponified ethylene-vinyl acetate copolymer was extruded into a coagulating bath in a strand form to produce pellets A. Next, 100 parts of the obtained pellets A were immersed in 300 parts of 0.3% aqueous solution of acetic acid and stirred at 30°C for 1 hour, and further washing with the aqueous solution of acetic acid was repeated once. After washing, the obtained pellets were mixed with 300 parts of water and stirred at 30°C for 1 hour. Further, washing with water was repeated twice, and the pellets were filtered. Next, obtained pellets were immersed in 200 parts of ion-exchange aqueous solution comprising 0.052% boric acid, 0.025% sodium acetate, and 0.007% magnesium acetate, and the pellets were filtered and dried at 120°C for 24 hours to obtain pellets B. The obtained saponified ethylene-vinyl acetate copolymer composition (pellet B) comprised 0.031% boric acid in terms of boron, and 0.093% of sodium acetate and 0.022% of magnesium acetate both in terms of metal."

· "[0037]
[Advantage of the Invention] Since the saponified ethylene-vinyl acetate copolymer composition of the present invention comprises 0.05 to 0.3% by weight in terms of boron of boric acid (A), 0.001 to 0.02% by weight in terms of metal of sodium acetate (B), and 0.001 to 0.02% by weight in terms of metal of magnesium acetate (C), it has excellent physical properties such as long-run properties in melt molding, and fisheye, transparency, stripe in the molded articles."

B Matters described in Evidence A No. 31

Evidence A No. 31 substantially describes the matters regarding "resin composition and laminate products thereof."

· "[Claim 1] A resin composition comprising a saponified ethylene-vinyl acetate copolymer (A) with ethylene content of 20 to 60% by mol and a degree of saponification of 90% by mol and at least one boron compound selected from potassium borate, calcium borate, and magnesium borate (B).
[Claim 2] The resin composition of Claim 1, wherein the content of (B) is 0.01 to 1 part by weight in terms of boron relative to 100 parts by weight of (A).
[Claim 3] The resin composition of either one of Claims 1 or 2, further comprising 0.05 parts by weight of acetic acid (C) relative to 100 parts by weight of (A).
[Claim 4] A laminate product comprising a layer of the resin composition of any one of Claims 1 to 3, on at least one surface of which a thermoplastic is laminated.
[Claim 5] The laminate product of Claim 4, wherein the thermoplastic resin is a polyolefin resin."

· "[0001]
[Field of the Invention] The present invention relates to a resin composition of saponified ethylene-vinyl acetate copolymer (hereinafter, referred to as "EVOH") and laminate products for which the resin composition is used, and, more specifically, a resin composition with excellent long-run properties in melt molding, and has little fish eyes and stripes while having excellent appearance, and also has excellent interlayer adhesion properties when molded into a laminate product, and laminate products for which such resin composition is used."

· "[0003]
[Problem to be solved by the invention] In arts disclosed in Japanese Unexamined Patent Application Publication No. S59-192564 and Japanese Unexamined Patent Application Publication No. S55-12108, however, insufficient attention is paid to appearance and long-run properties in melt molding of above molded articles, and further improvement is desired for interlayer adhesion properties.
[0004]
[Means for solving the problem] Under such circumstances, as a result of concentrated study, the inventor of the present invention found that a resin composition comprising saponified ethylene-vinyl acetate copolymer having a content of ethylene 20 to 60% by mol and a degree of saponification 90% by mol or more (A) and at least one selected

from potassium borate, calcium borate, and magnesium borate (B) can solve the problem and thereby completed the present invention."

· "[0021]
[Examples] The present invention is specifically explained below by means of working examples. In the working examples, unless otherwise noted, "parts" and "%" mean "parts by weight" and "% by weight" respectively.
Example 1

The EVOH composition of the present invention comprising 0.03 parts by weight of boric acid (B1), and 0.009 parts by weight of acetic acid (C) respectively relative to 100 parts by weight of EVOH (A) obtained by washing porous deposit of water/methanol solution (comprising 100 parts of water relative to 100 parts of EVOH (A)) after saponification of EVOH (A) of which content of ethylene is 35% by mol, degree of saponification is 99.5% by mol, and MI 20 g/10 minutes (210 °C, load 2160 g) with a 0.5% aqueous solution of acetic acid and further washing with water, putting into an aqueous solution comprising 0.2% potassium tetraborate (B) and 0.1% acetic acid (C), and, after stirring at 30 °C for 5 hours, drying at 110°C for 8 hours."

· "[0033]
[Advantage of the Invention] Since the EVOH composition of the present invention comprises at least one of potassium borate, calcium borate, and magnesium borate, molded articles with excellent long-run properties in melt molding, small number of fisheyes, and excellent appearance can be obtained, and, even after secondary processing such as stretching and deep drawing of laminate products obtained from the molded articles, the laminate products have excellent interlayer adhesion properties and various laminate products can be made; such products are very useful for films, sheets, tubes, bags, containers, and the like for packaging foods, drugs, agricultural chemicals, industrial chemicals, and the like, and they can be preferably used for secondary processed products that require stretching, and the like."

(5) Regarding Invention 1
A Comparison

Comparing Invention 1 and Invention A-1, they are identical to each other in the following corresponding feature and differ from each other in the following different features.
<Corresponding Feature>

"A group of EVOH pellets in which the content of fine powder passing through the prescribed sieve is smaller than the prescribed value."

<Different Feature 1>

While the sieve is "32 mesh (opening 500 μ)" and the above "smaller than the prescribed value" is "0.1% by weight or less" in Invention 1, the sieve is "149 mesh (opening 100 μ)" and the above "smaller than the prescribed value is "0.008% by weight or less" in Invention A-1.

<Different Feature 2>

While it is specified in Invention 1 that "the saponified ethylene-vinyl acetate copolymer comprises boron compounds, an acidic substance (A) having a melting point of 200°C or less, and an alkali metal (B), the content of the boron compounds is 0.001 to 1% by weight in terms of boron relative to the saponified ethylene-vinyl acetate copolymer, the content of the acidic substance (A) having a melting point of 200°C or less is 0.001 to 0.05% by weight relative to the saponified ethylene-vinyl acetate copolymer, and
the content of the alkali metal (B) is 0.001 to 0.5% by weight in terms of metal relative to the saponified ethylene-vinyl acetate copolymer," this matter is not specified in Invention A-1.

<Different Feature 3>

With respect to an application, while Invention 1 is "for molding laminate products," it is not specified in Invention A-1.

B Judgment on Different Features

(A) Regarding Different Feature 1

a According to (1), A above, it can be acknowledged that Evidence A No. 1 describes that EVOH pellets in which generation of fine powder is fairly small have excellent melt-moldability (paragraphs [0001], [0003] and [0029] to [0040]), have small torque fluctuation and change in discharge amount in melt molding, and allow production of such molded articles as films, sheets, and the like with excellent uniformity in thickness (paragraph [0040]), and that the problem to be solved by Invention A-1 is to obtain molded articles with excellent uniformity in thickness by eliminating influences of change in film thickness and the like in molding EVOH pellets to films through maintaining the content of fine powder in group of pellets at the prescribed value or less.

According to (2) above, it can be deemed that Evidence A No. 3 describes that fine powder is generated in all plastic pellets and existence of fine powder causes a serious influence to the quality of final products in conversion from plastic pellets to the final products ((2), A, (C) above), and that, by separating from the pellets fine powder that is fragments of particles with a size of 500 µm or less, products with appropriate quality can be manufactured ((2), A, (D)and (F) to (I) above). Therefore, it can be deemed that Evidence A No. 3 describes that the problem to be solved by the invention is to improve quality of final products molded from the plastic pellets by removing fine powder from pellets. Then, it can be deemed that, since EVOH is a kind of plastic and films are included in "final products" in Evidence A No. 3, matters described in Invention A-1 and Evidence A No. 3 have a common problem to be solved for improving the quality of final products.

In addition, taking into consideration the fact that it is acknowledged that Evidence A No. 3 describes that fine powder that is a fragment of particles with a particle size of 500 µm or less is separated using a sieve of 500 µm ((2), A, (I) above), the particle size of 500 µm or less is the value in the standard established by the European material handling federation ((2), A, (D) above), and European material handling federation is a non-profit trade association to which more than 80% of companies belonging to the field in Europe joined (1,000 companies or more) (Evidence A Nos. 28 and 29, (3) above), it can be deemed that there is a motivation to separate the fine powder of Invention A-1 using a "32 mesh (opening 500 µ)" sieve that is a matter described in Evidence A No. 3; namely, to change the "149 mesh (opening 100 µ)" sieve in Invention A-1 to "32 mesh (opening 500 µ)" sieve.

In addition, as explained above, it is acknowledged that Evidence A No. 3 mentions, as the problem to be solved by the invention, improvement in quality of molded final products by removing fine powder from plastic pellets, and that Evidence A No. 3 describes that fine powder that is fragments of particles with a particle size of 500 µm or less is removed using a 500 µm sieve. Furthermore, Evidence A No. 3 also describes that the content of fine powder of plastic pellets is normally within the range of 10 to 2000 ppm (0.001 to 0.2% by mass), for example, in case of 1 kg in mass of pellet sample, fine powder of 10 mg to 2000 mg in mass (0.001 to 0.2% by mass) is sometimes generated ((2), A, (G) above).

Then, since it can be understood from matters described in Evidence A No. 3 that the quality of molded final products can be improved by removing fine powder from plastic pellets, and that the content of fine powder of plastic pellets separated using a 500 µm sieve is under a normal situation about 0.001 to 0.2% by mass, it is acknowledged that it is possible to set the content of fine powder of plastic pellets within the range of 0.001 to 0.2% by mass taking into consideration the quality of the final products to be molded, and it is a design matter that a person skilled in the art appropriately adopt.

Therefore, it can be deemed that there is a motivation to combine Invention A-1 with the matters described in Evidence A No. 3 to arrive at the configuration of Invention 1 according to Different Feature 1.

(B) Regarding Different Feature 2

Evidence A No. 30 describes that, in order to "provide a saponified ethylene-vinyl acetate copolymer composition that has excellent long-run properties in melt molding, has little generation of fish eyes or the like when molded into films and the like, and is suitable for manufacturing beautiful transparent molded articles with little stripes, and laminate products in which generation of stripes over time does not occur to an excessive extent," the saponified ethylene-vinyl acetate copolymer is made to comprise 0.001 to 1.0% by weight of a boron compound in terms of boron, and 0.001 to 0.1% by weight of sodium acetate and 0.001 to 0.1% by weight of magnesium acetate respectively in terms of metal (Note by the body: Sodium and magnesium are exemplified in paragraph [0022] of the Description as alkali metals), and that the copolymer is made to comprise also 0.01% by weight or less of acetic acid (Note by the body: Acetic acid is exemplified in paragraph [0021] of the Description as an acidic substance with a melting point 200°C or less).

Evidence A No. 31 describes that, in order to provide "a resin composition with excellent long-run properties in melt molding, and has little fisheyes and stripes while having excellent appearance, and also has excellent interlayer adhesion properties when molded into a laminate product, and laminate products for which such resin composition is used," saponified ethylene-vinyl acetate copolymer is made to comprise at least one boron compound selected from potassium borate, calcium borate, and magnesium borate (Note by the body: Potassium borate, calcium borate, and magnesium borate are boron compounds) at 0.001 to 1 parts by weight in terms of boron relative to 100 parts by weight of saponified ethylene-vinyl acetate copolymer, and 0.05 parts or less by weight of acetic acid relative to 100 parts by weight of saponified ethylene-vinyl acetate copolymer.

According to matters described in Evidences A Nos. 30 and 31, with respect to a saponified ethylene-vinyl acetate copolymer composition and multilayer structure for which the composition is used, it is well-known conventional art to a person skilled in the art before the filing of the application, that in order to provide a saponified ethylene-vinyl acetate copolymer composition with excellent long-run properties in melt molding, to make "saponified ethylene-vinyl acetate copolymer" to comprise a "boron compound," an " acidic substance with a melting point 200°C or less," and an "alkali metal" and make the content of the "boron compound" 0.001 to 1% by weight in terms of boron relative to saponified ethylene-vinyl acetate copolymer, and the content of the "acidic substance with a melting point of 200°C or less" 0.001 to 0.05% by weight relative to the saponified ethylene-vinyl acetate copolymer and the content of the "alkali metal" 0.001 to 0.5% by weight in terms of metal relative to the saponified ethylene-vinyl acetate copolymer.

Since the problem to be solved by Invention A-1 is to eliminate influence of fluctuation of film thickness and the like in molding the EVOH pellets into a film, and to obtain molded articles with excellent uniformity in thickness, another problem that Invention A-1 is required to solve is making the long-run properties in melt molding excellent.

Therefore, it can be deemed that there is a motivation to combine Invention A-1 with well-known conventional art to arrive at the configuration of Invention 1 according to Different Feature 2.

(C) Regarding Different Feature 3

Paragraph [0022] of Evidence A No. 1 describes that a laminate product is obtained by including at least a layer obtained by molding EVOH pellets described in Evidence A No. 1 into film- or sheet-like form.

Therefore, in Invention A-1, it can be deemed that there is a motivation to arrive at the configuration of Invention 1 according to Different Feature 3.

(D) Regarding advantages

According to paragraph [0007] of the Description, an advantage of Invention 1 is that "there is no generation of gels due to a disturbance at an interface of an EVOH layer when" the group of EVOH pellets "is melt-molded into a molded article, and an excellent molded article is obtained, which is useful as a multilayer film," and, as explained in 3 above, since the meaning of "generation of gels due to a disturbance at an interface of an EVOH layer" cannot be understood, the effects of Invention 1 in this regard can be conceived at best as "when the pellet is melt-molded into a molded article" and "an excellent molded article is obtained, which is useful as a multilayer film." Since it can be deemed that a monolayer film that does not have disturbance on the surface must have excellent external appearance, and, in a multilayer film comprising an EVOH layer, a disturbance on the surface of a monolayer film remains at the interface with the multilayer as it is, in the case where other conditions are identical, if there is no disturbance of the surface of the EVOH layer, the external appearance as a whole must be better than in the case where there is a disturbance of the surface to the EVOH layer.

In addition, with respect to generation of gels due to a disturbance in the EVOH layer (visual observation), the Description describes that Examples 1 to 4 (the ratio of fine powder is 0.02 to 0.08% by mass) have less generation of gels than that in Comparative Example 1 (the ratio of fine powder is 0.2% by mass) (paragraphs [0042] to [0044] of the Description), but, as explained above, since it is visual observation under the situation the meaning of "generation of gels due to a disturbance at an interface of an EVOH layer" cannot be understood, it cannot be taken into consideration in examining the effect of Invention 1.

Therefore, the above effect of Invention 1 could have been predicted by a person skilled in the art and cannot be deemed as a special one.

(E) Then, since Invention 1 is such that could have been easily invented by a person skilled in the art based on matters described in Invention A-1, Evidence A No. 3, and well-known conventional arts, Demandee should not be granted a patent for Inventions in accordance with the provisions of Article 29(2) of the Patent Act.

(6) Invention 3

Invention 3 is an invention of a laminate product comprising at least a layer prepared by molding the group of pellets of saponified ethylene-vinyl acetate copolymer for molding laminate products of Invention 1. But, just as it is described in paragraph [0022] of Evidence A No. 1 that "molded articles such as films, sheets, and the like are obtained from EVOH pellets ... , and the molded article is extrusion-coated to another base material, or is laminated with a film, sheet, and the like of another base material using an adhesive" and that "The layer structure of the laminate products can be such that, defining a layer of EVOH as x (x_1, x_2, ...), and a layer of another basic material such as thermoplastic resin for example as y (y_1, y_2, ...), for films, sheets, or bottles, not only two-layer structure of x/y, but also arbitrary combinations such as y/x/y, x/y/x, $x_1/x_2/y$, $x/y_1/y_2$, $y_2/y_1/x/y_1/y_2$, and the like are possible, and in the case of filament-like shape, arbitrary combination of a bimetal-like structure of x and y, core (x) - sheath (y) type, core (y) - sheath (x) type, or eccentric core-sheath type are possible," it can be deemed that Evidence A No. 1 describes "a laminate product comprising at least a layer prepared by molding the group of pellets of saponified ethylene-vinyl acetate copolymer."

Therefore, since Invention 3 is such that could have been easily invented by a person skilled in the art based on matters described in Invention A-1, Evidence A Nos. 1 and 3, and well-known conventional arts, Demandee should not be granted a patent for the Inventions in accordance with the provisions of Article 29(2) of the Patent Act.

(7) Summary

Therefore, the patent for inventions according to Claims 1 and 3 of the Patent falls under the provisions of Article 123(1)(ii) of the Patent Act and should be invalidated.

No. 7 Closing

As described above, the patent for inventions according to Claims 1 and 3 in the scope of claims of the Patent should be invalidated.

On the other hand, the patent according to Claim 2 of the Patent has been deleted by the correction. The demand for trial against the patent according to Claim 2 of the Patent is dismissed under the provisions of Article 135 of the Patent Act because the object of the demand no longer exists due to above deletion of the claim.

Additionally, the reason for invalidation 3 is groundless.

Under the provisions of Article 61 of the Code of Civil Procedure applied mutatis mutandis by the provisions of Article 169(2) of the Patent Act, costs related to the trial shall be borne by Demandee.

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

July 27, 2020

Chief administrative judge: SUTO, Yasuhiro
Administrative judge: KATO, Tomoya
Administrative judge: UEMAE, Mitsuji