Decision on Opposition

Opposition No. 2018-700846

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Opponent	TOU-OU PATENT FIRM

The case of an opposition to the granted patent concerning the invention of Patent No. 6313707 "Highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics, production method therefor, and cosmetic" has resulted in the following decision.

Conclusion

It is approved to correct the description and the scope of claims of Japanese Patent No. 6313707 with respect to claims after correction [1 to 6] as indicated in the corrected description and the corrected scope of claims attached to the written correction request.

The patent for Claims 1 to 6 of Patent No. 6313707 shall be revoked.

Reasons

No. 1 History of the procedures

The establishment of patent right for Patent No. 6313707 was registered on March 30, 2018 for inventions according to Claims 1 to 6 in the scope of claims of Patent Application No. 2014-538117 having an international filing date of August 27, 2013 (Priority Date: September 28, 2012). The patent gazette thereof was issued on April 18, 2018. The history of the opposition to the granted patent is as follows:

October 17, 2018: Opposition to the granted patent or Claims 1 to 6 filed by the Opponent, the patent professional corporation, Tou-ou Patent Firm (hereinafter, referred to as the "Opponent")

December 13, 2018: Notification of Reasons for Revocation
February 14, 2019: Submission of a written opinion by the Patentee
February 21, 2019: Questioning (to the Opponent)
March 27, 2019: Submission of a written reply by the Opponent
June 25, 2019: Notification of Reasons for Revocation (announcement of decision)
August 23, 2019: Submission of a written opinion and a written correction request by the Patentee
October 3, 2019: Submission of a written opinion by the Opponent
December 24, 2019: Questioning (to the Patentee)

Note that no written reply was filed to the above questioning of December 24, 2019.

No. 2 Request for correction
1. Contents of correction
(1) Corrected matters

Request for correction by the written correction request dated August 23, 2019 (hereinafter, referred to as the "present request for correction") consists of the following Corrections A and B (underlines indicate corrected portions).

Correction A
Claim 1

The statement, "A highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics comprising primary particles of BN that form a flat shape and aggregate bodies of the primary particles that is characterized by having a water permeation speed of less than 1 mm^2/s and an oil absorption amount of 100 mL/100 g to 500 mL/100 g, wherein:

said primary particles of BN have an average long diameter: 2 to 20 μm, and a thickness: 0.05 to 0.5 μm, and

said highly water-repellent and highly oil-absorbent boron nitride powder has a specific surface area of 1 to 10 m^2/g, and an oxygen content of 1.5 % by mass or less" is corrected to:

"A highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics comprising primary particles of BN that form a flat shape and aggregate bodies of the primary particles that is characterized by having a water permeation speed as measured with a powder wet filtration analyzer PW-500 of less than 1 mm^2/s and an oil

absorption amount of 100 mL/100 g to 500 mL/100 g, wherein:

said primary particles of BN have an average long diameter: 2 to 20 μm, and a thickness: 0.05 to 0.5 μm, and

said highly water-repellent and highly oil-absorbent boron nitride powder has a specific surface area of 1 to 10 m^2/g, and an oxygen content of 1.5 % by mass or less."

Correction B

With respect to paragraph 0013 of the description, the statement:

"Namely, the key composition of the present invention is as follows:

1. A highly water-repellent and highly oil-absorbent boron nitride powder comprising primary particles of BN that form a flat shape and aggregate bodies of the primary particles that is characterized by having a water permeation speed of less than 1 mm^2/s and an oil absorption amount of 100 mL/100 g to 500 mL/100 g, wherein:

said primary particles of BN have an average long diameter: 2 to 20 μm, and a thickness: 0.05 to 0.5 μm, and

said highly water-repellent and highly oil-absorbent boron nitride powder has a specific surface area of 1 to 10 m^2/g, and an oxygen content of 1.5 % by mass or less"

is corrected to

" Namely, the key composition of the present invention is as follows:

1. A highly water-repellent and highly oil-absorbent boron nitride powder comprising primary particles of BN that form a flat shape and aggregate bodies of the primary particles that is characterized by having a water permeation speed as measured with a powder wet filtration analyzer PW-500 of less than 1 mm^2/s and an oil absorption amount of 100 mL/100 g to 500 mL/100 g, wherein:

said primary particles of BN have an average long diameter: 2 to 20 μm, and a thickness: 0.05 to 0.5 μm, and

said highly water-repellent and highly oil-absorbent boron nitride powder has a specific surface area of 1 to 10 m^2/g, and an oxygen content of 1.5 % by mass or less."

(2) Concerning a group of claims

Since Claims 2 to 6 cite the statement in Claim 1 before the correction, Claims 1 to 6 before the correction constitute a group of claims.

Therefore, the present request for correction comprising Correction A relating to Claim 1 is regarded as a request for correction of the group of claims.

2. Judgment on the corrections

(1) Regarding Correction A

Correction A makes it clear that the water permeation speed is "measured with a powder wet filtration analyzer PW-500" in "a highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics" in Claim 1. The purpose of the correction is the clarification of an ambiguous statement.

Besides, the correction that the water permeation speed of the highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics is "measured with a powder wet filtration analyzer PW-500" is within matters described in the scope of claims or the scope of matters described in the patent description attached to the application since paragraph 0039 of the present description recites as follows.

"Incidentally, the water-repellent property, oil absorption amount, and elution amount of boron of BN powder were respectively measured as described below.

(1) Water-repellent property

A water permeability test was conducted and the water permeation speed on that occasion was measured.

To be more specific, by means of the powder wet filtration analyzer PW-500 a column with a 10 mm inner diameter was filled with the powder, and the 'height of wetted portion' from the wetted surface at the bottom was measured per amount of time elapsed and the permeation speed was calculated."

In addition, since Correction A does not change the category, objective, or intention of the invention and there is no special circumstance in which the matters of correction change any invention that was deemed to be not covered by the scope of claims before the correction come to be covered by the scope of claims after the correction, it does not substantially expand or change the scope of claims.

(2) Regarding Correction B

According to Correction B, the statement "1. A highly water-repellent and highly oil-absorbent boron nitride powder comprising primary particles of BN that form a flat shape and aggregate bodies of the primary particles that is characterized by having a water permeation speed of less than 1 mm^2/s and an oil absorption amount of 100 mL/100 g to 500 mL/100 g" in paragraph 0013 of the present description is corrected to the statement "1. A highly water-repellent and highly oil-absorbent boron nitride powder comprising primary particles of BN that form a flat shape and aggregate bodies of the primary particles that is characterized by having a water permeation speed as measured with a powder wet filtration analyzer PW-500 of less than 1 mm^2/s and an oil absorption

amount of 100 mL/100 g to 500 mL/100 g." Correction B is made for maintaining conformance between the description in the scope of claims and the description in the description to cope with the above correction by Correction A. Accordingly, the purpose of Correction B is the clarification of an ambiguous statement.

Besides, the correction that the water permeation speed of the highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics is defined as being "measured with a powder wet filtration analyzer PW-500" is made within the matters described in the scope of claims or the scope of matters described in the patent description attached to the application since paragraph 0039 of the present description recites as follows.

"Incidentally, the water-repellent property, oil absorption amount, and elution amount of boron of BN powder were respectively measured as described below.

(1) Water-repellent property

A water permeability test was conducted and the water permeation speed on that occasion was measured.

To be more specific, by means of the powder wet filtration analyzer PW-500, a column with a 10 mm inner diameter was filled with the powder, and the 'height of wetted portion' from the wetted surface at the bottom was measured per amount of time elapsed and the permeation speed was calculated,

In addition, since Correction B does not change the category, objective, or intention of the invention and there is no special circumstance in which the matters of correction change any invention that was deemed to be not covered by the scope of claims before the correction come to be covered by the scope of claims after the correction, it does not substantially expand or change the scope of claims.

(3) Judgment on the requirements for being independently patented

Since the opposition to the granted patent is made against all Claims 1 to 6 before the correction, the the requirements for being independently patented under the provisions of Article 126(7) of the Patent Act applied mutatis mutandis by Article 120-5(9) of the Patent Act is not applicable to Correction A with respect to a group of Claims 1 to 6.

3. Summary

As pointed out above, since the object of the present request for correction is a matter provided for in Article 120-5 (2), proviso, No. 3 of the Patent Act and the present request for correction conforms to the provisions of Article 126(5) and (6) of the Patent

Act applied mutatis mutandis by Article 120-5(9) of the Patent Act, it is accepted to correct as indicated in the Claims [1 to 6] after the correction.

No. 2 Regarding the Invention

The Inventions according to Claims 1 to 6 of the present patent (hereinafter, respectively referred to as "Invention 1" to "Invention 6") are specified with the matters described in the Claims dated August 23, 2019.

[Claim 1]

A highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics comprising primary particles of BN that form a flat shape and aggregate bodies of the primary particles that is characterized by having a water permeation speed as measured with a powder wet filtration analyzer PW-500 of less than 1 mm^2/s and an oil absorption amount of 100 mL/100 g to 500 mL/100 g, wherein:

said primary particles of BN have an average long diameter: 2 to 20 μm, and a thickness: 0.05 to 0.5 μm, and

said highly water-repellent and highly oil-absorbent boron nitride powder has a specific surface area of 1 to 10 m^2/g, and an oxygen content of 1.5 % by mass or less.

[Claim 2]

A highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics described in Claim 1, wherein the content of soluble boron is 100 ppm or less.

[Claim 3]

A production method for highly water-repellent and highly oil-absorbent boron nitride powder for cosmetics described in Claim 1 or Claim 2 wherein

turbostrartic-structured boron nitride powder is obtained by heating boric acid and/or dehydration products thereof and urea and/or a compound thereof in an inert atmosphere and, then, after subjecting obtained boron nitride powder to heating treatment in an inert atmosphere under a temperature between 1,500 to 2,300°C, the obtained substance is ground and, after removing boric acid by a washing treatment, subjected to heating treatment at a temperature of 300°C or more but not exceeding 1000°C and under the furnace pressure 0.01 MPa or lower.

[Claim 4]

A cosmetic comprising the boron nitride powder described in Claim 1 or Claim 2.

[Claim 5]

A cosmetic described in Claim 4, wherein the content of said boron nitride

powder is 0.1 to 70 % by mass.

[Claim 6]

A cosmetic described in Claim 4 or Claim 5, wherein the cosmetic is a powder foundation.

No. 3 Reasons for revocation

1. Overview of reasons for revocation (an advance notice of a decision)

The overview of reasons for revocation (an advance notice of a decision) for the present patent is as follows:

Reason 1 (Clarity)

With respect to the description, "the water permeation speed is less than 1 mm^2/s" in Claim 1 for Invention 1, according to the detailed description of the invention, Evidence A9, and the written opinion dated September 22, 2017 submitted by the Patentee in the appeal against examiner's decision of refusal (Appeal No. 2016-14362), PW-500 is to obtain the permeation speed l^2/t based on Washburn's Formulae (I) and (II), and Formula (III) obtained by transforming Formulae (I) and (II) shown below.

$$\frac{l^2}{t} = \frac{r\,\gamma\cos\theta}{2\,\eta}$$

Formula (I)

wherein l is the height of the portion permeated by the liquid, t is time, r is the radius of capillary of the filling powder, γ is the surface tension of the liquid, θ is the contact angle, and η is the viscosity of the liquid.

$$\frac{W^2}{t} = \frac{r\,\gamma\cos\theta}{2\,\eta}(s\,\varepsilon\,\rho)^2$$

Formula (II)

wherein s is the section area inside the column, ε is the void ratio, and ρ is the density of the liquid.

$$\frac{l^2}{t} = \frac{W^2}{t}/(s\,\varepsilon\,\rho)^2$$

Formula (III)

The radius of capillary r of filling powder on the right-hand side of the above Formula (I) is a value that is determined by the gap between particles of the powder. Since the gap between particles of the powder varies if the filling condition differs, the value of the radius of capillary r varies depending on the filling condition. In the right-hand side of Formula (III), W^2/t is divided by $(s\varepsilon\rho)^2$. This operation is for converting the weight of the liquid W into the height of penetration l using the relation, "weight of the liquid permeated in gaps in the powder W=dimensions of gaps $s \cdot l \cdot \varepsilon \times$ density of the liquid ρ." The operation does not remove the influence of experimental conditions reflected in the radius of capillary r.

Then, since the value of permeation speed l^2/t obtained with the above Formulae (I) to (III) is affected by the radius of capillary r that differs depending on the filling condition of the powder, it cannot be used for quantitative comparison unless experimental conditions that make the filling condition of the powder constant are identified. Because of this, a person skilled in the art cannot understand what kinds of boron nitride powders are covered by the invention according to Claim 1.

Similar is the case with a measuring method by any known apparatus other than PW-500. The water permeation speed in boron nitride powder cannot be uniquely determined.

Accordingly, the present patent has been granted to a patent application that does not comply with requirements provided for in Article 36(6)(ii) of the Patent Act.

Reason 2 (Enablement Requirement)

While the invention according to Claim 1 has a matter specifying the invention, the "permeation speed is less than 1 mm^2/s," the detailed description of the invention of the present patent description does not disclose any filling condition for the powder in measuring the permeation speed. In addition, although the apparatus, PW-500 disclosed in Evidence A No. 9 is provided with a powder compressor for adjusting the void ratio of the filling powder to a constant value, since the detailed description of the invention of the present patent description does not disclose any parameters, etc. to be set to the powder compressor, it cannot be recognized whether manufactured boron nitride powder contains the above matter specifying the Invention. Therefore, no boron nitride powder that has the above matter specifying the Invention can be manufactured.

Accordingly, the present patent has been granted to a patent application that does not satisfy requirements provided for in Article 36(4)(i) of the Patent Act.

Reason 3 (Novelty)

Since the inventions according to Claims 1, 2, 4 and 6 are inventions disclosed in Evidence A2 distributed in Japan or abroad before the priority date and fall under the provisions of Article 29(1)(iii) of the Patent Act, they have been patented in violation of the provisions of Article 29(1) of the Patent Act.

Reason 4 (Inventive step)

Since the inventions according to Claims 1, 2 and 4 to 6 are such that a person skilled in the art could have easily invented on the basis of Evidence A No. 2 and Evidence A No. 5 distributed in Japan or abroad before the priority date, and well-known art disclosed in Evidence A, they have been patented in violation of the provisions of Article 29(2) of the Patent Act.

Evidence A No. 2: Data catalog for boron nitride fine particle products, Model No. MK-PC-1111101, Momentive Performance Materials Japan LLC, November 2011
Evidence A No. 4: ASTM D1483-95, ASTM International, 2002
Evidence A No. 5: Japanese Unexamined Patent Application Publication No. 2012-176910

2. Judgment by the body on the reasons for revocation

(1) Reason 1 (Clarity) and Reason 2 (Enablement Requirement)

The water permeation speed that is measured with a powder wet filtration analyzer PW-500 is added to Claim 1 by the correction of the case. Reason 1 that is based on the water permeation speed measured with any apparatus other than PW-500 becomes groundless.

Reason 1 that is based on the water permeation speed measured with PW-500 is examined. The value of the permeation speed is affected by the radius of capillary γ that varies depending on the filling condition of the powder, just as argued with respect to Reason 1 above. So, it cannot be used for quantitative comparison unless the experimental conditions identify the filling condition of the powder constant. The Patentee asserted in its written opinion dated August 23, 2019 that the water permeation speed was measured on the condition that the void ratio is 67% (page 4, line 16), and asserted also that "the objects of the water permeation speed defined in the present patent are not boron nitride powder in any shape but are limited to those which have claim an average long diameter and thickness of limited range as defined by Claim 1. In addition, if such boron nitride powder is filled into a column using a powder compressor, PW-500, the filling rate stays within the range of 65 to 70% " (page 6, lines 6 to 10).

However, the void ratio is the ratio of the dimension of gaps to the capacity of the container filled with particles, and the filling rate is the ratio of volume of particles to the capacity of the container filled with particles. There is a relationship, "filling rate + void ratio = 100%" between the void ratio and the filling rate. So, if the filling rate is 65 to 70%, the void ratio must be 35 to 30% when the boron nitride powder that has an average long diameter and thickness as defined in Claim 1 is filled into a column using a powder compressor, PE-500. Then, it cannot be acknowledge that the void ratio in the measuring conditions is 67% if a powder compressor PE500 is used for filling with general setting for filling. Besides, no concrete filling means and condition are known and there are no disclosed parameters, etc. to be set to the powder compressor. Therefore, it cannot be recognized whether the manufactured boron nitride powder satisfies the above matter specifying the Invention. Further, the boron nitride powder that satisfies the above matter specifying the Invention cannot be manufactured.

In addition, since no experimental filling condition of the powder constant is identified, it cannot be used for quantitative comparison, and a person skilled in the art cannot understand what kind of boron nitride powder is covered by the scope of the invention according to Claim 1.

The Opponent asserts in its written opinion dated October 3, 2019 that the water permeation speed fluctuates for about 0.8 mm^2/s due to the void ratio when the void ratio is in the range of 65 to 70% (According to the graph shown in page 4 of the above written opinion submitted by the Opponent, it can be surmised that the dimension of the fluctuation by the void ratio does not change even in the range of the filling rate is 65 to 70% (the void ratio is 30 to 35%) since there is a proportionate relationship between the void ratio and the water permeation speed.).

While there is no ground to deny the correlation between the void ratio and the water permeation speed shown in Opponent's written opinion dated October 3, 2019, in the questioning (Patentee) on December 24, 2019, the Patentee was asked for its opinion on the fluctuation of the water permeation speed due to the void ratio that can be recognized from correlation between the void ratio and the water permeation speed, but the Patentee did not make any assertion. So Opponent's opinion is accepted with respect to the fluctuation of the water permeation speed due to the void ratio, and, as already argued in Notification of Reasons for Revocation (announcement of decision)(dated June 25, 2019), page 9, "(3) Judgment by the body on patentee's assertion," in the Inventions, as a technical feature to identify superiority to the conventional art, at least the measurement accuracy of 0.1 mm^2/s level for the water permeation speed is required (Reasons 3 and 4 argued below). Since the water

permeation speed fluctuates for about 0.8 mm^2/s due to the void ratio if the range of the void ratio or the filling rate is 65 to 70%, even in a case in which the filling rate stays in the range of 65 to 70%, it is insufficient to obtain a measurement accuracy required by the Inventions, and it cannot be acknowledged that a person skilled in the art can work the Inventions. In addition, since it cannot be grasped for what value of the filling rate the water permeation speed of the Inventions applies, the Inventions cannot be clearly grasped.

Accordingly, the patent for Inventions 1 to 6 has been granted to a patent application that does not comply with the requirements provided for in Article 36(6)(ii) and Article 36(4)(i) of the Patent Act.

(2) Reason 3 (Novelty), and Reason 4 (Inventive step)

A. The Inventions

As pointed out in item A above, since the matters specifying the Invention, "the water permeation speed as measured with a powder wet filtration analyzer PW-500 of less than 1 mm^2/s " cannot be grasped clearly, judgment on novelty and inventive step were made supposing that the water permeation speed fluctuate for about 0.8 mm^2/s depending on measuring conditions.

B. Matters described in each evidence

(A) Evidence A No. 2

Evidence A No. 2 has the following descriptions.

(A-1) "The product is thermally and chemically stable particles of fine powder of boron nitride. Covering power, brightness, and sliding property can be controlled by compounding it as a lubricant or a colorant to foundations, powders, and eye-make cosmetics" (page 1, upper part).

(A-2) "End-usages

o Foundation

o Point makeup

o Powder-type cosmetics" (page 1, Middle).

(A-3) "

一般物性

製品名	概要	外観・視覚	結晶構造	平均粒径（μm）
CC6097	窒化ホウ素微粒子	白色不透明	乱層状	5
CC6059	窒化ホウ素微粒子	白色半透明	準グラファイト状	6
CC6069	窒化ホウ素微粒子	白色半透明	準グラファイト状	9
CC6058	窒化ホウ素微粒子	白色半透明	準グラファイト状	11
CCS102	窒化ホウ素微粒子	白色半透明・真珠光沢	準グラファイト状	15
CCS402	窒化ホウ素微粒子	白色半透明・キラメキ光沢	準グラファイト状	47
CC6004	窒化ホウ素微粒子	白色半透明	グラファイト状	11
CC6064	シリコーン処理 窒化ホウ素微粒子	白色半透明	グラファイト状	11

上記値は代表値であり規格値ではありません。

一般物性　General physical properties
製品名　Product name
概要　Overview
外観・視覚　External appearance/visual properties
結晶構造　Crystal structure
平均粒径　Average particle size
窒化フッ素微粒子　Fine particles of boron nitride
シリコーン処理　Silicon processed
白色不透明　White opaque
白色半透明　White translucent
真珠光沢　Pearl glaze
キラメキ光沢　Shining glaze
乱層状　Turbostratic
準グラファイト状　Quasi-graphitic
グラファイト状　Graphitic
上記値は代表値であり規格値ではありません　The above values are representative values and not specific values

" (page 1, lower part).

(A-4) "

製品名	吸油量[1]	比表面積 m^2/g	タップ密度[2] g/cm^3	可溶性ホウ酸塩 %	B-N %	O_2 %
CC6097	110	30	0.5	0.1	>98	1.6
CC6059	140	8.5	0.38	0.03	>99	0.3
CC6069	185	8	0.4	0.03	>99	0.35
CC6058	122	6	0.5	0.03	>99	0.3
CCS102	163	4	0.38	0.03	>99	0.2
CCS402	96	0.82	0.65	0.04	>99	0.3
CC6004	104	3.5	0.5	0.03	>99	0.2
CC6064	58	2.0	0.5	0.02	>99	0.9

1） ASTM D1483-95
2） ASTM D4164
上記値は代表値であり規格値ではありません。

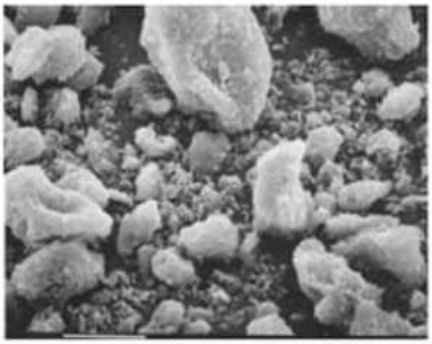
製品名 product name
吸油量 Oil absorption amount
比表面積 Specific surface area
タップ密度 Tap density
可溶性ホウ酸塩 Soluble borate
上記値は代表値であり規格値ではありません The above values are representative values and not specific values

" (page 2, upper part).

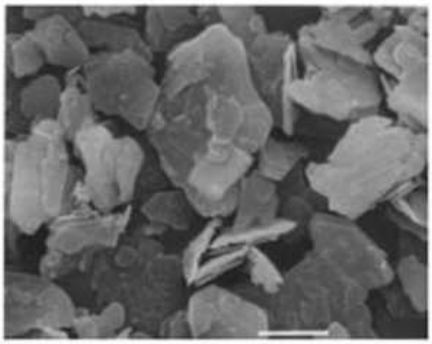
(A-5) "

粒子画像

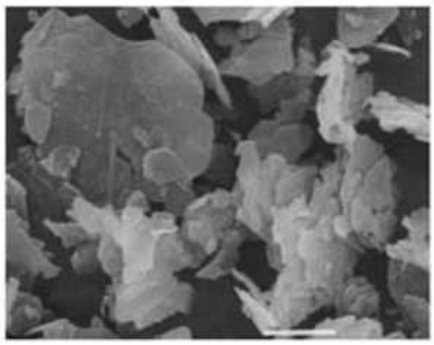
CC6097
乱層状粒子(Turbostratic)



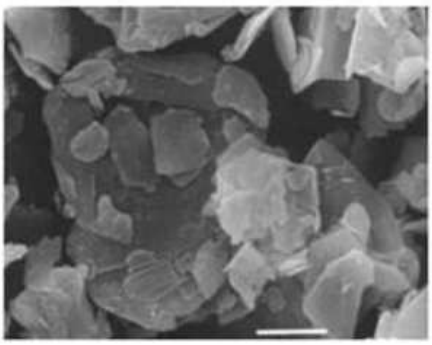
CC6059
準グラファイト状粒子(Quasi-graphitic)



CC6069
準グラファイト状粒子(Quasi-graphitic)



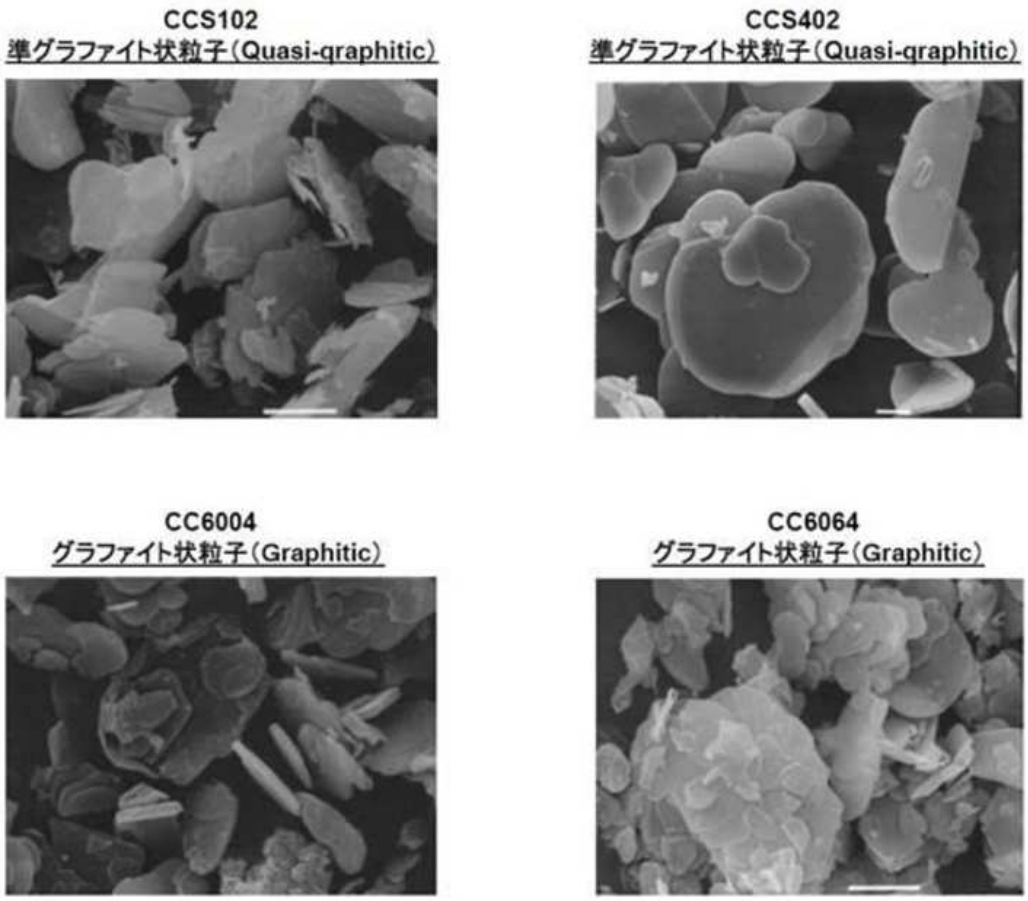
CC6058
準グラファイト状粒子(Quasi-graphitic)



粒子画像　Images of particles
乱層状粒子　Turbostratic particles
準グラファイト状粒子　Quasi-graphitic particles

" (page 2, lower part).

(A-6) "



準グラファイト状粒子　　Quasi-graphitic particles
グラファイト状粒子　　Graphitic particles

" (page 3, upper part).

Among those particles of boron nitride described in above (A-3) to (A-6), focusing on products, "CC6059," "CC6069," "CC6058," "CCS102," and "CC6004", all of those products are particles of boron nitrides that have a crystalline structure of either quasi-graphitic or graphitic, and their average particle sizes are 6 to 15 μm, the specific surface areas are 3.5 to 8.5 m^2/g, and the ratio of soluble borates is 0.03%.

In addition, the above (A-4) discloses that the oil absorption amount of these products is 104 to 185, and the oil absorption amount is based on ASTM D1483-95.

Furthermore, since "O2" disclosed in above (A-4) can be understood to be oxygen content, these products have an oxygen content between 0.2 and 0.35%.

In addition, from the above (A-5) and (A-6), it is acknowledged that these products comprise primary particles that form a flat shape and aggregate bodies of the primary particles.

Accordingly, it is acknowledged that Evidence A No. 2 discloses the following invention.

"A boron nitride powder to be used for foundations, point makeups, and powder-type cosmetics comprising primary particles of boron nitride that form a flat shape and aggregate bodies of the primary particles, wherein the oil absorption amount based on ASTM D1483-95 is 104 to 185, the average particle size is 6 to 15 μm, the specific surface area is 3.5 to 8.5 m^2/g, the ratio of soluble borate is 0.03%, and the oxygen content is 0.2 to 0.35%" (hereinafter, referred to as "Invention A-2").

(B) Evidence A4

Evidence A4 has the following description.

(B-1) "

5. Apparatus and Materials

5.1 *Balance*, capable of weighing to 0.01 g.

5.2 *Glass Container*, round-bottom, having a capacity of 250 mL (½ pt), or a low-form 250-mL beaker.

5.3 *Buret*, graduated in 0.1-mL divisions.

5.4 *Spatula*, sharp-edged steel, having a blade 15 or 20 by 100 mm (½ or ¾ by 4 in.).

5.5 *Linseed Oil*, Raw, conforming to Specification D 234 except that it shall have an acid number of 3 ± 1.

" (page 1, right column, lines 1 to 9)

(B-2) "

7. Calculation

7.1 Calculate the oil absorption, A, as follows:

$$A = \frac{M \times 0.93}{P} \times 100 \qquad (1)$$

where:

M = oil, mL, and

P = pigment, g.

0.93 represents density of oil (in grams per millilitre). Express as grams of oil per 100 g of pigment.

" (page 1, right column, lines 26 to 33)

(C) Evidence A No. 5

Evidence A No. 5 has the following description.

(C-1) "[0007]

The present invention favorably responds to the above request and aims to provide a boron nitride powder for cosmetics that is superior to conventional product in 'spread' and also in 'retention' together with a favorable production method.

In addition, the purpose of the present invention is to offer cosmetics which give markedly improved glossy feeling in finishing (shiny feeling) and transparent feeling (bare skin feeling) through the use of above-mentioned boron nitride powder."

(C-2) "[0024]

A plate-like aggregate consisting of layered primary particles that form a flat form with an average long diameter of 2 to 20 μm and a thickness of 0.05-0.5 μm

Since it is difficult to manufacture the boron nitride powder if the average long diameter of primary particles of a boron nitride powder is less than 2 μm, the long diameter of the primary particles is restricted to the range of 2 to 20 μm. Preferably, it is within the range of 5 to 10 μm.

In addition, lubricating property cannot be realized when prepared as a cosmetic, and, if the thickness exceeds 0.5 μm, transparent feeling is decreased, a person skilled in the art could have easily achieved in A2 based on the disclosure in Evidence A No. 5 invention to make the average long diameter of the primary particles within the range of 2 to 20 μm and the thickness within the range of 0.05 to 0.5 μm for the purposes of decreasing the void ratio and improving lubricating property and transparent feeling.

On the other hand, since 5 to 10 μm thick flat particles suitable for cosmetics can realize lubricating property if the thickness of the primary particles does not reach 0.05μm, and, on the other hand, since transparent feeling when applied on the skin cannot be maintained and the flat surface cannot be maintained flat if it exceeds 0.5μm, the thickness of the primary particles is restricted to the range of 0.05 to 0.5 μm. Incidentally, it is preferable to make the aspect ratio (long diameter/thickness) of such primary particles about 10 to 25.

The term 'primary particle' is defined as a single particle formed in scale-like shape. On the other hand, the term 'aggregate of primary particles' is defined as particles that exist in the state in which two or more primary particles are chemically bound."

(C-3) "[0029] It is necessary to make the content of soluble boron 100 ppm or less, and the amount of soluble boron in the boron nitride powder of the Inventions 100 ppm or less.

The reason is that, if the amount of soluble boron exceeds 100 ppm, damages to skins become too large. It should preferably be less than 50 ppm, and more favorably less than 20 ppm."

(C-4) "[0039]

Then, obtained blocks of boron nitride are purified by washing after grinding and classification.

In carrying out this purifying processing, at least the content of soluble boron must be decreased to 100 ppm or less against the whole amount to boron nitride powder. On the other hand, with respect to other impurities, it is preferred to reduce the amount of metallic impurities to 100 ppm or less."

(C-5) "[0041]

It is preferred to make the ratio of the above boron nitride powder in colorant for cosmetic 0.1 to 70% by mass. The reason is that, if this ratio does not reach 0.1% by mass, the effect of improvement in spread and adhesive property expected by the present invention becomes poor and, on the other hand, if it exceed 70% by mass, dazzling feeling proper to BN powder becomes strong and appropriate glaze cannot be obtained."

(C-6) "[Table 1]

表1

No.	充填層厚 (mm)	圧力 (MPa)	一次粒子			凝集体					微粉末*2の割合 (質量%)	粉体特性			備考
			平均長径 (μm)	平均厚み (μm)	アスペクト比	平均粒径 (μm)	比表面積 (m^2/g)	可溶性ホウ素量 (ppm)	金属不純物量 (ppm)	含有率*1 (質量%)		透過度 (%)	ヘーズ値 (%)	摩擦係数	
1	50	0.2	10	0.2	16	11	2	18	18	60	1.3	75	60	0.12	発明例1
2	100	0.1	8	0.5	14	9	4	19	19	72	1.8	71	62	0.13	発明例2
3	200	0.2	6	0.4	15	8	6	17	17	85	2.8	69	68	0.14	発明例3
4	300	0.3	5	0.25	20	8	8	16	16	97	4.1	68	70	0.15	発明例4
5	–	–	4	0.5	8	4	6	12	12	45	6.2	48	98	0.16	比較例1
6	–	–	10	1.0	10	8	2	12	12	30	7.8	54	98	0.12	比較例2
7	–	–	10	1.2	12	13	15	10	10	40	5.1	50	93	0.13	比較例3

*1 比表面積が1～10m^2/gで、粒径が50μm以下の凝集体の含有率
*2 粉末全体における粒径1.0μm以下の微粉末の割合

表１ Table 1
充填層厚 Packed bed thickness
圧力 Pressure
一次粒子 Primary particle
凝集体 Aggregate body
微粉末の割合（質量%） Ratio of fine powder (% by mass)
粉体特性 Powder characteristic

備考	Remarks
平均長径	Average long diameter
平均厚み	Average thickness
アスペクト比	Aspect ratio
平均粒径	Average particle size
比表面積	Specific surface area
安定ホウ素量	Amount of soluble boron
金属不純物量	Amount of metallic impurities
含有率（質量%）	Content (% by mass)
透過度	Permeation rate
ヘーズ値	Haze value
摩擦係数	Friction coefficient
発明例	Example of invention
比較例	Example for comparison

※１比表面積が１～１０ｃｍ^2/ｇで、粒径が５０μm 以下の凝集体の含有率 *1 Content rate of aggregate with specific surface area of 1 to 10 cm^2/g and particle size of 50 μm or less

※２　粉体全体における粒径　１．０μm 以下の微粉体の割合 *2 Ratio of fine powder with particle size of 1.0 μm or less in powder as a whole."

(D) Regarding Evidence A No. 1

Evidence A No. 1 has the following description.

(D-1) "In addition, the end product is prepared by grinding and sintering block compositions and, normally, granulation is carried out after grinding for the purpose of improvement in filling properties. In this case, the powder is in the state of slurry and a spray dry method is used. On this occasion, it is effective to dehydrate and wash the slurry once to several times, as sodium component or boron oxide remaining as impurities can be removed. Needless to say, since h-BN is hydrophobic, a surfactant is required to use water as the solvent. Use of an alcoholic organic solvent as a dispersant delivers a significant effect" (page 7, lower left column, lines 2 to 12).

C. Comparison / Judgment

(A) Regarding Invention 1

a. Comparison

Invention 1 and A2 invention are compared as follows:

Since the boron nitride powder of A2 invention is used for foundations, point makeups, and powder-type cosmetics, they can be deemed as a boron nitride powder for cosmetics. In addition, since the boron nitride powder of A2 invention has a large oil absorption amount, it can be deemed to be a highly oil-absorbent boron nitride powder.

In addition, according to a disclosure in paragraph [0039] of the present description, the "oil absorption amount" in Invention 1 means oil absorption amount defined by JIS K5101.

Then, corresponding feature and different features between Invention 1 and A2 invention are as follows:

(Corresponding Feature)

Both inventions relate to "A highly oil-absorbent boron nitride powder for cosmetics comprising primary particles of BN that form a flat shape and aggregate bodies of the primary particles, wherein:

the specific surface area of said highly oil-absorbent boron nitride powder is 1 to 10 m^2/g, and the oxygen content is 1.5% by mass."

(Different Feature 1)

While the oil absorption amount defined by JIS K5101 of the boron nitride powder of Invention 1 is 100 mL/100 g to 500 mL/100 g, the oil absorption amount based on ASTM D1483-95 of the boron nitride powder of A2 invention is 104 to 185, and the oil absorption amount defined by JIS K5101 thereof is not known.

(Different Feature 2)

While the average long diameter of the primary particle is 2 to 20 μm and the thickness is 0.05 to 0.5 μm in the boron nitride powder of Invention 1, the average particle size is 6 to 15 μm, but the average long diameter and thickness are not known in the boron nitride powder of A2 invention.

(Different Feature 3)

While the boron nitride powder of Invention 1 is highly water-repellent, it is not known whether the boron nitride powder of A2 invention is highly water-repellent.

(Different Feature 4)

While the boron nitride powder of Invention 1 is such that "the water permeation speed measured with a powder wet filtration analyzer PW-500 is less than 1 mm^2/s," the water permeation speed measured with a powder wet filtration analyzer PW-500 is not known for the boron nitride powder of A2 invention.

b. Judgment on Different Features

First, Different Feature 1 is examined.

The oil absorption amount defined by JIS K5101 is the volume (mL/100 g) of linseed oil absorbed by 100 g of colorant. On the other hand, according to Evidence A4 (See above (B-1) and (B-2)), oil absorption amount based on ASTM D1483-95 is the mass (g/100 g) of linseed oil that 100 g of colorant can absorb. Converting the oil absorption amount of the boron nitride powder of A2 invention into the oil absorption amount defined by JIS K5101 using the density of linseed oil (0.93 g/mL), it is acknowledged that fine particles of boron nitride of A2 invention have an oil absorption amount of about 112 to 199 mL/100 g.

Therefore, Different Feature 1 is not a substantial different feature.

Next, Different Feature 2 is examined.

The average particle size of "No. 1" and "No. 2" boron nitride powder disclosed as working examples in the present patent description is respectively 5.8 μm and 8.6 μm. In addition, the boron nitride powder of A2 invention comprises primary particles of BN that form a flat shape and aggregate bodies of the primary particles like the boron nitride powder of Invention 1. Since the average particle size in A2 invention is 6 to 15 μm, the boron nitride powder of A2 invention has a similar form to the boron nitride powder of Invention 1 and has a similar average particle size to the boron nitride powder of Invention 1. Then, it can be deemed highly probable that the boron nitride powder of A2 invention has an average long diameter of primary particles within the range of 2 to 20 μm and a thickness within the range of 0.05 to 0.5 μm like the boron nitride powder of Invention 1.

In addition, Evidence A No. 5 (See above (C-1)m (C-2) and (C-6)) discloses a boron nitride powder comprising aggregates with an average particle size of 8 to 11 μm in which primary particles of BN with a flat shape are layered, of which the average long diameter of the primary particles is 5 to 10 μm and the average thickness is 0.2 to 0.5 μm. On the other hand, since the boron nitride powder of A2 invention has a similar shape and an average particle size to the boron nitride powder disclosed in Evidence A No. 5, it can be deemed highly probable that the average long diameter of primary particles of the boron nitride powder of A2 Invention is within the range of 2 to 20 μm and the thickness

within the range of 0.05 to 0.5 μm like the boron nitride powder disclosed in Evidence A No. 5.

Therefore, Different Feature 2 also is not a substantial different feature.

In addition, Evidence A No. 5 (See above (C-2)) discloses that it is difficult to manufacture the boron nitride powder of which the average long diameter of primary particles is less than 2 μm, the density of the aggregates decreases when the average long diameter of primary particles exceeds 20 μm, lubricating property for cosmetic cannot be realized when the thickness is less than 0.05 μm,, and transparent feeling is decreased when the thickness exceeds 0.5 μm. So, even if the average long diameter of primary particles of the boron nitride powder of A2 Invention is not within the range of 2 to 20 μm and the thickness is not within the range of 0.05 to 0.5 μm, a person skilled in the art could have easily achieved the average long diameter of the primary particles within the range of 2 to 20 μm and the thickness within the range of 0.05 to 0.5 μm from A2 Invention on the basis of the disclosure in Evidence A No. 5 invention for the purposes of decreasing the void ratio and improving lubricating property and transparent feeling.

Different Feature 3 is examined.

As disclosed in Evidence A No. 1 (See above (D-1)), it is generally known that hexagonal boron nitride powder exhibits a hydrophobic property. On the other hand, since boron nitride powder of A2 invention is quasi-graphitic or graphitic; namely, it has a hexagonal crystal structure (See above (A-3)), it can be deemed that boron nitride powder of A2 invention naturally exhibits a hydrophobic property.

In addition, since the present description does not contain any definition on the point of boron nitride powder with what degree of hydrophobic or water-repellent property falls under highly water-repellent boron nitride powder, the boron nitride powder of A2 invention can be deemed to be highly water-repellent.

Therefore, Different Feature 3 also is not a substantial different feature.

Different Feature 4 is examined below. In examining Different Feature 4, it is necessary to know under what conditions (especially, the void ratio) "the water permeation speed measured with a powder wet filtration analyzer PW-500" was measured. It is already examined in the above 2.(1) that even if Patentee's assertion in the written opinion dated August 23, 2019 is taken into consideration, the measuring conditions cannot be clear, and "the water permeation speed measured with a powder wet filtration analyzer PW-500" cannot be clearly grasped

In addition, as already pointed out in above 2. (1), the Opponent

asserts in its written opinion dated October 3, 2019 that, if the void ratio is in the range of 65 to 70%, and the water permeation speed fluctuates for about 0.8 mm^2/s due to the void ratio (by the way, according to a graph shown in the above written opinion by the Opponent, since there is a proportionate relationship between the void ratio and the water permeation speed, it can be surmised that the dimension of the fluctuation by the void ratio does not change even in the range of the filling rate is 65 to 70% (the void ratio is 30 to 35%)). While there is no ground to deny the correlation between the void ratio and the water permeation speed shown in Opponent's written opinion dated October 3, 2019, in the questioning (Patentee) on December 24, 2019, the Patentee was asked for its opinion on the fluctuation of the water permeation speed due to the void ratio that can be recognized from correlation between the void ratio and the water permeation speed, but the Patentee did not make any assertion. Accordingly, in accordance with Opponent's opinion, novelty and inventive step is examined under the condition that "the water permeation speed measured with a powder wet filtration analyzer PW-500 is less than 1 mm^2/s" and the measurement fluctuates about 0.8 mm^2/s depending on measuring conditions.

Table 1 in the present description indicates that the permeation speed of talc as comparing example is 1.2 mm^2/s, and the water permeation speed of boron nitride powder of the example of the conventional art in the table for which heating treatment in a non-oxidizing reduced pressure atmosphere after grinding and washing as a processing for decreasing functional groups that might affect the water permeation speed (See paragraphs 0024, 0032 and 0034 of the present description) was not conducted is 0.5 mm^2/s.

On the other hand, according to Washburn's Formula (I) shown in above 2. (1), the permeation speed is proportionate to cos θ (θ is the contact angle), and, as described in paragraph 0002 of Japanese Unexamined Patent Application Publication no. 9-12307, the contact angle of BN to waterdrops is normally 90 to 120 degrees, and, in addition, since Table 10 in "Seishi, kakokotei nure (I)" (Hiroshi Yamada, JAPAN TAPPI JOURNAL, Vol. 39, No. 8, 1985) discloses that the contact angle of talc to water is 88 degrees as shown below, it can be deemed that, even if the contact angle of BN to water is normally similar to or larger than that of talc, it can be deemed that, if they are measured under the same condition (the radius of capillary γ), the permeation speed of BN is the same as or smaller than the permeation speed of talc.

表 10　タルク上の接触角（25°C）

液体		表面張力 dyne/cm	接触角 度
水		72.8	88
メタノール		26.6	0
エタノール		22.3	0
プロパノール		—	0
アミルアルコール		25.7	0
グリセリン		63.4	56
ギ酸		37.6	22
酢酸		27.6	0
ベンゼン		28.9	0
トルエン		28.5	0
シクロヘキサン		25.5	0
トリエタノールアミン		—	0
アニリン		44.1	40
ピッチ成分	トール油	32.5～35.8	0
	D-リモネン	—	0
	D-ピネン	—	0
	酢酸ボルニル	—	0

表１０　タルク上の接触角　　Table 10 Angle of contact on talc

液体　Liquid
表面張力　Surface tension
接触角度　Angle of contact
水　Water
メタノール　Methanol
エタノール　Ethanol
プロパノール　Propanol
アミルアルコール　Amile alcohol
グリセリン　Glycerin
ギ酸　Formic acid
酢酸　Acetic acid
ベンゼン　Benzene
トルエン　Toluene
シクロヘキサン　Cyclohexane

トリエタノールアミン	Triethanolamine
アニリン	Aniline
ピッチ成分	Pitch component
トール油	Tall oil
D-リモネン	D- limonene
D-ピネン	D-pinene
酢酸ボルニル	Bornyl acetate

(Seishi, kakokotei nure (I), page 740)

Then, the water permeation speed of the boron nitride powder of A2 invention is, even at the highest estimate, of the same degree as conventional boron nitride powder that is the comparative example or talc, and, even if it is of the same degree as talc (1.2 mm^2/s), since it is highly probable that the permeation speed of the talc is 1.0 mm^2/s or less, it is highly probable that A2 invention also satisfies the water permeation speed of the Inventions.

Therefore, Different Feature 4 also is not a substantial different feature.

Accordingly, since Invention 1 is identical to A2 invention, or such that a person skilled in the art could have easily invented based on the matters disclosed in A2 invention and Evidence A No. 5, it has been patented in violation of the provisions of Article 29(1) or (2) of the Patent Act.

(B) Regarding the Invention 2

a. Comparison

Invention 2 and A2 invention are compared to each other. According to the disclosure in paragraph 0039, the "amount of soluble boron" in Invention 2 means elution amount of boron measured according to the provisions of Japanese Standards of Quasi-drug Ingredients 2006. Then, they differ from each other in the following point in addition to Different Features 1 to 4.

(Different Feature 5)

The elution amount of boron in the boron nitride powder of Invention 2 measured according to the provisions of Japanese Standards of Quasi-drug Ingredients 2006 is 100 ppm or less. The ratio of soluble borate in the boron nitride powder of A2 invention is 0.03%. However, it is not clear whether the elution amount of boron

measured according to the provisions of Japanese Standards of Quasi-drug Ingredients 2006 is 100 ppm or less.

b. Judgment on different features

The above Different Feature 5 is examined below.

Evidence A No. 2 does not disclose a material of the soluble borate. But, judging from the facts that boric acid mainly used as a raw material in manufacturing boron nitride becomes boric oxide B_2O_3 by losing water by heating, and that boric oxide B_2O_3 is generated also by oxidization of generated boron nitride, it is highly probable that the major component of the soluble borate in A2 invention is boric oxide B_2O_3. In addition, assuming that the whole amount of the soluble borate is boric oxide B_2O_3, since the ratio by weight of boron in the soluble borate is about 0.31, the elution amount of boron of boron nitride of A2 invention is about 93 ppm ($\approx$ 0.03% x 0.31). In addition, if the soluble borate comprises other borate compounds, the ratio by weight of boron in the borate compound is smaller than the ratio by weight of boron in boric oxide B_2O_3, and the value of the elution amount of boron becomes further smaller than 93 ppm.

Accordingly, Different Feature 5 is not a substantial different feature.

In addition, even if the elution amount of boron of boron nitride of A2 invention is not 100 ppm or less, Evidence A No. 5 discloses that, since damage to the skin becomes large if the elution amount of boron of boron nitride powder exceeds 20 ppm, it is necessary to make the amount of soluble boron 100 ppm or less (See above (C-3)), and, since it is also disclosed that the content of soluble boron in boron nitride powder can be reduced up to 100 ppm or less by washing (See above (C-4)), a person skilled in the art could have easily achieved to adjust the elution amount of boron of boron nitride powder to 100 ppm or less in A2 invention.

Accordingly, since Invention 2 is identical to A2 invention, or such that a person skilled in the art could have easily invented based on matters described in A2 invention and Evidence A No. 5, it has been patented in violation of the provisions of Article 29 (1) or (2) of the Patent Act.

(C) Inventions 4 and 6

Invention 4 relates to cosmetics comprising boron nitride powder of Invention 1 or 2, and Invention 6 is Invention 4 in which the cosmetic is restricted to powder foundations.

However, since Evidence A No. 2 discloses that the end usages of the boron nitride powder of A2 invention are foundation, point makeups, and powder-type

cosmetics (See above (A-2)), it can be deemed that Evidence A No. 2 substantially discloses cosmetics such as powder foundations comprising boron nitride powder of A2 invention.

Accordingly, Inventions 4 and 6 are identical to A2 invention or such that a person skilled in the art could have easily invented based on matters described in A2 invention and Evidence A No. 5, and they have been patented in violation of the provisions of Article 29 (1) or (2) of the Patent Act.

(D) Invention 5

Invention 5 is Invention 4 in which the content of boron nitride powder is restricted to 0.1 to 70% by mass. But, since it is normally carried out as disclosed, for example, in Evidence A No. 5 (See above (C-5)) to make the amount of boron nitride powder to be compounded to this level, a person skilled in the art could have appropriately conducted to make the content of boron nitride of A2 invention to 0.1 to 70% by mass when compounding it in cosmetics for example.

Accordingly, since Invention 5 is such that a person skilled in the art could have easily invented based on A2 invention, matters disclosed in Evidence A No. 5, and well-known art as disclosed in Evidence A No. 5, it has been patented in violation of the provisions of Article 29(2) of the Patent Act.

D. Judgment by the body on Patentee's assertion

Against the above reasons for revocation (announcement of decision), the Patentee submitted a written opinion dated August 23, 2019 asserting the following points.
(i) The reasons for revocation (announcement of decision) regarding novelty and inventive step are based on the deficiency of "the water permeation speed." "The water permeation speed" is not taken into consideration. Since the deficiency of "the water permeation speed" has been resolved, the matter that "the water permeation speed is less than 1 mm^2/s" should be taken into consideration for the judgment on novelty and inventive step.
(ii) Evidence A No. 2 does not disclose or suggest that the water permeation speed of boron nitride powder is less than 1 mm^2/s. Besides, it does not disclose that boron nitride powder after washing is treated "at a temperature of 300°C or more but not exceeding 1000°C and in a non-oxidizing reduced pressure atmosphere in which the furnace pressure is 0.01 MPa or lower." Further, none of other documents pointed out in the reasons for revocation discloses or suggests that the water permeation speed of boron nitride powder is less than 1 mm^2/s, and that boron nitride powder after washing is treated

"at a temperature of 300°C or more but not exceeding 1000°C and in a non-oxidizing reduced pressure atmosphere in which the furnace pressure is 0.01 MPa or lower."

The body considered the assertion by the Patentee. However, as already examined in the above (2). A, the deficiency in the description concerning "the water permeation speed" has not yet been resolved. In addition, as already examined in above C. (A), since "the water permeation speed as measured with a powder wet filtration analyzer PW-500 of less than 1 mm^2/s" is not a substantial different feature from A2 invention, the Patentee's assertion shall not be approved.

No. 4 Closing

As explained above, since the patent for Claims 1, 2, 4, and 6 falls under Article 29(1)(iii) of the Patent Act, it has been granted in violation of the provisions of Article 29(1) of the Patent Act, and the patent for Claims 1, 2, and 4 to 6 has been granted in violation of the provisions of Article 29(2) of the Patent Act. In addition, the patent for Claims 1 to 6 has been granted to a patent application that does not comply with the requirements provided for in Article 36(4)(i) and Article 36(6)(ii) of the Patent Act.

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

March 23, 2020

Chief administrative judge: KIKUCHI, Noriyoshi
Administrative judge: KAWAMURA, Yuji
Administrative judge: GOTO, Masahiro