Appeal decision

Appeal No. 2014-24612

Tokyo, Japan Appellant

TOKYO INSTITUTE OF TECHNOLOGY

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The case of Appeal against the examiner's decision of refusal of Japanese Patent Application No. 2008-83939, entitled "POLYMERIZED ORGANIC COMPRISING NITROGEN-HAVING COMPOUND HETEROCYCLE CONTAINING ALKYLENE SULFONIC ACID GROUP OR ALKYLENE SULFONIC ACID BASE, AND NITROGEN-HAVING HETEROCYCLE DERIVATIVE CONTAINING ALKYLENE SULFONIC ACID GROUP OR ALKYLENE SULFONIC BASE. MEDICAMENT, DISINFECTANT OR ANTIBIOTIC, ACID ION EXCHANGER. ELECTROLYTE MEMBRANE, CATALYST, **MEMBRANE** ELECTRODE CONJUGATE, FUEL CELL USING THE SAME" (the application published on October 15, 2009 as Japanese Unexamined Patent Application Publication No.2009-235262), has resulted in the following appeal decision.

Conclusion

The appeal of the case was groundless.

Reason

1 History of the procedures

The present application was filed on March 27, 2008, a notice of reasons for refusal was issued on May 14, 2013, a written opinion and a written amendment were filed on July 19, 2013, a (final) notice of reasons for refusal dated April 17, 2014 was issued, the written opinion was filed on June 23, 2014, and the examiner's decision of refusal dated August 29, 2014 was issued. In response, the request for appeal was filed on December 2, 2014.

2 Reasons for refusal stated in the examiner's decision

The examiner's decision of refusal on August 29, 2014 is based on the reasons described in the notice of reasons for refusal issued on April 17, 2014. The summary of reasons for refusal is as follows: "the written amendment dated July 19, 2013 does not fall within the scope of the matter described in the description, Claims, or drawings as originally filed. Therefore, it does not comply with the requirement of Article 17bis(3) of the Patent Act."

3 Judgment by the body

(1) The written amendment on July 19, 2013 (hereinafter referred to as "the amendment") has the following amended matters:

A Amended matter (A) (Before the Amendment) "[Claim 1]

"A polymerized organic compound, which has a nitrogen-having heterocycle containing an O-alkylene sulfonic acid group or an O-alkylene sulfonic acid base represented by the following general formula (1) as the constituent unit in the molecule. [Chemical Formula 1]

$$O-R-SO_3X$$
 (1)

(where R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element)

"[Claim 2]

The polymerized organic compound according to Claim 1, wherein said nitrogen-having heterocycle contains a pyridine ring, or heterocyclic ring containing pyridine ring and has a structure represented by the following general formula (2) as a constituent unit in the molecule.

[Chemical Formula 2]



(where R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element)

"[Claim 3]

The polymerized organic compound according to Claim 2, wherein the polymerized organic compound is a polymer represented by the following general formula (3) consisting only of repeating unit represented by said general formula (2), or a copolymer represented by the following general formula (4) consisting of at least one selected from a constituent unit represented by said general formula (2) and a constituent unit including another aromatic ring.

[Chemical Formula 3]

(where the portion surrounded by parentheses represents the unit constituting the polymerized organic compound, n represents an integer indicative of the number of the constituent unit represented by the general formula (2), R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element)

[Chemical Formula 4]

$$-\mathbf{I} \operatorname{Ar} \mathbf{I}_{m} = \mathbf{I}_{N} \operatorname{Ar} \mathbf{I}_{m} = \mathbf{I}_{N} \operatorname{Ar} \mathbf{I}_{m}$$

$$(4)$$

(where the portion surrounded by parentheses represents the unit constituting the polymerized organic compound, n represents an integer indicative of the number of the constituent unit represented by the general formula (2), m represents an integer indicative of the number of the constituent unit including another aromatic ring Ar, R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element)."

(After the Amendment)

"[Claim 1]

A polymerized organic compound, which has a structure represented by the following general formula (2) as a constituent unit in the molecule, where the nitrogen-having heterocycle ring having an alkylene sulfonic acid group or an alkylene sulfonic acid base represented by the following general formula (1) contains a pyridine ring or pyridone ring, wherein the polymerized organic compound is a polymer represented by the following general formula (3) consisting only of repeating unit represented by the following general formula (2), or a copolymer represented by the following general formula (2), or a copolymer represented by the following general formula (2) and a constituent unit including another aromatic ring,

[Chemical Formula 1]

$$-R-SO_3X$$
 (1)

(where R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element) [Chemical Formula 2]

(where R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element) [Chemical Formula 3]



(wherein the portion surrounded by parentheses represents the unit constituting polymerized organic compound, n represents an integer indicative of the number of the constituent element represented by the general formula (2), R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element) [Chemical Formula 4]



(where the portion surrounded by parentheses represents a unit constituting a polymerized organic compound, n represents an integer indicative of the number of the constituent unit represented by the general formula (2), m represents an integer indicative of the number of the constituent unit Ar, R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element)".

B Amended matter (B) (Before the Amendment)



化合物 5Compound 5化合物 6Compound 6化合物 8Compound 8波長 $(c m^{-1})$ Wavelength (cm^{-1})

(After the Amendment)



C Amended matter (C) (Before the Amendment) "[0098]

(Example 1)

[Synthesis of Organic Compound 5 consisting of nitrogen-having heterocycle having O-alkylene sulfonic acid base and two halogen atoms]

Into a solvent, 10.6g of 3,5-dibromo-2-hydroxypyridine and 1.68g of sodium hydroxide were dissolved and stirred. Thereafter, 5.14g of propanesultone dissolved in a solvent was added and reacted. The resultant crude product was recycled, purified, and dried to obtain 8.81g (yield 53%) of Compound 5 represented by the following structural formula (5) as a white powder:

[0099] [Chemical Formula 11]

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(After the Amendment)

"[0090]

(Example 1)

[Synthesis of Organic Compound 5 consisting of nitrogen-having heterocycle having alkylene sulfonic acid base and two halogen atoms]

(5)

Into a solvent 10.6g of 3,5-dibromo-2-hydroxypyridine and 1.68g of sodium hydroxide were dissolved and stirred. Thereafter, 5.14g of propanesultone dissolved in a solvent was added and reacted. The resultant crude product was recycled, purified, and dried to obtain 8.81g (yield 53%) of Compound 5 represented by the following structural formula (5) as a white powder:

[0091]

"

[Chemical Formula 6]



(2) The appellant's allegation with regard to the amendment

A The Appellant (Applicant) argues in the written opinion dated July 19, 2013 as set forth below:

- As for the amended matter (A),

"Claim 1 after amendment is a new claim created in accordance with Claim 1 combined with Claims 2 and 3 before amendment."

- As for the amended matter (B),

"The horizontal axis of Figure 3 as originally filed has a unit of wavelength (cm⁻¹), but the numerical value of the wavelength (cm⁻¹) is not described. Accordingly, an inventor (Ryuichi Yamamoto) of the application has identified major peaks on the basis of data in the description as originally filed and the Figure 3" has been amended.

- As for amended matter (C),

"There was a typographical error in a molecular structure of Compound 5 described in paragraphs [0099], [Chemical Formula 11] of the description as originally filed. It has been found that the correct molecular structure is the following molecular structure (molecular structure with C=O ketone group), which is an isomer of Compound 5 described in the aforesaid paragraph [0099], [Chemical Formula 11]:



The infrared spectrum of Compound 5 obtained in Example 1 of the present invention is shown in Figure 3; however, the peak of 1653cm⁻¹ in an infrared spectrum shown in said Figure 3 was misidentified as the peak of O-alkylene sulfonic acid group as of the filing of the present invention.

This 1653 cm^{-1} peak in the infrared spectrum shown in the aforesaid Figure 3 is a peak corresponding to ketone (C=O) according to Reference Documents 1 to 4. The organic compound with pyridine-ring -O-methyl group of Reference Document 4 lacks a ketone (C=O) group. Similar to the aforesaid Compound 5, Compound 6 obtained in Example 2 and Compound 8 obtained in Example 4 of the present invention each also have a peak corresponding to a ketone (C=O) group.

As the evidence of these facts, Reference Documents 1 to 4 are attached herein.

Reference Document 1 (page 2, right column, middle) discloses that the absorption band of ketone (C=O) ranges from 1600 to 1950 cm⁻¹.

Reference Document 2 (page 2, left column, bottom) discloses that the absorption band of ketone (C=O) ranges from 1690 to 1650cm⁻¹ in the absorption band of alpha-pyridone.

Reference Document 3 discloses IR data of Compound corresponding to a monomer of the polymerized organic compound of the present invention, in which a ketone (C=O) peak is found at 1652cm⁻¹.

Reference Document 4 (Source: Database of National Institute of Advanced Industrial Science and Technology) discloses on page 1 IR data of compound with N of alpha-pyridone bearing methyl group. Similar to IR data of the monomer of Reference Document 3, a ketone (C=O)peak ($1658cm^{-1}$) is found.

Reference Document 4 discloses on page 2 IR data of a pyridine isomer compound of the aforesaid alpha-pyridone. It is recognized that there is no C=O peak that is found in IR data of alpha-pyridone on page 1.

It can be seen from these facts that Compound 5 obtained in Example 1 of the present invention, which has been shown in said Figure 3, has a ketone (C=O) group and thus lacks an O-alkylene sulfonic acid group, and has an N-alkylene sulfonic acid group binding to a neighboring N in the molecular structure.

Such amendment is intended for the correction of a typographical error, and thus it does not intend to expand or modify the scope of the description or the drawings originally attached to the application. It is an obvious matter from Reference Documents 1 to 4 or the description or the drawings."

(3) Judgment by the body with regard to the amendment

Article 17bis(3) of the Patent Law provides that an amendment "must be made within the scope of the matter described in the description, Claims, or drawings as

originally filed (hereinafter referred to 'the matter described in the originally attached description, etc.')", so that the invention may be sufficiently disclosed as of the filing to secure quick grant of right and fairness between an application where the invention is sufficiently disclosed as of the filing and an application where the invention is not sufficiently disclosed as of the filing. Furthermore, the provision prevents a third party that acts on the basis of the scope of the invention disclosed as of the filing from suffering unexpected disadvantage and substantially secures the principle of first-to-file principle.

An amendment "is made within the scope of the originally attached description, etc." when the amendment "might not introduce new technical matters in relation to the technical matters derived from all the statements of the description." It is considered hereinafter as to whether the amendments made in the written amendment dated July 19, 2013 correspond to such a case or not.

A As for amended matter (B)

The amended matter (B) intends to insert numerals in Figure 3 showing an infrared absorption spectrum, so that the range of measured wavelength (cm^{-1}) and the scale unit can be understood by the amendment, while such a range or a scale unit were absent in a horizontal axis before the amendment. The amended matter (B) also intends to insert peak wavelength for several peaks (1653, 1589, 1181, 1052 for Compound 5; 1644, 1587, 1460, 1038 for Compound 6), whereas specific numerical values of peak wavelength (cm⁻¹) are not described in the spectra of Compound 5 and Compound 6 before the amendment.

It is widely known in the art that the wavelength range of infrared used for obtaining infrared absorption spectrum is from 400 to 4000cm⁻¹ in determining a structural formula of an organic compound; however, when an infrared spectrum is shown in a graph, it is not common to show habitually the wavelength range of the horizontal axis with the scale of 4000cm⁻¹ to 500cm⁻¹. Consequently, it can be recognized that the amendment of inserting the scope of the wavelength to the horizontal axis introduces a new technical matter.

If it were normal in the technical field that the horizontal axis is shown in a range of 4000cm⁻¹ to 500cm⁻¹, such amendment of adding the commonly used wavelength to the horizontal axis would be made within the scope of the matters described in the description as originally filed.

In view of the horizontal scale in Figure 3 (It can be understood by the amendment that the scale unit is 250cm⁻¹), it should be said impossible to read off the wavelength added by the amendment to one digit for each peak value on the basis of the description of Figure 3 before the amendment. Further, the reference to the infrared absorption spectrum is made only in paragraph 0112 in the description of the present application as originally filed, whereas the paragraph states that "The infrared absorption spectrum of each of Compounds 5 to 9 obtained in Examples 1 to 5 was measured. For purposes of illustration, the measurement results of Compounds 5, 6, and 8 are shown in Figure 3. All of Compounds 5, 6, and 8 show two strong and characteristic absorption peaks in the ranges of 1030 to 1050cm⁻¹ and 1170 to 1200cm⁻¹. These peaks are derived from symmetric vibration and asymmetric vibration of an S=O group, respectively, which are the absorption peak characteristic of sulfonic acid group

or sodium sulfonate group. Thus, it was confirmed that all the compounds of Compounds 5 to 9 had a sulfonic acid group or a sodium sulfonate group". It can be seen from these descriptions of the present application as originally filed that, while there are several peaks in Figure 3, among them, the peaks critical for the determination of the compound's structure according to the present invention are the peak in the range of 1030 to 1050cm⁻¹ and the peak in the range of 1170 to 1200cm⁻¹. Many of peaks, which are newly added by the amended matter (B), are outside these ranges.

The infrared absorption spectrum provides material necessary for the determination of the chemical structure of organic compounds, and thus it is recognized that the amendment to add numerals to a scale of axes, which have been not clear according to the description as originally filed, introduces a new technical matter. Further, the amendment adds specific numerical values of peaks of a spectrum within a range which was not described as "characteristic" for the determination of chemical structure as of the filing. Such amendment intends to show a new structural formula of compound. Therefore, it is recognized as the introduction of a new technical matter.

B As for amended matter (A) and amended matter (C)

Amended matters (A) and (C) intend to modify, in a word, chemical structural formulas of the compounds described in the description as originally filed. The Applicant alleges that this is based on the fact that "The peak at 1653cm⁻¹ in an infrared absorption spectrum shown in said Figure 3 was misidentified as the peak of an O-alkylene sulfonic acid group as of the filing of the present invention".

The amended matter (A) includes the amendment of the following structure of the polymerized organic compound according to the present invention:



The description as originally filed does not at all disclose that the structure of the polymerized organic compound according to the present invention is identical to

to



after the amendment. Further, regarding the structure of the polymerized organic compound according to the present invention, the description as originally filed has, e.g., the following descriptions:

(3)

- "... Therefore, after conducting a search for a compound by use of CAS, there was no report of pyridine derivative having an O-alkylene sulfonic group or O-alkylene sulfonic acid base and containing a halogen atom, which acts as a leaving group in the polymerization reaction as far as our search covered" [0009];

- "The inventors have intensively studied for solving the problem and found that nitrogen-having heterocycle derivatives with a sulfonic acid group or a sulfonic acid base group may be synthesized at a low temperature without environmental load by introducing an O-alkylene sulfonic acid group or O-alkylene sulfonic acid base group into a nitrogen-having heterocycle" [0019];

- "The polymerized organic compound and organic compound of the present invention (hereinafter collectively noted as organic compounds) are characterized in having a nitrogen-having heterocycle having an O-alkylene sulfonic group or O-alkylene sulfonic acid base; i.e., a group of -O-R-SO3X (R represents an alkylene group, and X represents hydrogen, a Group 1 element, or a Group 2 element) as a constituent unit in the molecule." [0066]; and

- "¹H-NMR spectra of Compounds 5 to 9 obtained in Examples 1 to 5 were measured. For example, the measurement results of Compounds 5, 6, and 8 are shown in Figure 4. In Compounds 5, 6, and 8, three signals of chemical shift were observed from 2.0 to 5.0, and a signal was observed from 7.8 to 9.8. The former signals are attributed to a proton derived from alkylene of an O-alkylene sulfonic acid group or O-alkylene sulfonic acid base group, whereas the latter signal is attributed to a proton directly bound to pyridine ring. In combination with the result of the aforementioned infrared absorption spectra, it has been found that all the compounds of Compounds 5 to 9 have a pyridine ring, an alkylene, and a sulfonic acid group or a sodium sulfonate group. The small and broad signals in the chemical shifts of 8.0 to 10.0 and 2.0 to 4.0 for Compound 6 and 8 in Figure 4 show that Compound 6 and 8 are polymers."[0113]; In view of these descriptions, the structure of the polymerized organic compound described in the description as filed has "an O-alkylene sulfonic acid group or O-alkylene sulfonic acid base group". Therefore, the above structural formula before the amendment is not inconsistent with these descriptions. In contrast, it does not disclose that an alkylene of the alkylene sulfonic acid (base) group is bound to an atom other than oxygen (i.e., a nitrogen atom), nor any description supporting the fact. Consequently, it can be recognized that the amendment of modifying the chemical structural formula of a polymerized organic compound according to the present invention introduces a new technical matter.

The amended matter (C) intends to modify the following structure of

synthesized compound (5) in the Examples that described synthetic examples of raw material compounds of polymerized organic compound according to the present invention:



The description as originally filed does not at all disclose that the structure of the synthesized compound is identical to



after the amendment. Further, those skilled in the art could understand from the description of raw material compounds or catalyst etc. used for the synthesis in the Examples, Figure 3 and the corresponding description (paragraph [0112]), and Figure 4 and the corresponding description (paragraph [0113]) in the specification as filed that the compound (5) has a structure of



on the basis of the common technical knowledge. It cannot be recognized that these descriptions are not particularly inconsistent with each other.

Consequently, it can be recognized that the amendment of modifying a chemical structural formula of such compound with that of the completely different compound introduces a new technical matter.

Furthermore, as described in the above item A, the amendment of identifying

one of peaks in the infrared absorption spectrum of Compound 5 as 1653cm⁻¹ in Figure 3 introduces a new technical matter. The amended matters (A) and (C) in which the chemical structure of a compound is modified on the basis of such amendment also introduce a new technical matter.

Even if the peak at 1653cm⁻¹ should be read off in Figure 3, it could not be said to be known well that the peak at 1653cm⁻¹ may be attributed to a ketone group. Further, as described in the above item A, the peak at 1653cm⁻¹ is a peak outside the scope described as "characteristic" for the determination of chemical structure as of the filing. Therefore, it is recognized that the determination of the compound's structure on the basis of such peak is an introduction of new technical matter.

(4) Summary

The amended matters (A) to (C) are not described in the originally attached description etc. It cannot be said that they introduce no new technical matters in relation to the technical matters derived from all the descriptions of the originally attached description, etc. Therefore, it cannot be recognized that the amendment including such amended matters is made within the scope of the matter described in the originally attached description, etc.

4 Closing remarks

For the above reasons, the written amendment made on July 19, 2013 does not fall within the scope of the matter described in the description, Claims, or drawings as filed. Therefore, it does not comply with the requirement of Article 17bis(3) of the Patent Act."

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

July 13, 2016

Chief administrative judge: KOYANAGI, Kengo Administrative judge: MORIYASU, Satoshi Administrative judge: ONODERA, Tsutomu