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<tr><td rowspan="2">Patent Right</td><td>Date</td><td>June 3, 2020</td><td rowspan="2">Court</td><td rowspan="2">Intellectual Property High Court, Second Division</td></tr>
<tr><td>Case number</td><td>2019 (Gyo-Ke) 10096</td></tr>
<tr><td colspan="5">- A case in which with regard to an invention titled "RESIN COMPOSITION, POLYIMIDE RESIN FILM USING THE SAME, DISPLAY SUBSTRATE, AND PRODUCTION METHOD FOR SAID DISPLAY SUBSTRATE," part of an opposition decision to revoke a patent as not having an inventive step was rescinded.</td></tr>
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Case type: Rescission of Patent Revocation Decision

Result: Partially granted

References: Article 29, paragraph (2) of the Patent Act

Related rights, etc.: Patent No. 6172139

Decision of JPO: Invalidation Trial No. 2018-700095 (trial decision rendered on May 30, 2019)

## Summary of the Judgment

1. Present Invention 1

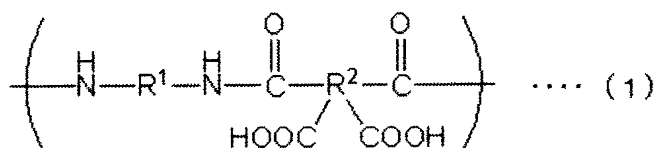
(1) Common feature and different features between Present Invention 1 and Exhibit Ko 1 Invention 1 are as follows.

A. Common feature

(a) A resin composition, comprising (a) a polyamide acid having a structural unit represented by general formula (1) and (c) an organic solvent,

wherein the resin composition is used in a method for producing a display substrate, the method comprising a step of applying and heating the resin composition to a substrate to form a polyimide resin film, a step of forming a semiconductor element on the polyimide resin film, and a step of peeling from a supporter the polyimide resin film on which the semiconductor element is formed.

[Formula 11]



(In general formula (1), $R^1$ represents a divalent organic group having an aromatic ring and $R^2$ represents a tetravalent organic group having an aromatic ring.)

B. Different Feature 1

In Present Invention 1, the resin composition comprises "(b) one or more

alkoxysilane compounds selected from the group consisting of 3-ureidopropyltriethoxysilane, bis(2-hydroxyethyl)-3-aminopropyltriethoxysilane, 3-glycidoxypropyltrimethoxysilane, phenyltrimethoxysilane, γ-aminopropyltriethoxysilane, γ-aminopropyltrimethoxysilane, γ-aminopropyltripropoxysilane, γ-aminopropyltributoxysilane, γ-aminoethyltriethoxysilane, γ-aminoethyltrimethoxysilane, γ-aminoethyltripropoxysilane, γ-aminoethyltributoxysilane, γ-aminobutyltriethoxysilane, γ-aminobutyltrimethoxysilane, γ-aminobutyltrypropoxysilane, and γ-aminobutyltributoxysilane, and ..., wherein the content of the component (b) is 0.2 to 2 mass% with respect to the component (a)." In contrast thereto, Exhibit Ko 1 Invention 1 does not specify that the resin composition comprises "(b) alkoxysilane compound." In addition, Exhibit Ko 1 Invention 1 does not specify the content of "(b) alkoxysilane compound."

C. Different Feature 2

In the "step to form a polyimide resin film," in Present Invention 1, a "silicon substrate or a glass substrate" is used and a "polyimide resin film having a film thickness of 1 to 50 μm" is formed. In contrast thereto, Exhibit Ko 1 Invention 1 uses a "carrier substrate" and does not specify a film thickness of a "solid resin film."

(2) Whether the different feature would have been easily conceivable

A. Different Feature 1

(a) At the time of the priority date of the present case, it can be found that a polyimide resin film was considered to have a heat-resistant property and a mechanical property. Further, with regard to a relationship between "adhesiveness" and "peelability" in Present Invention 1, it can be found that even if the adhesiveness and the peelability do not have a complete trade-off relationship, these are not independent physical properties, but rather these are interrelated and show at least a tendency to be conflicting, or properties which are negatively correlated with each other.

(b) It can be understood that in the invention as disclosed in Exhibit Ko 1, in order to perform a step of forming a circuit on a polyimide resin film formed on a carrier substrate, the polyimide resin film is required to have sufficient adhesiveness to the carrier substrate. For this purpose, it is clear that the polyimide precursor composition applied to the carrier substrate is required to have a high level of adhesiveness. Thus, in order that the polyimide resin film, which has a heat-resistant property and a mechanical property, is provided with sufficient adhesiveness to the carrier substrate, there is a motivation to add to the polyimide precursor (resin

portion) a coupling agent as disclosed in Exhibit Ko 1 in an amount in the range of 0.1 mass% or more and 3 mass% or less, which is disclosed as the preferable amount to be used.

In addition, the alkoxysilane compound as stated in Present Invention 1 includes those listed as the silane coupling agent in Exhibit Ko 1, and in order to provide sufficient adhesiveness as well as sufficient peelability which is a physical property being interrelated with the adhesiveness, showing at least a tendency to be conflicting with or having a negative correlation with the adhesiveness, it can be deemed that even if some trial and error is required in determining the added amount of these silane coupling agents, a person ordinarily skilled in the art could have easily found an added amount of 0.2 to 2 weight% from the range of 0.1 mass% or more and 3 mass% or less as disclosed in Exhibit Ko 1.

(c) For the above reasons, it can be acknowledged that a person ordinarily skilled in the art could have easily conceived of Different Feature 1 from the disclosure of Exhibit Ko 1.

B. Different Feature 2

It can be understood that the composition of Exhibit Ko 1 Invention 1 is to be applied to a glass substrate or a silicon substrate serving as a carrier substrate, and that a polyimide resin film obtained from the composition of Exhibit Ko 1 Invention 1 is supposed to be 1 to 20 μm. Further, the thickness of the polyimide resin film in Present Invention 1, which is 1 to 50 μm, encompasses the entire range of 1 to 20 μm which is supposed for Exhibit Ko 1 Invention 1.

Therefore, it can be acknowledged that Different Feature 2 is easily conceivable.

C. Effect of Present Invention 1

Exhibit Ko 1 discloses that a silane coupling agent can be added in order to improve an adhesiveness of a polyimide precursor resin composition to a supporter to which the polyimide precursor resin composition is applied, and it is clear to a person ordinarily skilled in the art that by improving the adhesiveness between the supporter and the polyimide precursor composition, the adhesiveness between the supporter and the polyimide resin film will also be improved. Thus, it is possible for a person ordinarily skilled in the art to expect that the configuration of Present Invention 1, in which the silane coupling agent is added to the polyimide precursor, would produce an effect of "having sufficient adhesiveness to the supporter" in the same manner as in Exhibit Ko 1 Invention 1. Therefore, this cannot be acknowledged as a remarkable effect which a person ordinarily skilled in the art cannot expect.

D. According to the above, it can be acknowledged that Present Invention 1 could

have been easily made from Exhibit Ko 1 Invention 1.

2. Present Invention 2

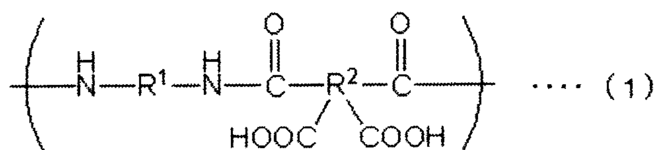
(1) Common feature and different features between Present Invention 2 and Exhibit Ko 1 Invention 1 are as follows.

A. Common feature

(a) A resin composition, comprising (a) a polyamide acid having a structural unit represented by general formula (1) and (c) an organic solvent,

wherein the resin composition is used in a method for producing a display substrate, the method comprising a step of applying and heating the resin composition to a substrate to form a polyimide resin film, a step of forming a semiconductor element on the polyimide resin film, and a step of peeling from a supporter the polyimide resin film on which the semiconductor element is formed.

[Formula 11]



(In general formula (1), $R^1$ represents a divalent organic group having an aromatic ring and $R^2$ represents a tetravalent organic group having an aromatic ring.)

B. Different Feature 3

In Present Invention 2, the resin composition comprises "(b) one or more alkoxysilane compounds selected from the group consisting of 3-ureidopropyltriethoxysilane, bis(2-hydroxyethyl)-3-aminopropyltriethoxysilane, 3-glycidoxypropyltrimethoxysilane, and phenyltrimethoxysilane, and ..., wherein the content of the component (b) is 0.2 to 2 mass% with respect to the component (a)." In contrast thereto, Exhibit Ko 1 Invention 1 does not specify that the resin composition comprises "(b) alkoxysilane compound." In addition, Exhibit Ko 1 Invention 1 does not specify the content of "(b) alkoxysilane compound."

C. Different Feature 2a

In the "step ... to form a polyimide resin film," in Present Invention 2, a "silicon substrate or a glass substrate" is used and a "polyimide resin film having a film thickness of 1 to 50 μm" is formed. In contrast thereto, Exhibit Ko 1 Invention 1 uses a "carrier substrate" and does not specify a film thickness of a "solid resin film."

(2) Different Feature 3

A. Exhibit Ko 1 does not disclose the alkoxysilane compound, which is stated in Present Invention 2, as a coupling agent which can improve adhesiveness of a

polyimide resin film to a supporter in Exhibit Ko 1 Invention 1. Further, there is no evidence from which it can be found that it was common general technical knowledge in the art as of the priority date of the present case that the alkoxysilane compound as stated in Present Invention 2 is suitable for improving the adhesiveness to the carrier substrate of the resin film formed from the polyamide resin composition for forming a flexible device substrate, which resin film is to be peeled off from the carrier substrate after forming a circuit on the polyimide resin film formed on the carrier substrate.

Thus, it cannot be acknowledged that a person ordinarily skilled in the art who has read Exhibit Ko 1 is motivated to select the alkoxysilane compound as stated in Present Invention 2. Therefore, it cannot be acknowledged that Different Feature 3 is easily conceivable.

B. In addition, among silane coupling agents as disclosed in Exhibit Ko 22, only (21) N-phenyl-γ-aminopropyltrimethoxysilane is mentioned for adding to polyimide. Exhibit Ko 22 does not disclose that the alkoxysilane compound as stated in Exhibit Ko 1 and Present Invention 2 is a silane coupling agent to be added to polyimide.

Thus, on the basis of Exhibit Ko 22, it cannot be acknowledged that it is easily conceivable to add the alkoxysilane compound as stated in Present Invention 2 to polyimide.

C. In Exhibits Ko 2 to 6, the silane coupling agent is combined for a different purpose or for a different subject from that of Present Invention 2. Thus, it cannot be acknowledged that there is a motivation to use the alkoxysilane compound of Exhibits Ko 2 to 6 for the purpose of Present Invention 2.

(3) According to the above, it cannot be acknowledged that Present Invention 2 could have been easily made from Exhibit Ko 1 Invention 1.