constitutes the pressure sensitive adhesive layer of the pressure sensitive adhesive sheet for work processing may readily remain on the surface of the workpiece which has been attached to the pressure sensitive adhesive sheet for work processing.

[0009]

In particular, the above-described adhesive residue may readily occur when the pressure sensitive adhesive layer of the pressure sensitive adhesive sheet for work processing is made of an energy ray-curable pressure sensitive adhesive and the pressure sensitive adhesive layer is cured by irradiation with energy rays prior to the separation of the workpiece and when the pressure sensitive adhesive sheet for work processing includes a conductive layer, such as the previously-described antistatic layer, which contains a conductive material.

[0010]

According to a first aspect of the present invention, there is provided a pressure sensitive adhesive sheet for work processing which includes a conductive layer and a pressure sensitive adhesive layer composed of an energy ray-curable pressure sensitive adhesive but which is nevertheless suppressed in the adhesive residue on a workpiece having recesses on its surface. Another object of the present invention is to provide a method of manufacturing the pressure sensitive adhesive sheet for work processing.

[Means for solving the Problems]

[0011]

According to a first aspect of the present invention, there is provided a pressure sensitive adhesive sheet for work processing, comprising: a base material; a conductive layer laminated at one side of the base material; and a

pressure sensitive adhesive layer laminated on a surface of the conductive layer opposite to the base material, the pressure sensitive adhesive layer being composed of an energy ray-curable pressure sensitive adhesive, the pressure sensitive adhesive sheet having an interlaminar strength of 17 N/25 mm or more, the interlaminar strength being measured as a peel strength when, after a surface of the pressure sensitive adhesive sheet at the pressure sensitive adhesive layer side is fixed to a support and the pressure sensitive adhesive layer is irradiated with energy rays, a laminate of the base material and the conductive layer is peeled off from the pressure sensitive adhesive layer at a peeling speed of 300 mm/min and at 180°.

[0012]

In the pressure sensitive adhesive sheet for work processing according to the first aspect, the above interlaminar strength is within the previously-described range thereby to suppress the occurrence of delamination at the interface between the conductive layer and the pressure sensitive adhesive layer when the pressure sensitive adhesive layer is irradiated with energy rays and thereafter the pressure sensitive adhesive sheet for work processing and the workpiece are separated from each other. As a result, even when fine recesses exist on the surface of the workpiece, the pressure sensitive adhesive which constitutes the pressure sensitive adhesive layer is suppressed from remaining on the surface of the workpiece to be separated. Thus, the pressure sensitive adhesive sheet for work processing includes the conductive layer and the pressure sensitive adhesive layer composed of an energy ray-curable pressure sensitive adhesive, but is nevertheless well suppressed in the adhesive residue on the workpiece.

[0013]

In an embodiment, the pressure sensitive adhesive sheet before being irradiated with energy rays may preferably have a holding power of 1.0 mm or less as an amount of displacement of the pressure sensitive adhesive sheet after 70,000 seconds, wherein the holding power is measured in accordance with JIS Z0237: 2009.

[0014]

Disclosed herein is a pressure sensitive adhesive sheet that may preferably be manufactured through laminating the conductive layer at one side of the base material, then performing electron beam irradiation and plasma treatment for a surface of the conductive layer opposite to the base material, and subsequently laminating the pressure sensitive adhesive layer on the surface of the conductive layer.

[0015]

In an embodiment, a surface of the pressure sensitive adhesive layer opposite to the conductive layer may preferably be attached to a workpiece having recesses on its surface, wherein the surface of the pressure sensitive adhesive layer is attached to the surface of the workpiece on which the recesses exist.

[0016]

In an embodiment, the recesses of the workpiece may preferably have a width of 1 μm or more and 100 μm or less and a depth of 1 μm or more and 50 μm or less in a cross-sectional view.

[0017]

According to a second aspect of the present invention, there is provided a method of manufacturing the above pressure sensitive adhesive sheet for work processing, the method comprising: a step of laminating the conductive

layer at one side of the base material; a step of performing electron beam irradiation for a surface of the conductive layer opposite to the base material; a step of performing plasma treatment for the surface of the conductive layer opposite to the base material; and a step of laminating the pressure sensitive adhesive layer on the surface of the conductive layer for which the electron beam irradiation and the plasma treatment are performed .

[0018]

In the above aspect, the step of performing electron beam irradiation may preferably be performed prior to the step of performing plasma treatment

[Advantageous Effect of the Invention]

[0019]

The pressure sensitive adhesive sheet for work processing according to embodiments of the present invention includes the conductive layer and the pressure sensitive adhesive layer composed of an energy ray-curable pressure sensitive adhesive, but is nevertheless suppressed in the adhesive residue on a workpiece having recesses on its surface. Moreover, the method of manufacturing the pressure sensitive adhesive sheet for work processing according to embodiments of the present invention can be used to manufacture such a pressure sensitive adhesive sheet for work processing.

[Brief Description of Drawing(s)]

[0020]

FIG. 1 is a cross-sectional view of a pressure sensitive adhesive sheet for work processing according to

CLAIMS

[Claim 1]

A pressure sensitive adhesive sheet for work processing, comprising:

a base material;

a conductive layer laminated at one side of the base material; and

a pressure sensitive adhesive layer laminated on a surface of the conductive layer opposite to the base material,

the pressure sensitive adhesive layer being composed of an energy ray-curable pressure sensitive adhesive,

the pressure sensitive adhesive sheet having an interlaminar strength of 17 N/25 mm or more, the interlaminar strength being measured as a peel strength when, after a surface of the pressure sensitive adhesive sheet at the pressure sensitive adhesive layer side is fixed to a support and the pressure sensitive adhesive layer is irradiated with energy rays, a laminate of the base material and the conductive layer is peeled off from the pressure sensitive adhesive layer at a peeling speed of 300 mm/min and at 180°.

[Claim 2]

The pressure sensitive adhesive sheet for work processing as recited in claim 1, wherein the pressure sensitive adhesive sheet before being irradiated with energy rays has a holding power of 1.0 mm or less as an amount of displacement of the pressure sensitive adhesive sheet after 70,000 seconds, wherein the holding power is measured in accordance with JIS Z0237: 2009.

[Claim 3]

The pressure sensitive adhesive sheet for work processing as recited in claim 1 or 2, wherein a surface of the pressure sensitive adhesive layer opposite to the conductive layer is attached to a workpiece having recesses on its surface, wherein the surface of the pressure sensitive adhesive layer is attached to the surface of the workpiece on which the recesses exist.

[Claim 4]

The pressure sensitive adhesive sheet for work processing as recited in claim 3, wherein the recesses of the workpiece have a width of 1 μm or more and 100 μm or less and a depth of 1 μm or more and 50 μm or less in a cross-sectional view.

[Claim 5]

A method of manufacturing the pressure sensitive adhesive sheet for work processing as recited in any one of claims 1 to 4, the method comprising:

a step of laminating the conductive layer at one side of the base material;

a step of performing electron beam irradiation for a surface of the conductive layer opposite to the base material;

a step of performing plasma treatment for the surface of the conductive layer opposite to the base material; and

a step of laminating the pressure sensitive adhesive layer on the surface of the conductive layer for which the electron beam irradiation and the plasma treatment are performed.

[Claim 6]

The method of manufacturing the pressure sensitive adhesive sheet for work processing as recited in claim 5, wherein the step of performing electron beam irradiation is performed prior to the step of performing plasma treatment.