

CLAIMS

1. A protective film-forming film in which the light transmittance at a wavelength of 1064 nm is 55% or greater, and the light transmittance at a wavelength of 550 nm is 20% or less.
2. The protective film-forming film according to Claim 1, which comprises an organic colorant.
3. The protective film-forming film according to Claim 2, wherein the organic colorant comprises a pigment.
4. The protective film-forming film according to any one of Claims 1 to 3, which is a single layer formed of an uncured curable adhesive
5. The protective film-forming film according to Claim 4, wherein the curable adhesive comprises a filler having an average particle diameter of 0.01 to 3 μm .
6. The protective film-forming film according to any one of Claims 1 to 5, which has a thickness of 3 to 15 μm .
7. A sheet for forming a protective film, comprising:
the protective film-forming film of any one of Claims 1 to 6; and
a release sheet which is laminated on one or both surfaces of the protective film-forming film.

8. A composite sheet for forming a protective film, comprising:
an adhesive sheet which is formed by laminating a pressure sensitive adhesive layer on one surface side of a base material; and
the protective film-forming film of any one of Claims 1 to 6 which is laminated on the a pressure sensitive adhesive layer side of the adhesive sheet.
9. A method of producing a manufactured product, comprising:
forming a protective film on a workpiece using the protective film-forming film of any one of Claims 1 to 6, the sheet for forming a protective film of Claim 7, or the composite sheet for forming a protective film of Claim 8 to produce a workpiece provided with a protective film;
forming a modified layer inside the workpiece by irradiating a laser beam of infrared region to be focused at a focal point set inside the workpiece; and
applying a force to the workpiece having the modified layer formed to split the workpiece having the modified layer formed to obtain a plurality of pieces as a manufactured product.
10. The method according to Claim 9, wherein the workpiece is a semiconductor wafer, and the manufactured product is a semiconductor chip.

CLAIMS

1. A protective film-forming film in which the light transmittance at a wavelength of 1064 nm is 55% or greater, the light transmittance at a wavelength of 550 nm is 20% or less, and the protective film-forming film is a single layer formed of an uncured curable adhesive.
2. The protective film-forming film according to Claim 1, which comprises an organic colorant.
3. The protective film-forming film according to Claim 2, wherein the organic colorant comprises a pigment.
4. The protective film-forming film according to any one of Claims 1 to 3, wherein the curable adhesive comprises a filler having an average particle diameter of 0.01 to 3 μm .
5. The protective film-forming film according to any one of Claims 1 to 4, which has a thickness of 3 to 15 μm .
6. A sheet for forming a protective film, comprising:
the protective film-forming film of any one of Claims 1 to 5; and
a release sheet which is laminated on one or both surfaces of the protective film-forming film.
7. A composite sheet for forming a protective film, comprising:
an adhesive sheet which is formed by laminating a pressure sensitive adhesive layer on one surface side of a base material; and
the protective film-forming film of any one of Claims 1 to 5 which is laminated on the a pressure sensitive adhesive layer side of the adhesive sheet.
8. A method of producing a manufactured product, comprising:
forming a protective film on a workpiece using the protective film-forming film of any one of Claims 1 to 5, the sheet for forming a protective film of Claim 6, or the composite sheet for forming a protective film of Claim 7 to produce a workpiece provided with a protective film;

forming a modified layer inside the workpiece by irradiating a laser beam of infrared region to be focused at a focal point set inside the workpiece; and

applying a force to the workpiece having the modified layer formed to split the workpiece having the modified layer formed to obtain a plurality of pieces as a manufactured product.

9. The method according to Claim 8, wherein the workpiece is a semiconductor wafer, and the manufactured product is a semiconductor chip.

10. A composite sheet for forming a protective film, comprising:

an adhesive sheet which is formed by laminating a pressure sensitive adhesive layer on one surface side of a base material; and

a protective film-forming film in which the light transmittance at a wavelength of 1064 nm is 55% or greater, and the light transmittance at a wavelength of 550 nm is 20% or less.

11. The composite sheet for forming a protective film according to Claim 10, wherein the protective film-forming film comprises an organic colorant.

12. The composite sheet for forming a protective film according to Claim 11, wherein the organic colorant comprises a pigment.

13. The composite sheet for forming a protective film according to any one of Claims 10 to 12, wherein the protective film-forming film is a single layer formed of an uncured curable adhesive.

14. The composite sheet for forming a protective film according to Claim 13, wherein the curable adhesive comprises a filler having an average particle diameter of 0.01 to 3 μm .

15. The composite sheet for forming a protective film according to any one of Claims 10 to 14, wherein the protective film-forming film has a thickness of 3 to 15 μm .

16. A method of producing a manufactured product, comprising:

forming a protective film on a workpiece using

a protective film-forming film in which the light transmittance at a wavelength of 1064 nm is 55% or greater, and the light transmittance at a wavelength of 550 nm is 20% or less,

a sheet for forming a protective film comprising the protective film-forming film and a release

sheet which is laminated on one or both surfaces of the protective film-forming film, or

a composite sheet for forming a protective film, comprising an adhesive sheet which is formed by laminating a pressure sensitive adhesive layer on one surface side of a base material, and the protective film-forming film,

to produce a workpiece provided with a protective film;

forming a modified layer inside the workpiece by irradiating a laser beam of infrared region to be focused at a focal point set inside the workpiece; and

applying a force to the workpiece having the modified layer formed to split the workpiece having the modified layer formed to obtain a plurality of pieces as a manufactured product.

17. The method according to Claim 16, wherein the protective film-forming film comprises an organic colorant.

18. The method according to Claim 17, wherein the organic colorant comprises a pigment.

19. The method according to any one of Claims 16 to 18, wherein the protective film-forming film is a single layer formed of an uncured curable adhesive.

20. The method according to Claim 19, wherein the curable adhesive comprises a filler having an average particle diameter of 0.01 to 3 μm .

21. The method according to any one of Claims 16 to 20, wherein the protective film-forming film has a thickness of 3 to 15 μm .

22. The method according to any one of Claims 16 to 21, wherein the workpiece is a semiconductor wafer, and the manufactured product is a semiconductor chip.