inorganic-based pigment include zircon gray (Co and Ni-doped $ZrSiO_4$), praseodymium yellow (Pr-doped $ZrSiO_4$), chrome titanium yellow (Cr and Sb-doped TiO_2 or Cr and W-doped TiO_2), chrome green (Cr_2O_3 etc.), peacock green ($(CoZn)O(AlCr)_2O_3$), Victoria green ($(Al, Cr)_2O_3$), Prussian blue ($CoO \cdot Al_2O_3 \cdot SiO_2$), vanadium zircon blue (V-doped $ZrSiO_4$), chrome in pink (Cr-doped $CaO \cdot SnO_2 \cdot SiO_2$), manganese pink (Mn-doped Al_2O_3), and salmon pink (Fe-doped $ZrSiO_4$).

The organic-based pigment is not particularly limited and may be appropriately selected depending on the intended purpose. Examples of the organic-based pigment include azo-based pigments and phthalocyanine-based pigments.

A shape of the first optical transparent layer is not particularly limited and may be appropriately selected depending on the intended purpose. Examples of the shape include a film shape, a sheet shape, a plate shape, and a block shape. The first optical transparent layer has preferably a film shape or a sheet shape considering that a resulting optical member can be easily bonded to a window material.

The first optical transparent layer includes one-dimensionally aligned structures, for example, on a surface of the first optical transparent layer where the wavelength-selective reflective layer is formed. The pitch P of the structures is not particularly limited and may be appropriately selected depending on the intended purpose. The pitch P is preferably 30 μm or greater but 5 mm or less, more preferably 50 μm or greater but 1 mm or less, and particularly preferably 50 μm or greater but 500 μm or less. When the pitch of the structures is less than 30 μm, it is difficult to obtain desired shapes of the structures, and part of transmissive wavelengths may be reflected because it is typically difficult to make wavelength-selective properties of the wavelength-selective reflective layer sharp. When the above-described unintentional reflection is occurred, diffraction occurs

Next, a wavelength-selective reflective layer 3 is formed on a main surface of the first optical transparent layer 4 as illustrated in FIG. 9B. Examples of a formation method of a metal layer of the wavelength-selective reflective layer 3 include sputtering, vapor deposition, chemical vapor deposition (CVD), dip coating, die coating, wet coating, and spray coating. Examples of a formation method of a high-refractive-index layer of the wavelength-selective reflective layer 3 include sputtering. In the sputtering, for example, an amorphous high-refractive-index layer and a crystalline high-refractive-index layer are formed at 60°C or lower.

Next, a base 5a is arranged above the wavelength-selective reflective layer 3 to form a nip as illustrated in FIG. 9C.

Next, a resin 5b', which is an active energy ray-curable resin, is supplied into the nip, as illustrated in FIG. 9D.

Next, UV light is applied to the resin 5b' over the base 5a by means of a light source 23 to cure the resin 5b', as illustrated in FIG. 9E~~D~~.

As a result, a second optical transparent layer 5 having a smooth surface is formed on the wavelength-selective reflective layer 3, as illustrated in FIG. 9F.

As described above, the optical member, in which the wavelength-selective reflective layer 3 of the predetermined shape is disposed, is obtained.

Another example of the production method of an optical member is described.

First, a mold processed by cutting using a cutting tool or laser processing to have identical or reverse shapes of convex shapes of structures is provided.

Next, the convex shapes of the mold are transferred to a film-shaped or sheet-shaped resin material by melt extrusion, or transferring. Examples of the transferring method include: a method where an active energy ray-curable resin composition is flown into a mold, and active energy rays are applied to cure the active energy ray-curable resin composition; and a method where heat or pressure

densely packed state. The square densely-packed array is an array obtained by arranging the structures 11 each having a square bottom surface in the square packed form. The delta densely-packed array is an array obtained by arranging the structures 11 each having a triangle bottom surface in the triangularly~~hexagonally~~ packed form. The hexagon densely-packed array is an array obtained by arranging the structures 11 each having a hexagonal bottom surface in the hexagonally packed form.

For example, the structure 11 is a convex in the shape of a corner cube, a hemisphere, a semi-ellipsoid, a prism, a free surface, a polygon, a cone, a pyramid, a circular truncated cone, or a paraboloid. Examples of a shape of the bottom surface of the structure 11 include a circle, an ellipse, and polygons, such as a triangle, a square, a hexagon, and an octagon. Note that, FIG. 13 illustrates an example of a square densely-packed array, in which the structures 11 each having a square bottom surface are two-dimensionally arranged in the most densely packed state. Moreover, FIG. 14 illustrates an example of a hexagon~~delta~~ densely-packed array, in which the structures each having a hexagonal bottom surface are two-dimensionally arranged in the most densely packed state. Furthermore, FIG. 15 illustrates an example of a delta~~hexagon~~ densely-packed array, in which the structures 11 each having a triangular bottom surface are two-dimensionally arranged in the most densely packed state. The pitch P1 or P2 of the structures 11 is preferably appropriately selected depending on the desired optical properties. In the case where a main axis of the structure 11 is inclined relative to the perpendicular line perpendicular to the incident surface of the optical member, the main axis of the structure 11 is preferably inclined along at least one of the alignment directions within the two-dimensional alignment of the structures 11. In the case where the optical member is bonded to a window material arranged perpendicular to the ground, the main axis of the structure 11 is preferably inclined

example of the optical member 1 according to the eighth embodiment of the present invention. The eighth embodiment is different from the first embodiment in that at least one of the first optical transparent layer 4 and the second optical transparent layer 5 has a two-layer structure. FIGs. 22A and 22B illustrate an example where the first optical transparent layer 4 at the side of the incident surface S1 of external light has a two-layer structure. As illustrated in FIGs. 22A and 22B, the two-layer structure of the first optical transparent layer 4 contains, for example, a smooth base 4a that is disposed at a surface side, and a resin layer 4b formed between the base 4a and the wavelength-selective reflective layer 3.

For example, the optical member 1 is bonded to an indoor side or outdoor side of the window material 10 that is an adherend via the joining layer 8. As the joining layer 8, for example, an adhesive layer containing an adhesive as a main component, or a pressure sensitive adhesive layer containing a pressure sensitive adhesive as a main component can be used. In the case where the joining layer 8 is a pressure sensitive adhesive layer, for example, the optical member 1 preferably further contains a joining layer 8 (pressure sensitive adhesive layer) formed on the incident surface S1 or the light-emitting surface S2, and a release layer 81 formed on the pressure sensitive adhesive layer, as illustrated in FIGs. 22B ~~and 23B~~. Since the optical member has the above-described structure, the optical member 1 can be easily bonded to an adherend, such as a window material 10 via the joining layer 8 (pressure sensitive adhesive layer) only by peeling the release layer 81.

In view of a further improvement of adhesion between the optical member 1 and the joining layer 8, a primer layer is further formed between the optical member 1 and the joining layer 8. In similar view of a further improvement of adhesion between the optical member 1 and the joining layer 8, moreover, the incident surface S1 or light-emitting surface S2 composed of the joining layer 8 of the optical member 1 is preferably subjected to a conventional physical