

ABSTRACT OF THE DISCLOSURE

A metal film high in reflectivity and excellent in adhesion to a synthetic resin substrate even in the case where the metal film is sufficiently thin, is formed on a surface of the substrate by sputtering a metal target through an inert gas ion beam drawn out of an ion source in a vacuum vessel. An aluminum film coated matter formed by coating a surface of a synthetic resin substrate with an aluminum film, is characterized in that the aluminum film contains aluminum crystals at a portion in the film at a depth of not more than 600 Å from a film surface thereof which contacts with the substrate. The aluminum crystals has a relation in which a crystal axis $\langle 111 \rangle$ perpendicular to a (111) plane is perpendicular or substantially perpendicular to the film surface. Also, the aluminum crystals exhibits a diffraction X-ray spectrum of a (111) plane when measured by X-ray diffraction according to a diffractometer method under the following conditions: target: Cu, X-ray type: $K\alpha$ ray, measurement X-ray output: voltage 40 KeV, current 30 mA, longitudinal divergence limiting Sollar's slit: horizontal type, incident height limiting slit: 5 mm, incident slit: 0.4 mm, light-receiving Sollar's slit: vertical type, width limiting slit: 5 mm, diffraction X-ray monochromator: graphite horizontal plate, and diffraction method: $\theta/2\theta$ method.

