ABSTRACT

HIGHLY HEAT-RESISTANT LOW-EMISSIVITY MULTILAYER SYSTEM FOR TRANSPARENT SUBSTRATES

A low-emissivity multilayer system highly resistant to heat treatment for transparent substrates, in particular for window panes comprises, starting from the substrate, at least a lower antireflection coating consisting of several partial layers and including a layer essentially consisting of ZnO which is adjacent with a silver-based functional layer, an essentially metallic blocking layer located on top of the silver-based layer, an upper antireflection coating consisting of several partial layers and a cover coating optionally consisting of several partial layers. The upper antireflection coating has:

- a partial layer of ZnO or a mixed oxide $ZnMeO_x$ that contains ZnO or a succession of layers of mixed oxides of the $ZnO:Al/ZnMeO_x$ type;
- a partial layer of Si_3N_4 or $Si_xO_yN_z$; and
- between these two partial layers, a separating layer with a thickness of 0.5 to 5 nm, consisting of a metal oxide or a mixed oxide with a cubic crystal lattice, which prevents direct contact between these two partial layers.

According to the invention, the inserted separating layer makes it possible to further improve the mechanical and chemical properties of the multilayer system and to obtain coated window panes that are highly resistant to technical handling operations.