

ALIEN PROPERTY CUSTODIAN

METHOD FOR INCREASING THE DURABILITY OF POLISHED SURFACES OF OPTICAL ELEMENTS

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Amongst the kinds of glasses available for the making of optical instruments there are quite a number whose life is rather limited on account of their polished surfaces notwithstanding the influences of their environs in general and the attacks of the humidity and acid vapours in the air in particular. Being hygroscopic and sensitive to acids these kinds of glasses could not therefore be used to the desired extent despite their often very excellent optical properties.

The invention relates to a method for eliminating this defect. This method consists in a thin layer of a substance indifferent to humidity and acids in the air being evaporated upon the surfaces exposed to the said influences, whereupon the optical element in question is subjected to an annealing process to reinforce the adhesion of the layer to the said surfaces. In this manner the surface of the optical element is closely and securely covered by a layer which, without im-

pairing the optical effect protects the said surfaces so treated from the said attacks. Owing to their high resisting qualities to the influences in question it is in first place the substances quartz (SiO₂) or fluorspar (CaF₂) which come into question for evaporation upon the said surfaces. The power of adhesion depends upon a number of factors, such as f. i., on the properties of the evaporated substance as well as on the kind of glass of the optical element and on the nature of the application. The heat employed in the annealing process must be applied during a period which is conditional upon the aforesaid circumstances on the one hand, but on the heating temperature on the other. Experiments have shown that good results were brought about by the application of a heating temperature of a few hundred degrees Celsius for a period up to a few days.

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