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## Refining of glassy materials with aluminium compounds nano-molecules

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Abstract

A new technology of refining soda-calcium-silicon glassy surfaces with aluminium compounds nano-molecules has been shown in the present study. A structural definition of aluminium compounds nano-powders exposed to thermal processing, including grain-size analysis, has been discussed. Optimal technical and technological parameters of the refining process have been selected. The method of refining soda-calcium-silicon glassy surfaces with aluminium compounds nano-molecules ensures profitable operational properties of the glass, such as increased bending strength, scratching resistance, micro-hardness and chemical resistance without deterioration of the optical properties. Nano-molecules were spread onto the heated glass surface, or onto the cold glass surface and then heated up to temperatures close to the glass transformation, when nano-molecules penetrate into the glass surface. Testing results of the glass operational properties, such as bending strength, scratching resistance, micro-hardness, chemical resistance and optical properties have been presented. The received results develop new possibilities with respect to opaque glass, float glass and glass fibres, as well as to glass processing.



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