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Insights Into Emissivity Changes During Tempering Processes and Potential for Utilization

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Abstract

This contribution addresses the impact of tempering processes on the emissivity of LowE glass.

This contribution presents the current status of a measurement series conducted at various tempering sites on different types of LowE glass. Emissivity measurements using inductive eddy current sensors have been made on glass before and after tempering. The obtained data shows an improvement by factor 2 in emissivity depending on the coating type. Effects from tempering recipes and the resulting emissivity homogeneity have been analyzed. Measurements also show significant worsening of the emissivity by the use of wrong tempering settings where too little convection occurs during heating that causes glass bending leading to the well-known white marks in the center of the glass along with significant loss in emissivity. Assessment of the glass emissivity properties, as well as the negative effects of poor furnace recipe optimization on coatings, were measured by eddy current systems, which rely on inductive methods for contact or non-contact real-time emissivity assessment. Comparisons to thermographic images are shown and discussed. Finally, the status of measurement and analysis are summarized and the potential to use of these phenomena are discussed.

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