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THE DEVELOPMENT OF STRESSES IN THE SYSTEM GLAZE–ENGOBE–SUPPORT ON COOLING AND THE EFFECTS ON THE CURVATURE OF CERAMIC TILES

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Despite the fact that at present almost all ceramic tiles have an engobe layer between the glaze and the support, almost all the vast literature about the stresses developed on cooling only deals with the glaze-support fitting living out the possible role of the engobe layer. However, in industrial practice the adjustment of the engobe characteristics is frequently used to correct curvature problems.

One of the main reasons to avoid considering the engobe layer in these analyses is the fact that the engobes behave very much like the support during firing and do not present the glass transition temperature (T_g), necessary to workout the coupling temperature (T_a) between the engobe and support. Without the coupling temperature the curves overlap technique cannot be used to determine the shrinkage differences and therefore the stresses generated on cooling cannot be calculated.

The objective of this work is to develop a method to determine the coupling temperature between engobe and the support and to use these values to study the influence of the engobe characteristics on the curvature of tiles.