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„Raw glazes” for stoneware and gres porcellanato tiles

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Abstract

Ceramic glaze for all kind of tiles, is generally considered to be a thin, smooth and glassy layer fused to the surface of tile in the firing process. The main rules of glaze are aesthetic, mechanical and chemical function. Due to several reasons and from a long time the tiles industry sector use the frits type of glazes, the recipes contain one or more kind of frit and some supplements as quartz, zirconium, different oxides, clay and special rheology additives.

Why frits are common use? Some raw materials can be water soluble, some have to high melting points or may not be stable in firing temperature. Frits are fully glassy materials, melted and rapidly cooled in preparing process and in fact can be melted in lower temperature in tile firing process in comparison to the same composition of raw materials. Some frits are completely ready glaze for many application. It is possible to mention more of these reasons.

On the other hands, it is necessary to underline, the frits based glaze are 15 to 30 % more expensive comparing to similar raw glazes. If we look for tile production cost structure (mainly material cost structure), it is proper to start thinks about implementation raw glaze.

Authors in this paper want to present some results, obtained from laboratory tests selected raw glazes, which can by apply to covering floor tiles, both stoneware and gres porcellanato. Chemical and phase composition, wear and chemical resistance after firing process in laboratory and industrial condition will be presented. Microscopic pictures and microanalysis the difference between raw and frits glazes will be showed also. Comparison of the cost and possibilities of application some selected glazes will be present as well.