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**Valorization of municipal sewage treatment plant (STP) sludge to produce red wall tile**

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This work aimed to evaluate the valorization potential from a municipal sewage treatment plant (STP) sludge as a procedure to provide alternative raw material for red wall tiles. The used raw materials were a red clay, quartz, limestone, and STP sludge from the southeast region of Brazil. Four red wall tile pastes formulated with 0, 5, 10 and 15 wt.% of STP sludge replacing natural limestone material were characterized in terms of chemical analysis, X-ray diffraction, thermal behavior (DTA/TG) and dilatometric analysis. Red wall tile pieces were prepared by the dry process, pressed, and fired between 1150 °C and 1180 °C using a fast-firing cycle. The red wall tile pieces were tested to determine their technical properties (linear shrinkage, water absorption, apparent porosity, apparent density, and flexural strength). It was found that the technical properties of the red wall tile pieces were influenced by the incorporation of STP sludge and firing temperature. The red wall tiles produced showed linear shrinkage = 1.43 - 4.26 %, water absorption = 16.52-19.70 %, apparent porosity = 30.34-34.65 %, apparent density = 1,74-1,83 g/cm<sup>3</sup> and flexural strength = 11.37-19.59 MPa. The results also showed that the STP sludge may fully replace the natural limestone material (up to 15 wt.%) in the production of red wall tiles (BIII group - Water Absorption > 10 %; ABNT NBR ISO 13006:2020 Standard) in different firing temperatures. Therefore, the valorization of municipal STP sludge in red wall tiles could be a technical solution for the sustainable disposal of this polluting waste, as well as a relevant contribution to the sanitation sector.