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Red firing clays for the manufacture of vessels for wine fermentation and maturation by means of technological processes

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Abstract:

Different red firing clays (Teruel, Villar and Yesa) from the Iberian orographic system of Spain (Castell´on/Teruel/Valencia) have been studied to analyze their suitability for the manufacture of technology-based ceramic vessels, studying their characterization from a ceramic technical perspective (open porosity, permeability, pore size, microstructure, process behavior, etc.), as well as from a wine maker perspective (oxygen transmission rate, *OTR*). The three clays have been proved as suitable for the manufacture of ceramic vessels because of their adequate behavior in the manufacturing process (although Yesa clay provides higher proneness to deform by pyroplasticity at high firing temperatures, that is, low porosities) and similar permeability with respect to certain types of existing ceramic vessels. Compared to available data of *OTR*, the values obtained are lower but with the same order of magnitude, and other clays from the same region have been postulated as the key for achieving higher *OTR*s.

Keywords: Ceramic vessel, red firing clays, pore size distribution, permeability, oxygen transmission rate, firing behavior