



Mineralogy of serpentinites: a clue for their use as ornamental stones

J.A. Blanco, M. Peinado, **D. Pereira**, M. Yenes, J. Nespereira, S. Monterrubio
Department of Geology, Universidad de Salamanca, Spain. mdp @usal.es

Several samples of serpentinites were studied to establish their potential as ornamental stones. Studied samples of serpentinite from Cabo Ortegal, in which the transformation to a secondary assemblage is complete, have given poor results as facing material in buildings. This rock was marketed under the trade name “Verde Pirineos”. The rock tends to crumble and to disintegrate when exposed to weathering. In fact, quarries exploiting Verde Pinineos have been forced to close down, probably because of the problem. The serpentine-group phase in these samples is lizardite. Samples from India (*i.e.*, Rajasthan) are more promising as dimension stone. They are marketed as “Green Marbles” as a reflection of the partial or total transformation of the original mineralogy to carbonates. Only remnants of serpentinite are found, with some amphiboles and minor accessory oxide minerals. The serpentine-group phase in this case is antigorite. Commercial names for these rocks are Rajasthan Green, Forest Green, Green Snake, Verde Udaipur and many others, which are found in catalogues under the “Marble” section. We first considered that carbonatization is the phenomenon responsible for the cohesion of the rock and the prevention of its disintegration through weathering. However, we have found some resistant serpentinites from India that are only slightly carbonatized. Some examples are Rainforest Green, Bidasar Green and Bidasar Brown. These rocks are made up mostly of the serpentine-group mineral, with carbonates restricted to shears and pores. Therefore, the main factor favoring the resistance of a serpentinite dimension stone to weathering seems to be the mineralogy of the serpentinite, in particular the nature of the serpentine-group mineral. Our research thus is focused on a documentation of the details of the serpentine-mineral assemblage that characterizes various commercially available serpentinites, in order to rank their value in the construction industry.