

Estremoz marbles, Portugal – a potential resource for high-whiteness industrial applications

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The dimension stone industry in the Estremoz marble region in SE Portugal is considerable, with several quarries operating different parts of a marble deposit exceeding 16.000 Mt. Annual production of marble dimension stone is 0,17 Mt (25 M€), in addition to 1,2 Mt of waste carbonate slurries and debris. Currently, only a small part of the quarry waste is reused, the remainder is stockpiled with detrimental effects on landscape and environment. A major challenge is to increase the reuse of mine waste to reduce the environmental impact and to create additional value.

Some marble varieties within the Estremoz deposit are very white with generally low contents in silicate minerals, sulphides and graphite, as well as low contents of the chromophoric elements iron and manganese. Carbonate crystal-bound iron and manganese reduces whiteness and should be low. Preliminary whole-rock geochemical analysis shows that total sum iron and manganese are below 300ppm Fe+Mn in some cases, of which 70-80% may be allocated to carbonate, the remaining 20-30% to mineral impurities. Such low content of iron and manganese makes these marbles potentially suitable as raw material for high-whiteness mineral products. However, local variations in mineral content and geochemical composition are substantial, requiring additional assessment.

References

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