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Guessing stone behaviour before extraction

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Natural Stone has always been one of the most widely used and appreciated materials in the construction of important structures, buildings and works of art. It is extremely important that the stone purchased by the consumer meets the expectations for which it was chosen, being colour one of the main aspects. Currently, there are companies with very high costs in the replacement of altered stone.

This work arises from the companies' need to seek the extraction of stone blocks that ensure a lower susceptibility to colour change after application. To do so, a geochemical/mineralogical study was applied in a quarry located in the northern region of Lisbon, where one of the most important Portuguese lithotypes is currently explored. Featured by its excellent physico-chemical characteristics, this lithotype is further characterised by the coexistence of a blue and cream colour. The work aimed to study the presence of a mineral, pyrite, responsible for the natural discolouration of this construction resource.

The results obtained show a greater predominance of pyrite in the darker fractions of the rock, which increases while the exploration level is deeper.