



Quantitative evaluation of decay patterns on artificially weathered sandstone specimens

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Natural stone affected by weathering processes exhibits development of specific weathering forms / patterns. These features are controlled by numerous factors; however, their extent is generally considered to be proportional to weathering grade. The recent study focused on possible quantitative evaluation of the decay patterns on artificially weathered sandstones and on correlation of the extent of decay forms with conventionally used parameters such as weight loss or porosity increase. Macroscopically visible decay patterns were recorded after completion of certain number of cycles of freezing/thawing and/or salt crystallization applied to several types of building sandstones. By using prismatic specimens, the preservation of (1) corners, (2) edges, and (3) flat surfaces plus overall integrity of specimens were captured by digital photography. Individual photos were processed by means of image analysis software to quantify % loss of original shape (i.e. rounding of corners and edges, material loss on flat surfaces, etc.), and formation of cracks. Obtained data were correlated with results of non-destructive measurements of selected physical properties such as porosity, ultrasonic velocity or weight loss.