

PHYSICAL-MECHANICAL AND MINERALOGICAL PROPERTIES OF SHKUMBINI RIVER ALLUVIAL DEPOSITS (ALBANIA)

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Shkumbini River is one of the main rivers of Albania. It is 147 km long and its depositional area is 2444 km². Molasse and flysch deposits and ophiolites are the rocks exposed in the catchment area and they therefore the principal constituents found in the alluvial and fluvial sediments. Five terraces are distinguished. The height of the oldest one is 60-80 m above the recent river bottom. Different trends of Neotectonic movements are characteristic. In the Elbasani-Peja segment buried terraces are found and a subsiding regime is documented, whereas in the Peja-Peçin area erosion-accumulative terraces overlying gravels occur indicating Neotectonic uplift. Recent alluvial-fluvial deposits along the middle part of Shkumbini River are the principal and the most important sources of high-quality sand and gravel deposits in Albania, which are regularly exploited without causing environmental problems.

The Albanian Geological Survey has carried out prospecting and assessment works of gravel and sand deposits, which are used for construction industry and concrete and mortar production of different quality. About 10 million m³ resources have been calculated. The accepted exploitation depth is 3 m.

It is to stress that the particle shape of sands and gravels has a significant influence on the compactness and processing of aggregates. The estimated thickness of the production sequence is about 25 m and it is verified through drilling. All the drill core samples were studied. The sand is medium-grained and it is composed of quartz (25 %), cherts (9 %), carbonates (28 %), serpentinites (4 %), meta-ophiolites (33 %), feldspar and ores (1 %). Gravel components are variably rounded. Generally they consist of carbonates (45 %), terrigenous rocks (35 %) and magmatic rocks (25 %).

The granulometric composition of sand (below 5 mm) is: 2.5 mm 19,1 %; 1.2 mm 16.6 %; 0.6 mm 11.7 %; 0.3 mm 29.3 %; 0.15 mm 10.4 %; < 0.15 mm 12.2 %. The grain size module is 2.67, the flour and the clay content is 13.8 % and the bulk weight is 1.54 g/cm³. The emptiness volume is 40.5 % and the SO₃ content is 0.27 %. In the gravels the biggest fraction is above 5 mm. From sieving it is concluded that the 40 mm fraction composes 30-37 % of the gravels. The bulk weight of gravels is 2.59 g/cm³, their flour and clay fraction is 1.8 %.

The described physical-mechanical and mineralogical features make the studied sands and gravels suitable for the production of ordinary and hydro technical concrete and of mortar for plastering.