**ABSTRACT**

The main objective of this research is to investigate the chance of utilizing waste marble dust (MD) in cement and concrete production. In present study experimental investigation conducted on optimum marble mud replacement with sand. After cutting and sawing marbles, in great amount of marble slurry turn out. This marble suspension disposed to open land area, it create land pollution and harmful to land. In building it will use as substitute of fine aggregate, it's sensible binding property and provides enough strength to concrete and owing to this it's suitable in reality serious load on rigid pavement. In present study compressive strength of concrete at 28 days was checked, and this concrete is ready by mixing cement, aggregates, water and sand. In further study sand is replaced by marble mud, and then concrete was ready. The replacement ratios that have been studied were 0.0%, 10%, 20%, 30%, 40%, and 50% by weight. Water – cement ratio kept at 0.55. Concrete created with marble mud as sand replacement achieved higher performance compared to traditional concrete. Experiment like relative density check of sand and marble mud by pycnometer technique, moisture content of marble mud and sand by kitchen appliance drying method, relative density check of cement by Le-Chatelier flask technique, traditional consistency of cement, and initial setting time of cement, were performed to see the property of concrete. On recent concrete slump check was preformed to visualize workability of concrete and once then compressive strength was checked. Therefore marble mud is acceptable substitute of fine aggregates in concrete combine for construction.