

ABSTRACT

The term "Lightweight Aggregate" describes a range of special use of aggregates that have an apparent specific gravity considerably lower than normal sand and gravel. The use of structural lightweight concrete is to reduce the dead load of a concrete structure, which then allows the structural designer to reduce the size of columns, footings, and other load-bearing elements. In Pakistan, there is not much research regarding Lightweight but on a global level, Lightweight concrete has been used for structural purposes. The purpose of this study is to investigate the potential of lightweight aggregate in concrete through physical and chemical characterization and find out the quarries of lightweight aggregate in Pakistan through studies and researches. Expanded Shale is used as a lightweight aggregate. Shale received in raw form which was expanded in furnace at 1150 degree Celsius then several aggregate tests were perform using International and British Standards in the labs of NEDUET. These tests include Crushing, Abrasion, Impact, Specific Gravity, Flakiness and Water Absorption tests on aggregate. The primary judgments through characterization have clearly shown that the lightweight aggregate (Expanded Shale) has an excellent strength to be a construction material for the building system.