Economic potential of Jurassic to Eocene limestone deposits of District Abbottabad

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Limestone is a valuable and economic raw material widely used in the world for construction and other different industries; major uses being in construction and chemical industries. District Abbottabad has extensive deposits of limestone ranging in age from Jurassic to Eocene comprising of four different formations (Saman Suk, Kawagarh, Lockhart and Margalla Hill). These limestones have been evaluated on the basis of their mineralogy, chemistry and physical properties for their use for cement manufacturing, concrete and other chemical industries. Chemically, the studied limestones are compared with normal and argillaceous limestones. Most of the studied limestones have permissible amounts of SiO_2 to be used in various industries. Some of the samples have higher values of silica, but not as high as to be regarded as argillaceous limestones. Al_2O_3 and Fe_2O_3 are also within the permissible limits. Na_2O and K_2O are found only in traces. MgO is occasionally high at some places and its values are negligible to be considered for an impurity. The studied limestones of District Abbottabad are generally free of dolomitization and have no other deleterious substances. CaO is high in most of the studied limestones, except some samples from Lockhart limestone and Margalla Hill limestone. Mineralogically, the studied limestones are calcitic with varieties of grain sizes. Quartz is found in small amounts. Iron leaching is also noticed in some cases. Mechanically, the limestone deposits are evaluated for their potential uses in various industries like concrete, asphalt and roadstone etc. The results of all the tests performed are compared to those of ASTM standards. The average mechanical test results are hence within the ASTM limits. Generally, the studied limestone deposits of district Abbottabad are suitable for use in a number of industries.