E2-40: Low cost masonry cement

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The hydraulic properties of ordinary portland cement (general purpose cement) have been improved due to the recent developments in technology and as a result, the strength of mortar made out of ordinary portland cement is much higher than expected. Presently the above cement of high strength is used for masonry purposes. A cement having lower strength for masonry purposes can be produced by adjusting the strength of the portland cement. However it is not possible to achieve this simply by varying the ratio of cement to sand, because lean mixture of cement and sand is unworkable. The aim of the present investigation is to introduce a low cost cement for masonry purposes using non- traditional raw materials. A product of this nature will also reduce the demand for the portland cement.

Paddy husk ash, collected from rice mills and dolomite (burnt and unburnt) mixes were used for experiments. Due to the limited availability of limestone, dolomite limestone was used. All samples that resulted were analysed chemically and the physical properties tested. It was revealed that the pure mixes without ordinary portland cement did not give favourable results but
those with 25% ordinary cement gave satisfactory results. Mixes without intergrounding but only mixing did not give good results. A rapid increase in strength was observed when accelerators like NaCl or $CaCl_2$ were used.

Although some researchers have introduced low cost cement mostly using higher percentages (>25%) of ordinary portland cement with paddy husk ash to yield a product named as portland pozzolana cement, which is good for both mortar and concrete, the product we have obtained, is only good for masonry purposes and rendering and not for concrete because in addition to the paddy husk ash we have also used burnt or unburnt dolomite.