Dolomite As Inert Filler In Various Cementing Compositions To Enhance Their Properties : A Study

Ritu Mathur1, Munmun Chaudhary1, Meenakshi1, M.P.S. Chandrawat2

1Deptt of Chemistry RR College, Alwar, Rajasthan

2Dean, Eternal University, Sirmour, Himachal Pradesh.

ritu.chem@gmail.com

Addition of Dolomite as inert filler in cements like Plaster of Paris and Sorel’s cement plays an important role in setting time and strength of the product. Setting time of the blocks was determined by Vicat apparatus and compressive strength testing machine was used to determine the strength of the trial blocks as per the standard procedure. Plaster of Paris – calcium sulphate hemihydrate [CaSO4.½H2O] is a quick hardening cement with very low setting time. It sets very quickly hence it becomes difficult to manage the task. Inert filler dolomite, when mixed in the matrix absorbs the heat evolved during the exothermic hydration of POP and reduces thermal cracks. It retards the setting process hence processing time is increased resulting in gain of working time available and also improves the compressive strength of the product. Results are in accordance with the above assumption. Similarly effect of incorporation of dolomite in ecofriendly Sorel’s cement (Magnesium oxysulphate cement) discovered by Sorel S.T. in 1867, also shows very encouraging results. This cement is obtained by the reaction between lightly calcined magnesite and MgSO4 solution. Cement sample cubes prepared only with magnesia and magnesium sulphate solution cracked during curing due to highly exothermic reaction and availability of free magnesia. As the filler (dolomite) can absorb excess heat and reduces the thermal shocks in the bulk, its incorporation increases the strength of the cement. It is thus beneficial to mix dolomite in the above cementing compositions.

Keywords: - Plaster of Paris, Sorel’s cement, Dolomite, Setting time, Compressive strength.