Thermal Analysis of Salem Magnesite

D. Gopinath* and S. Gunasekaran

St. Peter’s Institute of Higher Education and Research, St. Peter’s University, Avadi, Chennai-600 054, India

Abstract: Thermal decomposition behaviour of magnesite sample has been studied by thermogravimetric (TG) measurements. Differential thermal analysis (DTA) curve of magnesite shows two endothermic peaks observed in magnesite are essentially due to de-carbonation of magnesium oxide and carbon-dioxide respectively. The TG data of the decomposition steps have also been analysed using differential, difference-differential and integral methods, viz. Freeman–Carroll, Horowitz–Metzger, Coats–Redfern methods. Values of activation entropy, Arrhenius factor, and order of reaction have been compared. DSC curves for three of the magnetite samples from magnesite produced at 789, 786, and 800°C. Magnesite at 780°C a magnetite to MgO, but the sharp magnesite transition observed for magnetite formed at lower temperatures has been replaced by a very broad transition near at 789°C. It is interesting to note that the temperature for the magnesite to MgO transition decreased as the temperature for magnesite formation decreased.

Keywords: Magnesite, TG, DTA, DSC.


DOI: http://dx.doi.org/10.20902/IJCTR.2018.110713

*****