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Document Title : *THERMAL DECOMPOSITION AND TRANSFORMATION REACTIONS IN SOME SOLID TARTARATES*
التفكك الحراري وتفاعلات التحول في بعض أملاح الترتارات

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Abstract : Mixed $MC_4H_4O_6 \cdot 2.5H_2O - 2FeC_4H_4O_6 \cdot 2.5H_2O$ (M: Zn, Mg) with (1:2) mole ratio were prepared from $FeC_4H_4O_6 \cdot 2.5H_2O$ and $MC_4H_4O_6 \cdot 2.5H_2O$ (M: Zn, Mg). All tartrates compounds were studied by DTA-TG, X-ray diffraction patterns and FT-IR and showed that the compounds $MC_4H_4O_6 \cdot 2.5H_2O$ (M: Fe, Zn and Mg) were decomposed in two steps. The first step is the dehydration and the second one is the decomposition to oxide. The compound $ZnC_4H_4O_6 \cdot 2.5H_2O - FeC_4H_4O_6 \cdot 2.5H_2O$ (1:2) mole ratio is decomposed to two steps too. the first one include the dehydration and oxidation of Iron (II) tartrate in the mixture to oxide and the second step is oxidation of Zinc tartrate in the mixture to oxide to give finally $ZnO-Fe_2O_3$. $MgC_4H_4O_6 \cdot 2.5H_2O - FeC_4H_4O_6 \cdot 2.5H_2O$ (1:2) mole ratio is decomposed to in three steps. The first one is the dehydration, the second is oxidation of $FeC_4H_4O_6$ in the mixture to Fe_2O_3 and the third step is oxidation of $MgC_4H_4O_6$ in the mixture to MgO . The kinetics of all steps were studied under dynamic condition at different heating rates .The activation parameters were calculated for each step according Dhiefallah composite, Coats –Redfern, Mudthusudanan and Ozawa methods with the best fit of kinetic model of heterogeneous solid state reaction The results were compared assuming R3 model for $MC_4H_4O_6 \cdot 2.5H_2O$ (M: Fe, Zn and Mg).

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