

I. INTRODUCTION

Transition metal oxides with spinel structure, are technologically very important materials due to their diverse magnetic and electrical properties [1-4]. In recent years these compounds have also become very important in heterogeneous catalysis [5-15]. Studies on catalytic properties of mixed oxide systems have revealed that in some cases a spinel phase is formed at the interface of the oxides which appears to be the active component of the catalyst [16,17]. Consequently considerable attention has been given in recent times to the study of catalytic properties of spinels.

Along with various spinels, chromites have emerged as very important catalysts. Thus the chromite spinels of Zn, Mg, Mn, Co and Cu are used in diverse reactions as oxidative dehydrogenation of alkanes to olefins [18-22], reduction of nitrobenzene to aniline [23,24], water-gas shift reaction [25-27] and in removing sulfur impurities from waste gases [28,29].

The present work is aimed at investigating some of the solid state properties and catalytic activities of a few chromite spinel systems. The following sections include a brief discussion on the physical characteristics and catalytic properties of spinel oxides in general.

