

The maximum T_c was about 107 K when 0.3 mole of Ca was substituted with Mg. Elemental analysis of the prepared materials demonstrated that the atomic ratio of the major elements were nearly unchanged. The peroxide contents in the superconducting materials tended to increase with their T_c values. The crystal structure was identified by means of X-ray diffraction spectroscopy and found to be tetragonal, with the lattice parameters of $a = b = 5.70 \text{ \AA}$ and $c = 30.77 \text{ \AA}$