Crystallographic study of samples produced from mixtures $La_{1+x}Ba_{2-x}Cu_3O_y$ (x=0.0, 0.2, 0.4, 0.6), heated at 850°C and 860°C Semir Yilmaz¹, C. Stergiou², A. Stergiou¹, ¹Department of Physics, ²Department of Electrical & Computer Engineering, Aristotle University of Thessaloniki. Thessaloniki, Greece. E-mail: stergiou@auth.gr

Four powder mixtures with suitable proportions of La_2O_3 , BaO and CuO according to general type $La_{1+x}Ba_{2-x}Cu_3O_y$ (x=0.0, 0.2, 0.4, 0.6), were prepared and heated at temperature 850° and next the produced samples were reheated at 860°C, in free atmosphere for 48h, in both cases.

The creation and the evolution of the phases, as a function of the quantity x, was studied by analysis of XRD measurements. The phase characterization was realized with a suitable program, using the PDF2 data-base. Farther, the Powder Profile Analysis (Rietveld's method) was used for the phase structure refinement and the exact determination of the phase percentages.

Three crystal phases (the superconducting $La_{1.76}Ba_{0.24}CuO_4$ [1] and $LaBa_2Cu_3O_7$ [2], and the non superconducting $BaCuO_2$ [3]), were defined for all the samples. The creation and percentages of the crystal phases in the samples were discussed, as a function of the temperature and the quantity x.

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