CaCu_{2.82}Ni_{0.18}Ti₄O₁₂ 18 *- CuO 16 14 12 Int., a.u. 10 8 6 4 2 10 µm 0 30 70 10 20 40 50 60 CaCu2.91Ni0.09Ti4O12 20, degree b а 18 CaCu3Ti3.76Ni0.24O12-8 16 *-CuO 14 o-CaTiO3 12 Int., a.u. 10 8 6 4 2 0 10 20 30 40 50 60 70 CaCu3Ti3.88Ni0.12O12-8 20, degree d с

Supplementary Material

Fig. S1. X-ray diffraction patterns and the microphotographs of the surface of $CaCu_{3-3x}Ni_{3x}Ti_4O_{12}$ (a, c) and $CaCu_3Ti_{4-4x}Ni_{4x}O_{12-\delta}$ (b, d) at x = 0.06 (a, b) and 0.03 (c, d).



Fig. S2. EDS-spectrum and the microphotograph of the CaCu_{3-3x}Ni_{3x}Ti₄O₁₂ at x = 0.06.



Fig. S3. EDS-spectrum and the microphotograph of the CaCu₃Ti_{4-4x}Ni_{4x}O_{12- δ} at x = 0.06.



Fig. S4. TG and DSC curves of the $CaCu_{2.91}Ni_{0.09}Ti_4O_{12}$ in the range of 293 – 723 K.



Fig. S5. Comparison of FTIR spectra of the CCTO, $CaCu_{3-3x}Ni_{3x}Ti_4O_{12}$ and $CaCu_3Ti_{4-4x}Ni_{4x}O_{12-\delta}$ (x = 0.03) samples calcinated at a temperature of 723 K for 180 min with samples stored in the air (298 K).



Fig. S6. The mass spectrum for $CaCu_{3-3x}Ni_{3x}Ti_4O_{12}$ (*x*=0.03).