

## The Effect of Firing Temperature on the Critical Properties for TFA-MOD YBCO Coated Conductors

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We fabricated the YBCO layers on single crystal LaAlO<sub>3</sub> substrate via metal organic deposition (MOD) process. In the process, Y<sub>2</sub>Ba<sub>1</sub>Cu<sub>1</sub>O<sub>x</sub> and Ba<sub>3</sub>Cu<sub>5</sub>O<sub>8</sub> powders were dissolved in trifluoroacetic acid (TFA) followed by calcining and firing heat treatments.

To evaluate the effect of the firing temperature on YBCO phase formation and critical properties, the films were fired at 750°C, 775°C and 800°C after calcining at 460°C. Microstructure observation indicated that a crack-free surface formed and a strong biaxial texture was developed. The FWHM of out-of-plane was measured to be in the range 4.3-8.5° for all films. For the films fired at 750°C, the a-axis grains were observed, on the other hand, the surface of films fired at 775°C became smoother and denser. The critical current density reached to 1.2 MA/cm<sup>2</sup>.

keywords: Critical temperature, metal organic deposition, pole figure, YBCO coated conductor, Y211 process

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