

## Texture and EBSD Analyses for Ni and Ni-W Alloy Tapes for YBCO Coated Conductor

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We made pure Ni, Ni-1 at.% W, Ni-3 at.% W, Ni-5 at.% W tape substrate for YBCO coated conductor. Our process consists of the fabrication of Ni and Ni-W mother plates by powder metallurgy, the tape fabrication by cold working and the development of the cube texture by recrystallization annealing. The Ni and Ni-W alloy powders were mixed by ball milling, and made into green compacts by cold isostatic press (CIP) and sintered at 1100°C and 1150°C for 6 hours for densification. The sintered Ni and Ni-W alloy rods were cold-rolled with 5% reduction at each path and made into tapes with a thickness about 80 ~ 100  $\mu\text{m}$ . After recrystallization annealing at 1000°C for 30 minutes, the strong cube texture was developed in all tapes. The FWHMs of in-plane and out-of-plane estimated by X-ray pole figure analysis showed 9.2° and 7.0°, 9.25° and 5.6°, 8.9° and 7.6°, and 8.8° and 8.1° for pure Ni, Ni-1 at.% W, Ni-3 at.% W, and Ni-5 at.% W, respectively. EBSD analysis showed the portion of the high angle grain boundary was decreased as increasing W content. In addition to the enhanced cube texture, the grain size of the Ni was decreased by addition of W

keywords : YBCO, CIP, FWHM, EBSD, in-plane, out-of-plane

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