

Current Progress in HTS Bulks and Materials for Industrial Applications

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Abstract—CAN Superconductors has been supplying REBCO and BSCCO HTS both for industrial applications and academic R&D projects since 1996. Several thousands of HTS bulk parts in various shapes, sizes and compositions are fabricated every year. Our in-house production of HTS material reaches up to 2 tons annually (including powders, granulates and targets for coated conductors production).

The presentation will showcase CAN's latest research and development efforts, improvements in batch production processes as well as quality assurance mechanisms. Selected case studies and applications of our materials will be shown, including projections for their large-scale adoption. Future challenges and key focus areas for the further spread of HTS bulks based on market demand will be presented.

We will also briefly share our progress in the development of the novel single-direction melt growth method (SDMG), which is promising namely for more efficient production of larger-sized bulks and complex shapes. The first results of the latest project focused on HTS 3D printing using selective laser melting will be presented.

In line with the market growth, new requirements for HTS production scale-up need to be addressed. Our latest strategies and plans in this respect will be presented.

Keywords (Index Terms)—HTS bulks, SDMG, HTS undulators, REBCO bulks batch production, HTS additive manufacturing, Flywheel energy storage, HTS bearings, REBCO targets for PLD, REBCO recycling