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Mon-Af-Po1.14-06 [32]: A clean production line for conductors insulation preparation

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The construction of high-performing magnets has to take into account the mechanical properties of the employed materials, and insulation adhesion to the conductor is one of the key factors. ICAS, the Italian Consortium for Applied Superconductivity, after an R&D phase, set up a new production line to process copper conductors in order to prepare, apply and cure a cyanate ester based primer, CTD-450, developed by Composite Technology Development, to improve the adhesion of fiberglass epoxy resin insulation to copper. With this new semi-automatic line, a total of about 1.5 km of conductors were treated successfully in a complete temperature and moisture controlled clean environment. In order to mitigate the risk of contamination prior to curing, the whole workshop was constantly kept in overpressure and the whole line was designed to employ only non-contaminating materials. This paper offers an overview of ICAS' technical capabilities and what was learned in terms of key parameters and quality controls.

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