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Preliminary Design of Insulation System for Superconducting Conductor Testing Facility

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The Superconducting Conductor Testing Facility, which developed to evaluate the reliability of engineering technology and safe operation in fusion reactor operation environment., is under engineering design by ASIPP. In case of an emergency shut-down like in succession of a quench, the voltage across the coil may rise to about 2 kV. Therefore, the facility has to be provided with a reliable insulation. The preliminary design of the insulation system is introduced in this paper. The insulation system of Superconducting Conductor Testing Facility includes turn and ground insulation. And the insulation system is composed of S-glass fiber reinforced tape and vacuum-pressure impregnated in a DGEBF epoxy system. The mechanical and electrical properties are being subjected to investigations with respect to the design requirements and operating conditions. The test results are analyzed to verify the feasibility of insulation system design.

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