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The development of brazing filler for ITER thermal anchor attachment

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ABSTRACT

Magnet supports is one of the key components to sustain the ITER superconductor magnet coils, which operate at several K low temperature. Cooling of the supports is needed for maintaining temperature balance. It is suggested to use brazing connection to attach the thermal anchor to the support which made from SS 316LN plates. In this study, several kinds of brazing filler were developed as candidates, including Sn–Pb brazing filler, Ag-based and Cu-based brazing filler. The test result shows that Ag-based brazing filler has the best weldability with 316LN, but Cu-based alloy shows the best mechanical properties at both room temperature and 77 K. Even though the Sn–Pb alloy shows the lowest strength, it can be easily brazed due to the low brazing temperature. Detail of the brazing filler selection is suggested and discussed in this article.