Contribution ID: **297** Type: **not specified**

High temperature brazing of tungsten with steel by Cu-based ribbon filler alloys

Monday, 17 September 2018 11:00 (2 hours)

The work presents the results of high temperature brazing of tungsten with EK-181 steel by rapidly quenched into ribbon filler alloys based on copper. Compositions of the filler alloys were chosen with consideration to the requirement of reduced activation that is necessary for DEMO reactor. All the joints were manufactured at 1100oC in a vacuum furnace. To analyse microstructure and mechanical characteristics before and after thermocycling tests (in the interval of 700 to 25 oC) SEM investigation, microhardness and shear strength tests were used. It is stated, that the use of Cu-27Ti and Cu-20Sn filler alloys together with vanadium interlayer gives an opportunity to make qualitative joint.

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Session Classification: P1