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

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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 1100°C in a vacuum furnace. To analyse microstructure and mechanical characteristics before and after thermocycling tests (in the interval of 700 to 25 °C) 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.

Co-authors: BACHURINA, Diana (Department of Materials Science National research nuclear University MPEHI); Dr SEVRYUKOV, Oleg (Brazing Department, MPEHI)

Presenter: Dr SEVRYUKOV, Oleg (Brazing Department, MPEHI)

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