

Abstract Submitted  
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**Validation for equation of state of Tantalum in wide regime**  
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YANHONG ZHAO, MINGFENG TIAN, SHUAICHUANG WANG, Institute of Applied Physics and Computational Mathematics, Beijing — We introduce the wide regime equation of state (WEOS) developed in Institute of Applied Physics and Computational Mathematics (IAPCM). A semi-empirical model of the WEOS is given by a thermodynamically complete potential of the Helmholtz free energy which combines several theoretical models and has some adjustable parameters calibrated via some experimental and theoretical data. The validation methods of the equation of state in wide regime are presented in Tantalum. The results of the WEOS are well consistent with the available theoretical and experimental data, including isotherm, Hugoniot, off-Hugoniot and sound velocity data. It enhances our confidence in the accuracy of the WEOS, which is very important for the validation and verification of equation of state in high temperature and pressure technology.

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