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**EFFECT OF TANTALUM ON THE TENSILE PROPERTIES OF 12%Cr MARTENSITIC STEELS FOR STEAM BLADES**

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Co-modified 12%Cr martensitic steels are perspective materials for steam blades for fossil power plants which are able to work at ultra-supercritical parameters of steam ( $T=620-650^{\circ}\text{C}$ ,  $P=25-30$  MPa). The microstructure and mechanical properties of two Ta-containing and Ta-free Co-modified 12%Cr martensitic steels subjected to the normalizing at  $1050-1070^{\circ}\text{C}$  and tempering at different temperatures ranging from  $750$  to  $800^{\circ}\text{C}$  were studied. After normalizing at  $1050-1070^{\circ}\text{C}$ , the average size of prior austenite grains was  $50 \pm 5 \mu\text{m}$ ; the fraction of  $\delta$ -ferrite was less than 10%. The tempering temperature strongly affected the tempered martensite/ferrite lath structure in both steels: the lath width increased from  $290 \pm 30$  to  $690 \pm 50$  nm and dislocation density decreased from  $3 \times 10^{14}$  to  $1.5 \times 10^{14} \text{ m}^{-2}$  when tempering temperature increased from  $750$  to  $800^{\circ}\text{C}$ . The addition of Ta in the 12%Cr-3%Co steel provided the precipitation of Ta-rich MX carbonitrides after heat treatment. The tensile tests were carried out at  $20^{\circ}\text{C}$  and  $650^{\circ}\text{C}$  with a strain rate of  $2 \times 10^{-3} \text{ s}^{-1}$ . Insignificant increment in ultimate tensile strength and yield strength was revealed in Ta-containing 12%Cr steel.

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