Study on continuous cooling transformation (CCT) diagram of the CLAM

steel

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Abstract: China Low Activation Martensitic (CLAM) steel is being developed in Institute of Plasma Physics, Chinese Academy of Sciences (ASIPP) under wide collaboration with many other institutes and universities in domestic and overseas. And it is considered as the candidate structure material for the DFLL-TBM (Dual functional lithium lead test blanket module) of China because of its attractive properties.

In this study, with the Gleeble-1500 thermal simulation machine, the continuous cooling transformation (CCT) diagram of the CLAM steel was obtained by measuring the expanding curves of the continuous cooling transformation in the different cooling rates. The results showed that the transformation behavior of CLAM steel was in good agreement with that of the other Reduced Activation Ferritic/Martensitic (RAFM) steels, and there were ferrite and martensite transformation regions only. The metallographic microstructures and properties of CLAM steel at different cooling rate were analyzed by means of optical microscope and SEM (Scanning Electron Microscope) observations and micro-hardness test. The CCT diagram gave the relevant parameters, such as transformation temperatures and critical cooling rates, the effect of the cooling rate on the typical phase transformation temperatures were also studied. All those will provide references for productive practice and establishing new techniques.

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