1. Design of High Entropy Alloys Based on Phase Formation Criteria and Big Data System

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Abstract: The development and phase formation criteria of high entropy alloys (HEAs) were described briefly. A new alloy design form was proposed in view of the big data system of high entropy alloy, and a new high entropy alloy was designed and studied. The result shows that the design form, $AxByC(100-a-b-x-y)DaEb$, is more in line with the requirements of the big data system compared with the previous alloy forms such as $AxBCDE$. The proposed design method can rapidly and visually screen out the expected alloy composition from the big data system of high entropy alloy. The designed high entropy alloy, $AlCoCrFeMo_{0.05}Ni_2$, agrees with the target alloy, and has a great application prospect below 700 ºC. © 2019, Northwest Institute for Nonferrous Metal Research. Published by Science Press. All rights reserved (27 refs)

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