

Title (en)

SOFTENING RESISTANT COPPER ALLOY, PREPARATION METHOD, AND APPLICATION THEREOF

Title (de)

ERWEICHUNGSBESTÄNDIGE KUPFERLEGIERUNG, HERSTELLUNGSVERFAHREN UND ANWENDUNG DAVON

Title (fr)

ALLIAGE DE CUIVRE RÉSISTANT À L'ADOUCCISSEMENT, PROCÉDÉ DE PRÉPARATION ET APPLICATION CORRESPONDANTE

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Application

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Abstract (en)

[origin: US2019161831A1] A softening resistant copper alloy, a preparation method, and an application thereof, the softening-resistant copper alloy, comprising 0.1%-1.0 wt % Cr, 0.01%-0.2 wt % Zr, 0.01%-0.10 wt % Si, and ≤ 0.10 wt % Fe, and with the remaining of copper and inevitable impurities, wherein the microstructure of the copper alloy contains comprises: an elemental Cr phase, a Cu₅Zr phase, and a Cr₃Si phase. In the copper alloy of the present invention, the high-temperature softening resistance effect of the material is improved by adding a proper amount of Si to form a compound Cr₃Si, and the strength and the high-temperature softening resistance of the material are further improved by strengthening the copper alloy matrix by the elemental Cr phase and the Cu₅Zr phase, using the synergistic effect of the Cr₃Si phase and the elemental Cr phase and by controlling the content of the impurity Fe. The copper alloy can be applied to contact lines and welding materials to prolong the service life of the materials.

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