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STEP
AUTHORS: (8) Starikova, G. V., Presnyakov, A. A.

TITLE: (6) Investigating electric resistivity of the Al-Zn eutectoid

SOURCE: (10) Akademiya nauk Kazakhskoy SSR. Institut metallurgii i obogashche-
niya. Trudy. v. 5, 1962, Tsvetnaya metallurgiya, 175 - 178

TEXT: Anomalously high ductility ($\delta = 1,000\%$) is observed in Al-Zn eutec-
toid after quenching from a temperature exceeding that of eutectoid transforma-
tion. This is explained by the course of a diffusion process of stabilization
during deformation. The authors attempted to establish also an anomaly in the
variation of electric resistivity of the Al-Zn eutectoid. Al-Zn alloy specimens
(79% Zn) were annealed and quenched at 320°C. Electric resistivity was measured
after different time of holding at room temperature. The electric resistivity
of quenched specimens decreased abruptly during the first 8 - 10 minutes after
quenching. After measuring electric resistivity at room temperature, the spe-
cimens were heated within 5 minutes to 250°C. The electric resistivity of
quenched and annealed specimens was then equal, and no anomalous effect was ob-

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served. Measurements of quenched specimens, heated to 130°C with different
holding time, showed no anomaly. The experiments prove that the initial stage
of decomposition of a quenched Al-Zn eutectoid, proceeding at room temperature,
is accompanied by an anomalous effect of increased electric resistivity. But
at room temperature the specimen does not fully attain the equilibrium state.
The degree of non-equilibrium can be evaluated by the difference in the elec-
tric resistivity in quenched and annealed state. During heating the metastable
alloy passes over into an equilibrium alloy and the electric resistivities of
quenched and annealed specimens show close values. There are 3 figures.

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