Internal Friction Peaks of Cold-Worked Dilute Copper-Aluminium Alloys(Metallurgy)

specimens, while no new peak is observed in gold doped ones. Detailed investigations are carried out on the behavior of the peak P_b, which is interpreted to be due to thermal unpinning of dislocations from pinning silver atoms. The behavior of the other peaks is also described.

Internal Friction Peaks of Cold-Worked Dilute Copper-Aluminium Alloys

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Philos. Mag., **32** (1975), 441.

The internal friction of cold-worked Cu-Al alloys is measured with an inverted torsion pendulum in the temperature range between −180°C and +100°C. Among 10 specimens with different contents of aluminium ranging from 0·01 to 2 at.%, distinct peaks are observed for the two compositions, 0·13 and 0·18 at.%Al, the peak height being larger for the former; detailed studies are made on 0·13 at.%Al specimens.

The peak is introduced by plastic deformation and disappears on annealing at temperatures around +150°C. For a specimen annealed in an oxidizing atmosphere prior to the final deformation, the peak is no longer observed. The peak is considered to be a combined effect of dislocations and aluminium atom-vacancy complexes.

Defect Structures and Long-Range-Order Parameters in Off-Stoichiometric Ni_3Al

K. AOKI and O. IZUMI

Phys. Status Solidi a, **32** (1975), 657.

The deviation of the composition from stoichiometry in the Ll_2-type intermetallic compound Ni_3Al has been systematically investigated in relation to the change in lattice parameter, density, and long-range-order parameter, S. Special attention is paid for such crystallographic features as the kind of defect structure and the atom sites in off-stoichiometric composition. It is concluded that substitution occurs and maximum order retains at both side of stoichiometry. Therefore it is obvious that at the Ni-rich side all Al atoms occupy cube corner sites and the Ni atoms occupy all face centre sites and vacant cube corner sites of the unit cell, while at the Al-rich side all Ni atoms occupy face centre sites and the Al atoms occupy all cube corner sites and vacant face centre sites of the unit cell.

Plasticity of β-brass Single Crystals at Low Temperatures

S. HANADA, M. MOHRI and O. IZUMI

Trans. Japan Inst. Met., **16** (1975), 453.

The plasticity of β-brass single crystals, whose tensile axes lie relatively near the