

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION

HARRISON, NEW JERSEY



TUBE DEPARTMENT

June 19, 1951

SUBJECT: N₁ Nickel Alloy for Miniature Filamentary Type Radio Tubes

RCA has recently completed developmental tests on a new nickel filament alloy for miniature radio tubes which is known as RCA N₁. Advantages of the new alloy are first, it has an increase in its specific hot strength, (diameter for diameter) by a factor of 1.2 and secondly, its hot resistivity is greater than the N100 which is more or less standard at the present time. The latter change allows an increase in filament diameter, without change in filament current, which in turn produces a higher filament hot strength by a factor of 1.42. This means that the total resultant hot strength is approximately 70% better than the strength of the N100 material.

The new alloy has a composition similar to the N100 except for the replacement of parts of its nickel by cobalt. It is produced by vacuum melting, which improves control over the chemical composition and assures a higher degree of reproducibility from lot to lot. The melting is done in larger charges which also improves homogeneity.

In processing on the sealex, a slightly higher filament current should be used during coating breakdown. This takes full advantage of the higher strength in terms of reduction, in shorts and microphonics. The tungsten anchor wire size can be increased from .002" to at least .0024".

This material is rapidly replacing our existing N100 alloy on all RCA filamentary tube types. We would like to have you try the wire if you have not already done so.

Please address your orders for wire to, Tube Parts and Machinery Sales, RCA Victor Division, 415 South 5th Street, Harrison, New Jersey.

Very truly yours,

A handwritten signature in cursive script that reads "C. W. Taylor".

C. W. Taylor, Manager
Tube Parts and Machinery Sales