NON-FERROUS METALS AND ALLOYS FOR USE IN
THE INDIAN HEAVY ELECTRICAL INDUSTRY (*)

T.V. Balakrishnan and
M.D. Vijayavargiya,
Bharat Heavy Electricals Ltd.,
Ranipur, Hardwar.

The H.E.E.P. at Hardwar (a Unit of B.H.E. Ltd.)
is scheduled to manufacture Turbosets of 100 to 300
MW, Hydrossets of various capacities as well as elec-
trical machines (A.C. & D.C) of medium and heavy sizes
upto 9,000 k.w. Our Plant is just in the initial
stages of production and two other plants namely H.E.
E.P., Hyderabad (also of B.H.E. Ltd.) has the Heavy
Electrical Plant of Bhopal, which have also commenced
the manufacture of Hydro and turbo sets. However,
the real experience in the equipment industry is yet
to be attained.

In general, the manufacture at Hardwar is based
on the designs from U.S.S.R. for these products, since
evolving a new basic design for a complex equipment
like turbosets requires a vast amount of experience,
detailed investigation, and considerable time. The
design requirements especially for turbo sets are
very stringent. The reliability of all machines
depends mainly on the quality of the materials used
for its production. The specifications for various
materials as also for Non-ferrous ones are more
stringent than those laid down by I.S.S. Standards.
The main problem, which is being faced today is in
the substitution of imported materials by indigenous
ones. Normally foreign specifications specify
chemical composition and mechanical properties (like
Tensile strength, Yield strength, elongation per-
centage and Hardness etc.), whereas in the Indian
standards only the chemical composition is specified
and as far as mechanical properties are concerned,
only the tensile strength.

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There are a number of such special materials required for the Heavy Electrical Industries and a few examples include Silver bearing copper for machine-conductors, cupro-nickel tubes for condensers and Babbit material for turbines. Further as the quantities required of such special materials may not be appreciable, there is a need for standardisation of all the requirements among the different plants and this cannot be done unless national laboratories like N.M.L. get further investigations and feed these Plants with experimental data.

The paper describes the difficulties that are faced in reducing straightway the import of non-ferrous metals in the manufacture of Heavy Electrical machines and puts forward a few suggestions for implementation by all concerned.

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