

DISCUSSION

*M. Simnad*¹—How is the copper content of the steel controlled in commercial products, and to what limits?

J. R. Hawthorne, J. J. Koziol, and R. C. Groeschel (authors' closure)—Copper is carried over almost completely in steel melting. Accordingly, the furnace charge must be closely controlled to yield a product low in copper. At Lukens Steel, where most reactor vessel steel plate is produced, the furnaces are charged with cold metal only and, for low copper analyses, require highly selective scrap. A copper content limit of 0.10 percent maximum (product analysis) is set forth by proposed (new) ASTM specifications for nuclear grade A533 and A508 steels. Several vessel manufacturers, however, are already using 0.10 percent maximum copper materials (plate, weld, forging) for higher fluence regions.

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