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SOURCE Stal'.

UTILIZATION OF ALLOY STEEL WASTES
IN ONE USSR STEEL PLANT

Stal', Vol X, No 2, Feb 40

In the drive for improved consumption coefficients, the Zaporozh'ye Electrometallurgical Plant is making extensive use of the method of resmelting waste products in the production of a number of structural steels containing more than 0.25 percent carbon. The following resmelting methods are being used:

1. One hundred-percent resmelting of chrome-nickel and chrome-molybdenum waste products in acid electric furnaces; this method is called the chrome-recovery process with diffusion deoxidation;
2. Resmelting without oxidation of chrome-nickel waste products in basic furnaces; the charge consists of 70 percent waste products and 30 percent soft iron;
3. Resmelting of chrome-molybdenum-aluminum waste products under alumina slags without oxidation.

The quality of the steels smelted by these methods is almost as high as the quality of the steels made from the fresh charge.

Stal', Vol X, No 10, Oct 40

The Zaporozh'ye Electrometallurgical Plant, in testing methods of smelting chrome-nickel steel from chrome-nickel waste products, found the duplex process the most successful. It was proposed to smelt the chrome-nickel waste products in two furnaces: an acid furnace in which a charge of 100-percent chrome-nickel waste products was smelted and decarbonized under chrome-reduction conditions, and a basic furnace with refining under white lime slags. This duplex-process method was used in the production of chrome-nickel and chrome-nickel-tungsten steels slated for important uses.

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The experimental melts proved the value of this method. The steel was identical in quality to the chrome-nickel structural steel made in basic electric furnaces and the coefficients for consumption of nickel, tungsten, and chromium were reduced. The plant has begun mass production according to this method. This process is most valuable in the use of medium-carbon chrome-nickel and mild chrome-nickel-tungsten waste products in smelting low-carbon chrome-nickel and chrome-nickel-tungsten steels.

Stal', Vol X, No 8, Aug 40

The Moscow "Serp i molot" Plant has made three test melts of resmelting light-weight waste products (sheet clippings and billet cuttings) of stainless steel (18 percent Cr, 8 percent Ni) in a basic open-hearth furnace. The melts showed the full possibility of resmelting 100 percent of the high-chromium-nickel waste products in a basic 25-ton open-hearth furnace with a 20-22-ton charge. Losses of chromium during the smelting period amount to only 10-15 percent. Only a small quantity of chromium is added during smelting. The total length of the melt is no longer than the length of a melt of quality alloy steel. The innovation enables the plant to utilize light-weight alloy wastes which because of size and weight could not be used in electric furnaces.

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