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Current Status of Dust Collection Systems in Aksu Ferroalloy Plant Smelting Shop 1 and Functional Improvement to These Systems(Article)

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Краткое описание

The Aksu Ferrous Alloy Plant is a firm producing high-carbon ferrochrome, manganese, and silicon alloys at a total production volume of over 1 million metric tons/yr. Smelting Shop 1 has six 33-MW RKZ enclosed electric ore-reducing furnaces. Two of the electric manganese-ore smelting furnaces have been affected by gas-treatment deficiencies due to the formation of volatilized finelydispersed wettable dust with high adhesion and cohesion. The dust load on the bag filters is 40 times higher when smelting manganese ore than when smelting chromite ore in similar electric furnaces. The FROP-25300 bag filters currently installed for collection of manganese dust cannot currently ensure that the gas meets design requirements for residual dust content due to the low efficiency of reverseblowdown bag regeneration. For this reason, some of the gas from the electric furnaces escapes as fugitive gas into the shop, producing a highly gas-contaminated atmosphere. Normalization of dust treatment system operations will require pre-treatment of gases from one of the electric ferromanganese smelting furnaces by installing a dust elimination system — NIIOGAZ group cyclones or a DU-3000 centrifugal inertial dust eliminator, but with a diameter of 4 m — upstream of the smoke extractor as recommended in this paper. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.