

PRE-COMMISSIONING WORKS ON NEW COKE OVEN BATTERIES AND COKE DRY COOLING PLANTS DESIGNED BY SE "GIPROKOKS"

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The article considers the peculiarities of pre-commissioning works performed under the supervision of SE GIPROKOKS at the coke oven battery and coke dry cooling plant (CDCP) at the NMDC metallurgical plant, which is just starting its operation. In particular, the paper shows the difficulties of applying preheating of a coke oven battery under conditions of coke oven gas deficit - using liquefied natural gas (LPG) as a heat carrier. The most significant difference between the latter and coke oven gas is its high calorific value and the need for much more air to ensure complete combustion. Long-term operation with LPG can lead to gassing of gas supply valves. All of this led to the decision to increase the warm-up temperature according to a temporary scheme to a temperature of 1100 °C, after which the battery was to be launched. The battery was scheduled to be loaded when at least 26 coking chambers out of 67 were ready to be loaded with charge. After charging approximately 20 coking chambers, the raw coke gas was to be transferred to the coke product recovery shop, cleaned and fed to Coke Battery No. 1 for transfer to the permanent heating scheme.

There were a number of problems that arose during the emergency heating. In particular, due to the fact that LPG begins to decompose into its individual components after a temperature of 950 °C, the temporary furnaces had to be cleaned of soot and graphite almost daily.

The difficulties encountered during the start-up of the dry coke cooling plant, in particular, the alkalization of the boiler when using LPG as a burner fuel, etc. are highlighted.

Solutions are presented to avoid similar problems in the future. In particular, the necessity to: provide for an increase in the height of temporary furnaces by 300 mm in all coke oven batteries that will be heated with LPG; improve the instructions for heating the coke oven battery and starting the CDCP, etc.

Keywords: liquefied natural gas, coke oven battery, coke dry cooling plant, boiler alkalization, preheating.

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