

Investigating the effect of coke aggregate on gas consumption in anode plant

¹mehrdad beglery *, ²Mohsen ameri siahooei, ³borzu baharvand

^{1,2,3}Almahdi-South Hormoz Aluminium Smelter, Bandar abass, P.O. Box:79171-7-6385, Iran

Abstract: Aluminium is mainly produced from bauxite. Over 90% of the world's bauxite resources are concentrated on the tropical and sub-tropical belt in Australia, Guinea, Jamaica, Surinam, Brazil, and India.

Alumina — or Aluminium oxide (Al_2O_3) is produced from extracted ore. Alumina is then transformed into Aluminium through electrolytic reduction. One tone of Aluminum is produced from every two tones of alumina. Due to less specific weight, corrosion resistance, good electrical conductivity, high thermal conductivity and other useful property; aluminum is used in wide range of industry such as aviation, and military.

Aluminium production technology applies pre-baked anodes, a method used at many European and American aluminum smelters. The anodes are baked in huge gas furnaces. The materials which are used for anode production include petroleum cock (60%), high softening point pitch (15%) and butts (25%).

The effect of different size of packing coke which are used for covering anode in furnace on anode quality and gas consumption has been studied in this research. For this purpose, anode baking cycle time has been performed by three size of packing coke (Medium, coarse, very coarse.) Anode quality and gas consumption recorded in each cycle. Eventually, with due attention to result of research; the optimum size of packing coke is coarse. To avoid anode burning, usage of medium size packing coke even fine on top layer of anode coverage in baking furnace is recommended.

Keywords: “;Anode, Baking furnace, packing coke, Gas consumption.”