KOPPERS POWDERED COAL GASIFICATION PROCESS

ABSTRACT

H. Koppers G.m.b.H. of Essen, Germany, under the immediate direction of their Mr. Totzek conducted experimental work on the gasification of powdered coal from 1938 to 1944. The first unit was built in the Brabag-Schwarzheide plant and subsequent units were at Rheinpreussen Shaft IV near Homberg. In all cases the reactor was a horizontal drum with powdered coal introduced at one or both ends, and the gasifying agent, air or oxygen mixed with steam, being introduced at spaced points along the length of the drum so as to insure turbulent flow of the dust between inlet and outlet. Preheating of the gasifying medium to about 1200°C. was concluded to be essential and Cowper stoves were used for this purpose. Operation was only at atmospheric pressure. The final Rheinpreussen unit was estimated to have a capacity of 10 tons of coal per day but it never operated successfully because of excessive cooling by the water jacket. Previous units were somewhat smaller and no runs longer than five or six hours had been made. No commercial units were built but several proposals were made on the basis of about 0.5 M^3 oxygen consumption and $2M^3$ synthesis gas production per kg coal. No original experimental records were available to support claims made for the process.