

"ENTRAINED PRETREATMENT OF COAL" by Glenn E. Johnson, David A. Green, Albert J. Forney, William P. Haynes and Harry B. Neilson, U.S. Energy Research and Development Administration, 4800 Forbes Avenue, Pittsburgh, PA 15213.

A method for destroying the caking properties of coal during transport is under study at the Pittsburgh Energy Research Center of the U. S. Energy Research and Development Administration. Caking coal ground to 20 x 0 mesh is pretreated under pressure in a 75-ft. length of 1/2" pipe while entrained in a heated stream of oxygen and nitrogen. Pittsburgh seam, a highly caking coal, was pretreated at 100 psig with a transport gas linear velocity of 10 ft/sec, an oxygen to coal ratio of 1.5 SCF/lb and a nominal temperature of 375° C. Data from tests with Pittsburgh seam coal was analyzed using a computerized multiple linear regression analysis. An equation was developed which relates the free swelling index (FSI) to the oxygen concentration, temperature, gas velocity, coal feed rate, and operating pressure. Illinois #6, a moderately caking coal, was pretreated during entrainment at less severe conditions (320° C and O<sub>2</sub> to coal ratio of 0.7 scf/lb.) than required for Pittsburgh seam coal.