

TAR YIELD IN THE OXY FLASH PYROLYSIS PROCESS, K. Durai-swamy, S.C. Che, N.W. Green, E.W. Knell and R.L. Zahradnik. Occidental Research Corporation, 2100 S.E. Main, Irvine, California 92714.

In the Oxy Flash Pyrolysis process, (formerly known as Garrett Flash Pyrolysis Process) coal is heated by direct mixing with circulating hot char and the tar yield is found to be greatly reduced by the presence of char. The tar yield can be increased by using reactive carrier gases such as steam and  $\text{CO}_2$ . The tar yield from a subbituminous coal in the ORC flash pyrolysis process was first determined using an electrically-heated bench scale reactor (BSR) where nitrogen was used as the coal transport gas. Later, the tar yield was found to decrease when char was used for heating in a 3 TPD process development unit (PDU). It was hypothesized that the tar vapor adsorbed on the char surface, condensed and cracked to form coke and gas. Further it was proposed to use reactive transport gases such as  $\text{CO}_2$ ,  $\text{H}_2\text{O}$ ,  $\text{CO}$  and  $\text{H}_2$  to inhibit the char surface by adsorption and reduce the tar disappearance. It was experimentally found that the tar yield increased when reactive transport gases were used along with the char heating mode. High tar yields of over 35 MAF wt. % from Hamilton bituminous coal were obtained in the PDU. PDU and BSR results will be reported.