The Use of Catalysts in Coal Gasification. James L. Johnson, Institute of Gas Technology, 3424 S. State Street, Chicago, Illinois 60616.

There is substantial support for the view that catalysts will play an important role in future processes to convert coal to high-Btu gases and hydrocarbon liquids via gasification. Although processes currently being developed for conversion of coal to synthetic pipeline gas (methane) necessarily employ catalysts for shift and methanation external to direct gasification stages, experimental investigations have shown that catalysts can also significantly enhance reaction rates and product selectivity during actual gasification. The great majority of catalytic investigations, however, have been conducted at low pressures using relatively low reactivity carbonaceous solids without volatile matter, and only a limited amount of information is available related to catalysis of coals at elevated pressures. Certain aspects of available chemical information pertinent to direct coal gasification catalysis, as well as shift and methanation catalysis, are reviewed with a major objective of pointing out potentially useful areas for future research to aid in the development of improved coal gasification processes through the use of catalysts.