

4. Literature Survey

The purpose of this survey is to provide background information for the priority areas identified by W.F. Libby Laboratories. It is directed to the coal aspects of the conversion processes selected, rather than to hydrocarbon conversion aspects which are more heavily represented in the catalysis literature. The present review has been prepared under a subcontract between Libby Laboratories and the Government Research Laboratories of Esso Research and Engineering Company. Over 400 abstracts were collected from the U. S. and foreign literature and patents, covering the period from 1961 through December 1973, plus selected earlier references. The search was limited strictly to the open literature. These abstracts were examined and reclassified under the following general topics:

1. Direct methanation of coal
2. Catalytic effects of ash
3. Model compounds
4. Bridged ring cracking
5. Solvent/catalyst interactions
6. Acid/base systems
7. CO reactions
8. Desulfurization

References for this purpose were assembled first from Chemical Abstracts from 1962 through 1973, and from review

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articles and bibliographies suggested to us by cooperating experts who are consultants or subcontractors to Libby Laboratories under the EPRI contract. The index entries selected in Chemical Abstracts were augmented by scanning the entire CA section on Coal and Coal Derivatives for this period. Similar scans of original sources for pertinent references were also made from the ACS Division of Fuel Chemistry Preprints, the British journal "Fuel," and the bibliographies of selected prior reviews. Special topic searches were made in the API Abstracts of Refining Literature and Patents, by author index and by computer requests, and in the U. S. Bureau of Mines Cumulative Index of Reports from 1910 to date. Abstracts of current government-sponsored research and development projects on the conversion of coal were obtained from the Smithsonian Science Information Exchange.

The attached bibliography is an initial classification of abstracts collected through April 20 by Esso Research and Engineering Company. This cut-off date was required to complete a final report draft on April 25, five weeks ahead of the contract date. Both the report draft and the bibliography would benefit from a revision.