CO/H_2 CHEMISTRY IN A CHANGING ENVIRONMENT

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The catalytic chemistry of CO/H_2 has been the subject of concentrated research during the past 10 years, and especially during the past 3. This effort has been based on several assumptions, which include two that are key: (a) the cost of petroleum and petroleum-derived chemical raw materials (e.g., ethylene) will continue to escalate at a rapid pace; (b) the partial oxidation of coal to CO/H_2 for both fuel and chemical purposes will become economically competitive.

In keeping with this activity, a large number of potential products have been synthesized from CO/H_2. These vary from the simplest molecules, such as methanol, methane and ethylene, to much more complicated molecules, such as vinyl acetate, durene, long-chain α-olefins, etc.

At the present time, there have been significant changes in the projected timing for some CO/H_2 applications. These are caused by: (a) decreased demand for crude, due to conservation efforts and the accompanying oversupply and price stabilization; (b) increased emphasis on natural gas and natural gas liquids as sources for methanol and other basic commodity chemicals, especially in certain parts of the world rich in these resources.

The result of the changing environment has been a decrease in development efforts toward chemicals and fuels, except for those areas in which special situations exist. This presentation will include discussions of a number of processes which have been experimentally demonstrated, a number which are proceeding toward commercialization, some recently publicized results in key areas, and a discussion of how the changing environment has altered the outlook on CO/H_2 chemistry.