Select a major organic commodity chemical (not including one of the principal petrochemical feedstocks, i.e., methane, ethylene, propylene, benzene, toluene, xylenes, or a C₄ or C₅ hydrocarbon) or a large-volume downstream product. Periodicals such as Chemical Week, Chemical & Engineering News, and Chemical Market Reporter are good sources of ideas for topic chemicals.

Prepare a comprehensive report discussing all pertinent aspects of the process(es) used to manufacture this chemical.

Appropriate topics for discussion include (but are not necessarily limited to) the following:

1.) History of prior process(es), if any, for manufacturing the chemical, including a time line for the development of improved or larger volume processes.

2.) Thermodynamics of the reaction(s) used, and consequent limitations, if any, on process yields.

3.) Kinetics of the reaction(s) involved, including kinetic expressions, if available.

4.) Reactor designs used.

5.) Typical ranges of operating conditions (temperature, pressure, contact time, etc.) and reasons for their selection.

6.) Detailed description of the catalyst(s) used for the process(es), including promoters, supports, lifetime, susceptibility to deactivation, and nature of the “active sites” (if known).

7.) List of the pertinent patent(s) covering the process.

8.) Principal downstream demand or end uses for the chemical.

A minimum of six literature references should be used as sources in preparing the paper. Of these, no more than two may be un-refereed web sites. (On-line versions of technical journals are acceptable as refereed sources.) Note that Wikipedia should not be used as the sole on-line source for a topic, without corroboration from other sources. However, many Wikipedia articles, particularly those on technical subjects, include a list of references to primary literature, and can thus serve as good starting points for literature searches.

Total length of the paper is limited to no more than 15 double-spaced pages, not including the list of cited literature references and supplementary material such as Tables and Figures. Attach a copy of each literature source used. For book chapters, include a copy of the book’s title/author and copyright pages.

Paper is due no later than Monday, April 23rd.