

## **SECTION 5 FLUID-BED CATALYST DEVELOPMENT**

In order to operate the DSRP field-test unit in the fluid-bed mode, it was essential to obtain a sufficient quantity of a suitable catalyst material. RTI conducted catalyst development studies during FY98 in preparation for the field test; using synthetic gas mixtures several candidate fluid-bed catalysts were tested in the bench-scale DSRP unit in the Research Triangle Park laboratory. Appendix B contains the full report describing the catalyst development program.

Two candidate catalysts were developed, Catalyst A with an alumina support and Catalyst C with a proprietary support. Catalyst A was more active than Catalyst C, but had a lower attrition resistance. Catalyst A achieved 98% single-stage sulfur conversion whereas Catalyst C achieved only around 90%. The attrition of Catalyst A in a 20 hour ASTM attrition test was 7.2% whereas that of Catalyst C was estimated to be only around 1%. Although the higher conversion with Catalyst A is attractive, it needs further development to increase attrition resistance, thereby reducing catalyst losses in commercial application.