

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The main objective of this work is to find the most proper design of catalytic reforming plant by focusing on the plant capacity and temperature at reactor as well as heat exchanger network type, based on the two decision criteria- finance and environmental impact. The study is done by setting 12 design types, then trying to investigate financial and environmental risk curves.

After considering risk curves, the design that operates at temperature, 501°C, is responsible for the low financial risk design whereas having a high environmental risk. While the pinch heat integration design has the low risk in both financial and environmental aspects. In case of the plant capacity, even though the 14 kbd design has the low financial risk at the low profit aspiration level, it has a higher financial risk than 20 kbd design at the high profit target. Nonetheless, the 14 kbd design is regarded as the safest design in case of environment, due to the lowest environmental risk at every target level.

However, when concurrently investigating the financial and environmental risks by applying the summation weighted objective optimization method, the 14b design- having 14 kbd capacity, 501°C reacting temperature and using pinch heat exchanger network- was the optimum design.

5.2 Recommendations

To improve the work, more parameters should be added in the design variable- more than the plant capacity, operating temperature and heat exchanger type- or change the process flowsheet to the other types. Those actions definitely can also make a contribution on both obtaining a more detailed design and more accurate design.