CHAPTER VII

CONCLUSION AND RECOMMENDATION

1. A simple linear regression, at the level of significance (α) = 0.05, reveals that in the low liquid phase fertilizer formulation has a significance relation between sulfuric acid concentration versus process yield and process capacity. Even though it is a less R^2- value, the coefficient of determination

2. A simple linear regression reveals that ;

   2.1 Sulfuric acid concentration has the direct relation to process yield and process capacity for the low liquid phase fertilizer formulation at the level of significance (α) = 0.05

   2.2 Sulfuric acid concentration has the reverse relation to process yield but the direct relation with process capacity for the high liquid phase fertilizer formulation.

   2.3 Sulfuric acid concentration has the indecisive relation both process yield and process capacity for the moderate liquid phase fertilizer formulation

3. A multiple linear regression, using 3 independent variable (sulfuric acid concentration, specific gravity of phosphoric acid, and mole ratio of fluid feed raw material) at the level of significance (α) = 0.05, reveals vivid relation of independent variable to both process yield and process capacity to the low liquid phase fertilizer formulation because the high value of R^2 (the multiple coefficient of determination) approaches to 0.6-0.7.

4. A multiple linear regression, at the level of significance (α) = 0.05, reveals that both sulfuric acid and mole ratio of fluid feed raw material have a relation to process yield and capacity

   4.1 Sulfuric acid concentration has the direct relation to process yield and process capacity

   4.2 Specific gravity of phosphoric acid has no relation to both process yield and process capacity

   4.3 Mole ratio of fluid feed raw material has the direct relation to process yield but the reverse relation to process capacity

5. A multiple linear regression, at the level of significance (α) = 0.05, reveals the concise equation models to predict process yield and process capacity.

   5.1 Process Yield = (- 36.620) + (1.614)%H_2SO_4 + (25.879)S.G. of liquid raw material feed + (12.263) M.R. of reactor feed

   5.1 Process Capacity = 187.176) + (0.806)%H_2SO_4 - (34.875)S.G. of liquid raw material feed - (33.344) M.R. of reactor feed

The recommendations for further study are as follow

1. The effects of raw material particle size, especially ammonium sulfate, separated by the source of them should be taken into account
2. The flow rate of dilution air, passing through the inside of granulation drum, is a major parameter of water mass balance.This effect should be taken into account for more detailed study in the further.
3. It should be consider to extend this work by factorial design method if the interaction of the independent parameters are considered.