

CHAPTER 9

CONFIRMATION EXPERIMENT

9.1 Experiment and Data Collection

This experiment is performed by using a reactor of the process and F/M ratio of 2.0, and the results of this experiment are used to compare with the results of the experiment for finding suitable conditions that are tested in the laboratory.

Curing time(in seconds) by F/M ratio of 2.0 and Melamine crystal pH 8.0-8.7

		Observations							
		1	2	3	4	5	6	7	8
Laboratory									
Process									

Curing time(in seconds) by F/M ratio of 2.0 and Melamine crystal pH 8.7-9.5

		Observations							
		1	2	3	4	5	6	7	8
Laboratory									
Process									

Table 9.1 : The Table for Data Collection of Confirmation Experiment.

The experiment can be done only F/M ratio of 2.0 because the company employs this ratio in the process at the present. Thus, the data of

this experiment can be collected using the Table 9.1. And the observations of laboratory can be filled in these tables by using data from the experiment for finding suitable conditions.

9.2 Collected Data

The collected data of this experiment are shown in Table 9.2.

Curing time (seconds) by F/M ratio of 2.0 and Melamine Crystal pH 8.0-8.7.

	Observations								AVG.	STD.
	1	2	3	4	5	6	7	8		
Laboratory	198	186	184	192	183	195	192	180	188.75	6.39
Process	200	193	187	186	197	202	199	186	193.75	6.67

Curing time (seconds) by F/M ratio of 2.0 and Melamine Crystal pH 8.7-9.5.

	Observations								AVG.	STD.
	1	2	3	4	5	6	7	8		
Laboratory	168	176	178	185	183	180	171	172	176.63	6.00
Process	178	174	162	179	173	177	180	165	173.50	6.65

Table 9.2 : The Data of Confirmation Experiment.

Remark : 1) AVG. stands for average and STD. stands for standard deviation.

2) NaOH 2.5 % concentration of 7.0 milliliters used for a reactor batch in the laboratory in the condition of F/M ratio of 2.0 and melamine crystal pH 8.0-8.7.

- 3) NaOH 25 % concentration of 3.5 liters used for a reactor batch in the process in the condition of F/M ratio of 2.0 and melamine crystal pH 8.0-8.7.
- 4) NaOH 2.5 % concentration of 6.2 milliliters used for a reactor batch in the laboratory in the condition of F/M ratio of 2.0 and melamine crystal pH 8.7-9.5.
- 5) NaOH 25 % concentration of 3.1 liters used for a reactor batch in the process in the condition of F/M ratio of 2.0 and melamine crystal pH 8.7-9.5.

9.3 Data Analysis of Experiment

In the case of F/M ratio of 2.0 and melamine crystal pH 8.0-8.7, since $F_{0.025, 7, 7} = 4.99$ and $t_{0.025, 14} = 2.145$, the value of $F = 0.92$ and $T = 1.53$ are computed. We conclude that there is no difference between the two means and variances.

In the condition of F/M ratio of 2.0 and pH 8.7-9.5 of melamine crystal, since $F_{0.025, 7, 7} = 4.99$ and $t_{0.025, 14} = 2.145$, the value of $F = 1.23$ and $T = 0.99$ are computed. We conclude that there is no difference between the two means and variances.

Finally, the sodium hydroxide (NaOH) 2.5% concentration of 1 milliliter used in the laboratory equals the NaOH 25% concentration of 0.5 liters used in the process.

Therefore, the results of the experiments in the laboratory can represent those in the process.