CHAPTER 5

CONCLUSION

With the application of present gypsum technology, the inferior features of Mae Moh flue-gas gypsum to those of natural gypsum can be overcome and this success has opened the new area of its application as building components, e.g. wallboard, floor screed and projection plaster which can be applied by machine in addition to its main use as retarder for portland cement industry or as landfill.

The general conclusion to be drawn from the experimental results is as the following :

1. Mae Moh flue-gas gypsum is considered as a moist, dark coloured gypsum due to the uncontrolled contaminations. Although harmless for some purpose, a light coloured material is usually preferred which can be achieved by washing. The effective washing condition according to the experiment is with dilute sulfuric acid at room temperature.

2. The unfavorable morphology of flue-gas gypsum (shape and size of particle) is best eliminated by compaction under a high pressure into briquet having an apparent density as close as that of the natural one.

3. In the syntheses of β-HH and anhydrite, aridization with a minimum content of $CaCl_2$ is proved to prevent rehydration.

4. In the preparation of multiphase plaster, using bulk material yields a better reproducibility of multiphase plaster composition. Size and calcining time play a crucial role in obtaining the right temperature gradient in the body of bulk material.

5. Having higher flexural strength, gypsum board from multiphase plaster gives a better performance than that of β-HH.

6. Multiphase plaster is suitable for use as projection plaster and with the aid from the combination of various additives, the projection plaster

can be formulated to have a designed property suitable for machine application.

7. Flue-gas gypsum, in many aspects is proved to be equivalent to natural gypsum.

Future suggestion.

However there are still several problems to be tackled concerning the implementation of the plant. The following studies are suggested :

1. Improvement of color of the projection plaster by blending with natural gypsum or etc.

2. Improvement of the flexural strength of gypsum cement by engineering the morphology.

3. Handling of the moisture content of flue-gas gypsum.

4. Cost study of multiphase plaster leading to the modification of β-HH gypsum board.