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GAF Corporation

#5 Calsilite general

DATE August 27, 1970

TO Mr. W. C. Schwingen
LOCATION So. Bound Brook

FROM M. Fein
LOCATION So. Bound Brook

cc Messrs: Bettoli
Canfield
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SUBJECT: CALSILITE

I. Introduction

A program was undertaken to decrease or eliminate the dusting in Calsilite. The general approach used was to add a polymeric latex to the system in the hope that a binder would serve to minimize dust.

II. Summary

The problem actually consists of 2 components; the first is the goal of a dustless Calsilite, but the second portion of the problem consists of developing a quantitative measure of dustiness. Only partial success was met in devising a measure of "dust" and modest improvement was attained in improving Calsilite dusting as determined qualitatively.

III. Results

The addition of latices to the asbestos/lime/Dicalite slurries was studied. The only point at which the latices could be added without disrupting the gelation of the calcium silicate was at the quench stage. The standard lab procedure calls for the addition of 450 cc. of water as a quench. It was found that the dilution of the polymer being evaluated to 450 cc and use of the diluted polymer solution as a quench did not disrupt gelation. It was of interest to observe that the "polymeric quench" was very milky, whereas the effluent water from the molding cycle was clear. This constituted evidence that the polymer was being adsorbed.

Many polymers were evaluated at levels of 18-36 g (100% polymer) per 101.5 g Dicalite/67.6 g lime/17.7 g. asbestos. Included were polyacrylic acid and its salts, various grades of polyvinyl alcohol, polyvinyl acetate, PVP, PVP/vinyl acetate, Hycar 2600 x 106. The modified Calsilite samples were evaluated for abrasion resistance, "rub" on a dark cloth, hardness in hopes that these tests would correlate with a quantitative dust evaluation. No correlation developed.

The standard Gloucester abrasion test was used and my lab control showed a 13.6% loss after 10 min. and 27.1% after 20 minutes. Three samples were markedly better: