NEWARK, NEW JERSEY
SEPTEMBER 25, 1951

CONFIDENTIAL

SEP 25 1951

J.H.C. 25 1951

Dr. J. H. Cooper (3)

A.S. A-IIC-261 AJS-70%
OJCK 8%

AQUEOUS MILLING CPC

Four agents other than Blancol have been investigated for grinding with Borax. CMC (carboxy methyl cellulose) gave strength comparable to that easily obtainable with 5-10% Blancol with only 3% of agent. Higher amounts were not beneficial. Rubouts are 10-15% weaker than BT-304-D and flushouts are equal to the dry color. It is believed that CMC deserves more study in this connection.

A new non-ionic agent (Pluronic F-68) from Wyandott failed to give the desired strength by either brushout or rubout tests. However, the weakness was not too great and it is suggested that this agent may deserve study in combination with Blancol or CMC.

Two "Ucon" lubricants (American Cyanamide) foam severely in the grinding unit and return poor strength, though there has been a marked improvement over the crude. We see no reason to examine these agents further in this application.

It is believed that the general search for better agents should be continued. However, this study will be subordinated to a more complete understanding of the presently preferred process with Blancol, in anticipation of pilot plant development beginning in October.

The semi-works has recently completed two series of three runs each on GT-675-P separating the borax by decantation and reusing the borax with an arbitrary make-up of borax, pigment and Blancol. There was some variation between the three runs in the first series; but the strength in every case was at least equal to GT-675-P, Lot 74295. The separation by decantation was successful; but the consumption of borax was somewhat greater than anticipated. These charges were mixed with a previous charge and the mix was significantly bluer than GT-675-P. It was finally standardized at 18% solids and is still a little stronger than GT-675-P, but a very close match to Heliogen Green GTA dispersed paste. This charge (as Lot SW 2771) was submitted to Pabco as an experimental sample. The second series of grinds was made using ice prior to decantation to reduce the solubility of borax and the make-up charge was based on an estimation of actual borax remaining. The results are not yet available.

It now seems well established that a flocculating agent will be necessary to obtain acceptable filtration of the pigment slurries. Diphenyl guanidine has been the agent used to date. This always causes some loss in strength, which can be offset by the ability to grind to a higher strength level when more Blancol is used. The major uncertainty at this point seems to be whether a satisfactory linoleum lake can be made with products ground with 10% Blancol. It seems reasonable to hope that a method can be worked out to use such products, after flocculation with DPG, in BL-288-D and some hopeful indications have been obtained already.

A recent grind in the laboratory with much lower ratios of borax to pigment (actually as low as 2:1) indicates that satisfactory strength can be obtained with somewhat longer grinding time. This will deserve large scale trial to determine the overall economies.

Dispersed pastes made by this process tend to be relatively low in viscosity and show some tendency to settle at the usual solids content. This has been corrected by adding small amounts of $BaCl_2$, which thickens the pastes very markedly. No evidence of significant loss in strength from this procedure has been noted.

A sample of crystalline Cl-free CPC is now available for grinding studies.

The grinding equipment for the new pilot plant installation in #10 Bldg. has been received and installation is progressing rapidly. The Dorr Classifier has been shipped, but not yet received. It is anticipated that some grinding studies may be possible by the second week in October but the complete installation will take somewhat longer.

A. J. Stratton

A. J. STRATTON
CHEMICAL DIVISION

AJS:lg

JHC