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DR. J. H. COOPER (3)
NEWARK

H.F. GRINDING - A-II-C-261 - AJS-50%

During September, the laboratory studies on H.F.Grinding have been confined to the use of aqueous media. The results continue to encourage further efforts, in that strength approaching that of standard BT-304-D has been obtained, demonstrating rather conclusively that effective grinding is being accomplished. However, the methods used have thus far shown poor reproducibility and little progress has been made in achieving the last 15-20% in strength required to equal present standards.

Certain conclusions appear valid at the present time. No agent which is an effective wetting agent for CPC in water has been effective by itself in grinding water-borax mixtures. The only agents which have been effective alone are poor wetting agents but generally known as good dispersing agents for aqueous slurries, such as Blancol and DaxadII (formaldehyde condensation products of naphthalene sulfonic acid derivatives), Marasperse CD (composition unknown) and carboxy methyl cellulose.

Recently attempts have been made to use combinations of wetting and dispersing agents with some evidence of improved reproducibility and some slight improvement in strength obtained.

Finally, some of these recent leads were applied in a series of regular ball mill grinds in which a remarkable advance was made where borax was included in grinds containing Blancol. The role of the borax is not clear, but it could not be replaced with either NH_4OH or NaOH .

Xylene deflocculation was not effective in improving the strength of products ground with Blancol.

Semi-Works studies on H.F. Grinding included two trials of grinding crude Green press cake in acetone-borax mixtures and good strength was developed in from 1 to 2 hours. However, the hue was distinctly bluer than that of GT-674-D, lot 430. The presence of chromate in the grind appeared without significance. This deserves more study.

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Two grinds were made using chlorine-free crude press cake. One, made with press cake from sulfated crude, was very slow in changing phase and was quite weak at the end of 8 hours. The other, using steam distilled crude press cake, appeared to be in the beta phase throughout and reached the strength of BT-297-D, lot 373 in about 2 hours with no evidence of advantage in grinding longer. There was some tendency to dullness but this type of process may deserve more attention.


A. J. STRATTON

AJS:MPH

JHC