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GRINDING STUDIES
HF PROCESS

This represents an informal progress report on the HF Process for the month of November 1949.

During the month, CPC-LB appreciably above the strength level of BT-304-D has been obtained on several occasions with a 2-hour grind using very finely powdered salts. Na_2SO_4 (anhydrous N-108), pulverized NaCl (screened thru 40 mesh), commercial Borax and $NaHCO_3$ have given essentially equal results when used on the basis of equal volume as determined by the specific gravity. Fine Wheelabrator shot and regular NaCl (N-71) have approached this quality when used at double the agitator speed.

20 mesh sand has been definitely inferior even at high speeds. A sample of fine sea sand (all thru 40 mesh but mostly retained on 100 mesh) gave a product close to BT-304-D, but somewhat inferior to that obtained with the fine salt. The separation problem with this material was very serious.

Some attempts have been made to separate the salt in a simple centrifuge, but all of the material settles readily. It is, however, partially classified and it seems probable that a centrifugal classifier would effect a good separation.

A brief study of agitator disc diameter and position indicates that 4 inch discs give better results than 3-1/2 inch or 3 inch discs. As the discs are placed closer together they are less effective. One grind at 2 inches apart seemed a little better than the usual 1-1/2 inches apart. This will be studied further.

Some study of time variables indicates a normal strength development curve. This will be studied further to determine the optimum time cycle.

One grind of chlorine-free CPC was made with powdered salt and material of high strength was obtained. It is substantially equal to ABT-318-D in strength but sli.red and sli.dull. There is no evidence of phase change to the beta form at this point.

One attempt was made to obtain BL-288-D by grinding CPC-LB crude and whiting together in water with sand as the grinding aid. The resulting product, by rubout, was weaker than an equivalent dry mix of the crude and whiting.

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