

CONFIDENTIAL

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GRINDING STUDIES
HF PROCESS

A-IIC-261 - 40%

In a further progress report on studies of the HF process for February 1950, the major attention has been given to studies on the use of borax as the grinding medium in acetone of less than the normal 98-99% purity. Successful grinds giving quality fully equal to those obtained with high purity acetone have been repeatedly made in acetone containing up to 50% (by volume) of water. There was some evidence that the presence of some water might be beneficial and that a dispersing agent such as Triton N-100 was beneficial in the presence of water; but attempts to check these results have not been convincing.

Attempts to use Acetone of less than 50% purity have shown progressively inferior results with lower concentrations and no grinding at all was obtained in one water grind with borax.

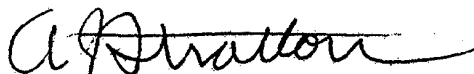
On several occasions a peculiar separation of color and borax has been obtained having many of the characteristics of a two phase liquid separation. There has also been, in most cases, a substantial accumulation of color in a pasty condition on the bottom and sides of the vessel when dilute acetone is used. These conditions must be controlled for successful large scale operation.

Two semi-works charges were made with 50% acetone. Both showed the separation characteristics and have failed to develop the desired strength in a 4 hour cycle.

Some attention has been given to the recovery of borax by recrystallization. It has been very easy to recover 65-70% of the starting material simply by cooling the mother liquor from the filtration. The commercial feasibility of such an operation may be questionable.

Some discussion with design engineers has resulted in the suggestion that the most likely process may be to grind in acetone of relatively high purity (not necessarily 99%) followed by the use of cold water (may be ice water) as the dilution and washing fluid in a centrifugal classification set up. The process contemplates re-use of the water wet borax and make up with pure acetone and fresh borax. It is planned to seek expert advice on the availability and use of suitable equipment in the near future and to develop appropriate data as soon as possible.

HF grinds of Red RL and Violet 4RH are under way as this report is written.


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