

CHEMICALS & PIGMENTS DEPARTMENT
RESEARCH & DEVELOPMENT
Jackson Laboratory

CC: C. J. Slentz, A&SC "K"
W. J. Lawrence
J. L. File

November 17, 1980

TO: P. A. WRIEDE

FROM: A. S. BROOKES, JR. *alb*

FACILITIES FOR NEW PRODUCT
DEVELOPMENT AND BATCH MANUFACTURE

This memo documents the concern I expressed recently about the future of new product development for the colored pigments business. As new products are defined, there is the necessity to make interim pounds for market development and potentially commercial quantities for several years until the volume can justify or requires new or dedicated facilities. This need can only be satisfied by a flexible multiproduct batch processing plant.

With the decision to withdraw from the dyes business, many of the flexible multiproduct batch processing facilities on the Chambers Works are being dismantled. In the haste to discard the old and have all buildings on the Chambers Works operating at peak efficiency, I hope this need is not forgotten. As an example, consider the "Ponsol" buildings on the Chambers Works. The economic viability of these buildings is in doubt because of several recent business decisions. If the "Ponsol" buildings are dismantled along with all the other batch facilities, where will interim and market development quantities of new pigment products be made?

Let's consider for a minute three recent examples I have evaluated and the effect of having or not having flexible batch facilities that would make the product.

1. Recently the economics of making the coupler for XYT-880 were evaluated. The steps involved were the catalytic reduction of 5-NBI to ABI and the reaction of ABI with diketene to form AABI. Because a fit in existing facilities could not be found, new investment was estimated at \$2MM which creates a mill cost charge of ~\$4/lb. at the production level of 100,000 lbs./yr. if other products are not found to fill out the equipment occupancy. This investment and mill

November 17, 1980

cost penalty certainly affected the decision on the product, even if the technical uncertainties did not exist (Ref. P. A. Wriede to G. C. Tunis, Economics of XYT-880-D, 10/31/80).

2. Recently the economics of two alternate routes to aminoterephthalamide, the intermediate for Toji's new line of pigments, were evaluated. The mill cost for manufacture in existing batch equipment was estimated at \$7-8/lb. If new equipment just for this intermediate had to be built, the cost might be \$3MM new investment which would add about \$6/lb. to the mill cost at a production level of 100,000 lbs./yr. Again, the value of available interim batch manufacturing equipment should be evident.
3. I am currently developing economics for a new yellow nickel chelate comparable to Ciba-Geigy's Cromophthal 3G. There is a good probability that existing equipment in a building such as "Ponsol" Colors could be found for manufacture. If this equipment were not available, add \$2MM new investment and a mill cost penalty of \$4/lb. at 100,000 lbs./yr. At lower volumes, the mill cost penalty would increase. Can this or any new product carry this burden on its infancy when it is struggling to find its place in the competitive marketplace?

On the other side of the picture are several recent business decisions that adversely affect the business health and economic viability of the batch chemical business on the Chambers Works. Among these are:

- Not make "Lithosol" Yellow products in "Ponsol" Area buildings.
- Purchase NBMSA versus relocate manufacture to "Ponsol" Area buildings.

Each of these decisions may have been right and made for very good business reasons but did they consider the impact on long-range business? As current business moves from the batch buildings on the Chambers Works, the remaining products and any new products must assume the increasing fixed cost burden. Will all existing products leave rather than share their portion of the cost burden? Doesn't this leave us "hostage" to our suppliers and unable to bring new products to the marketplace because there is no cheap way to bridge the gap of interim manufacture and market development?

November 17, 1980

Looking objectively at the batch manufacturing facilities on the Chambers Works, many were associated with the dye business. Some are beyond economic repair and can best be dismantled. In other cases, however, revitalization may be a better alternative than discarding the old and building new. Consider the case of the "Ponsol" Buildings. Some of the apparent alternatives and their costs as I see them are:

1. Dismantle ?
2. Revitalize

Investment after writedown from dye withdrawal	\$8MM
Rehabilitation - new money	<u>\$8-12MM</u>
	say \$20MM
3. Tear down and build identical new \$80-100MM
4. Build new flexible batch manufacturing facility to support market development and interim manufacture. Timing - 4 yrs. minimum to operation. \$30-100MM

When looking for interim manufacturing facilities for a new product, which is the preferred alternative?

While you may say none of the above alternatives are attractive because of the old buildings and the new money required, the following need to be answered before any decision on batch manufacturing facilities on Chambers Works is made:

- Long-term (5-15 yrs.) business plan?
- How and where are small lot quantities of new products made?
- Where are commercial quantities of products made before the market develops to the point where a self sustaining dedicated manufacturing facility can be provided?

ASB/pq