FOR COMPANY USE ONLY

DATE October 19, 1972

TEST CONCLUSION NO. TA-C- 72-415

file Spray Drying

OFFICIAL PRODUCT NAME Choline Chloride

PRODUCT CODE NO. 147 156 1000 POUNDS PRODUCT ACTUAL 0

AREA "Ponsol" BUILDING NAME Spray Dryer #2

TITLE Spray Drying

PREPARED BY: A. H. Pagano AHP.

PURPOSE OF TEST: To demonstrate the feasibility of spray drying purchased choline chloride 70% solution to achieve cost savings in the manufacture of Du Pont Basic Yellow BL, a potentially high volume yellow paper dye.

RESULTS OF TEST: See attached.

RECOMMENDATIONS: See attached.

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Results of Test

The trial was not successful. Under a variety of operating conditions summarized below in Table I, only approximately 10 lbs. of dried choline chloride was collected from 1,500 lbs. of solution (equivalent to 1,050 lbs. of 100% choline chloride).

The choline chloride 70% solution can be dried to give product with the required moisture level (1.5 $\pm$ 0.5%). However the product is difficult to collect since it clings to the side of the dryer and is hygroscopic. At normal dryer exit air temperature, 250°F. maximum, the product was still wet as it left the dryer. At higher exit temperatures, up to 300°F., the small amount of material collected had a moisture content of 1.75%. Most of it collected on the sides of the dryer had a moisture content (0.88%).

Successful spray drying of choline chloride will require modification of present limits on dryer operating conditions and/or mechanical modifications to the dryer.

Table I

Operating Conditions in the Dryer

Inlet Temp. (°F)	Outlet Temp. (°F)	Rate (Lbs./Min.)	Product Collected
380	225-260	13	No
400	290-295	13	No
450	290-295	27	~ 10 lbs.

Recommendations

It is recommended that other methods of drying the relatively inexpensive 70% choline chloride solution be investigated.

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