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MEMORANDUM REPORT NO. M-701

Prepared by: J. P. Sermattei

VISIT TO GRASSELLI CHEMICALS DEPARTMENT

INTRODUCTION:

On April 14, we visited the Grasselli Research Laboratory at the Experimental Station to discuss new materials of potential interest to F & F. Persons interviewed were: C. J. Mighton, G. B. Alexander, and Ralph Aarons.

SUMMARY:

Grasselli has a few new materials of interest. These include:

(1) A modified "Ludox" in which the average particle size of the silica micelle is 7 millimicrons instead of 17 millimicrons for the standard "Ludox". A pint sample is being obtained.

(2) "Quilon", stearatochromic chloride, can be used to treat extenders and pigments to impart water resistance and better organic dispersibility properties. Grasselli is treating a pound sample of chromium tetrahydroxide (M-701) for the Parlin P & M Group. C. Kalb at Parlin will keep us advised of the results of this work. We have also asked Grasselli to treat some aluminum powder with "Quilon" to determine what effect this has on the leafing or non-leafing characteristics.

(3) Grasselli has a flake silica sol, which comprises a 25% solids dispersion in water of silica in plate or leaflet form. On spreading this material on glass and heating to evaporate the water, a hard, coherent silica film is formed. A small sample is being obtained.

(4) Grasselli's work on a water-dispersible, film-forming, fibrous shaped polymeric alumina has not yet reached the stage where samples are available. However, a technical bulletin is under preparation at present and small samples are expected to be ready for distribution within a few months. We will obtain samples and technical information at that time.

ACTION:

(1) J. P. Sermattei will examine the flake silica sol as an inorganic, film-forming material.

(2) G. P. Mell will evaluate the 7 millimicron particle size "Ludox" in "Teflon" (Tetrafluoroethylene resin) wire enamels.

(3) J. P. Sermattei will evaluate the "Quilon" treated aluminum powder, if Grasselli is successful in treating this material.

DISCUSSION:

Modified "Ludoxes"

Grasselli has a program underway aimed at making a series of "Ludoxes" varying in average particle size from 7 to 70 millimicrons. Other modifications are also in preparation in which propanol is used to esterify the silica, resulting in a product which is dispersible in propanol, and compatible with other organic solvents. These modified silicas will also be available in the form of dried down powders consisting of essentially spherical particles of very small particle size. It is expected that these powders will be of interest as reinforcing fillers for plastics and elastomers. However, samples are not yet available.

"Quilon" Treated Extenders and Pigments

Grasselli claim that their stearatochromic chloride ("Quilon") can be used to coat pigment particles, resulting in film combinations that have improved water resistance and better dispersibility in organic solvents. They estimated the cost of the treatment at about 5¢ per pound of treated pigment. Since the chromium complexes have a green color, this treatment cannot be applied to white or light colored pigments, or to extenders where color is important. We plan to follow the work that Parlin Process and Methods Group are doing with a "Quilon"-treated chromium tetrahydroxide pigment. We are also supplying Grasselli with samples of aluminum powder that they have agreed to treat with "Quilon", for us.

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