UC 149-2

UNION CARBIDE

INTERNAL CORRESPONDENCE

PLAINTIFF'S EXHIBIT UC-762

Woolery #8

CHEMICALS AND PLASTICS • OPERATING DIVISION P. O. BOX 579, NIAGARA FALLS, NEW YORK 14302

To (Name) See Attached Distribution List
Division
Location

Date March 7, 1967

Originating Dept. Research and Development Department

Answering letter date

Copy to

Subject Monthly Summary Report
February, 1967

Gentlemen:

Attached is the Monthly Summary Report of the Asbestos Research & Development activities for February, 1967.

In addition to the work reported here, other Research and Development Groups have been evaluating UCC asbestos in a variety of systems. The Thermosetting Products Group (P.A. Thomas) reported a method of rendering RG-144 usable with cycloaliphatic epoxide resins through the use of cationic amine salts. A binder consisting of ERL-2774 and RG-144 has been submitted to Foseco, Inc. for "hot tops" for evaluation. This adhesive potential is estimated to be about 10 million pounds per year. The Vinyl Solutions Coatings Group found difficulty in obtaining thixotropy with RG-244 in airless spray formulations. Also, an evaluation of RG-144, 244, and 444 showed no definite advantage as a possible anti-settling aid in VAGH red lead marine paints. These later two applications will be reviewed at our earliest convenience. Other activities are in progress at various Group I laboratories and will be reported on when the data become available.

Very truly yours,

R. G. Woolery

RGW/bsn
Attach.

RECEIVED
MAR 1 1967
J. W. BIDDLE

CHEMICALS AND PLASTICS
OPERATIONS DIVISION

UNION CARBIDE CORPORATION

P.O. BOX 579, NIAGARA FALLS, N.Y.

Monthly Summary Report
Asbestos Research & Development
February, 1967

TO: (See Attached Distribution List)

FROM: R. G. Woolery

DATE: February 7, 1967

Pulp and Paper

Development activities were continued toward establishing the improved scattering co-efficient (s) of titania contained in Asbestos "T". Efforts to date have indicated a 150% increase in the s of the titanium dioxide when added to paper in this form. It was also shown that the asbestos/TiO_2 ratio influenced the optical efficiency. Additional studies are planned to determine optimum ratios for cost-performance optimization of Asbestos "T" products. Comparative studies between commercially produced (King City Plant) Asbestos "T" and similar ratios of asbestos-TiO_2 added separately to the furnish, showed that retention and s were superior for the King City product. Mechanical shear, for all practical purposes, had no apparent effect on the retention or light scattering properties of Asbestos "T". A report suitable for publication in one of the Technical Journals on the superior light scattering properties of Asbestos "T" has been tentatively scheduled for completion by July 1, 1967. Such an article should prove beneficial in stimulating sales of this modified asbestos product.

In systems containing other fillers or pigments, the retention of asbestos has been observed to be dependent on the pH of the system. In a recent study, it was found that when other fillers were not present, the asbestos retention was unaffected by pH or pH controllers.

High Purity Asbestos treated with 2% CMC (sufficient to produce an electronegative surface charge) showed poorer results in retention, tear, and tensile when compared to untreated High Purity Asbestos-filled sheets.

Laboratory tests on asbestos-filled handsheets showed that a combination of PVP and PVM/MA imparts modest improvements in tensile (~10%) and significant improvements in fold (30 to 100%).

Exploratory tests on PCS-1709 (polyethylene latex) as a beater additive (50% loading) showed poor retention by use of alum alone. The handsheets containing PCS-1709 had slightly lower dry tensile but exhibited a 400% increase in wet tensile.

Successful mill trials employing Asbestos "T" were reported by P. H. Glatfelter and Beckett Paper Co.. The latest mill trial at P. H. Glatfelter was by mill personnel without the benefit of UCC Technical Service help. This is their first attempt at running a trial without our help, and they reported it was highly successful. The trial at Beckett demonstrated a savings of $4.80 per ton on a 70-lb. vellum opaque grade of paper.

Laboratory tests have shown that High Purity Asbestos will remove the brown coloring matter in the white water system at Western Kraft Co., Albany, Oregon mill. A recommendation was made to use 2% asbestos in the bottom liner to remove the coloring matter before it reaches the white water system of the white topliner. An additional 2% High Purity Asbestos was recommended for the topliner. This should result in a liner board of higher brightness.

Sample analyses were performed on three unattended (by Technical Service) mill trials. In addition, calls on four paper companies were made with Technical Sales representatives to assist in promoting asbestos.

The Annual TAPPI Convention was attended February 20-22 by Technical Services' personnel to assist in booth duties and to participate in technical discussions with customers.

G. L. Dickson

Plastic Applications

It has been demonstrated that chrysotile-filled polypropylene with additional stabilizer can be made to pass the oven aging test of better than 300 hours. The amount of additional stabilizer (8 phr) is too great to be economically feasible. Our efforts to produce stabilized polypropylene by treating the asbestos with tergitols, silanes, and silicones were all unsuccessful. It appears that the solution to incorporating High Purity Asbestos in polypropylene is to find a compatible stabilizer or to modify the asbestos to reduce its effect on the stabilizer. The latter plan is the route now being followed. A suitable thermal gravimetric procedure has now been developed that is satisfactory in determining oven stability of filled polypropylene samples.

Union Carbide trial exhibit UC-762: R. G. Woolery to Distribution List: Monthly Summary Report on Asbestos Resea... Published by AsbestosClaims.Law
ACL Doc 15988 · Page 3 of 6 asbestosclaims.law/library/15988/3

A series of vinyl, Styrene, C-11, and ABS were prepared containing modified asbestos products. Surfactant treatments resulted in no apparent advantages in mechanical properties as compared to RG-144. In ABS and C-11, improvements were observed in tensile strength, modulus, impact resistance, and heat distortion temperature in compounds containing RG-244.

R. E. Byrne

Asbestos Fiber Research

The surface properties of a suite of silicate minerals were studied by electrophoresis. All minerals were negatively charged in water, but two of the most electronegative, talc and wollastonite, showed the least detrimental effect on the thermal stability of polypropylene.

Chrysotile asbestos treated with PVP is slightly better dispersed in water slurries than untreated fiber. The effect is small, but the treatment is particularly desirable because the particles remain positively charged in the pH range 3 to 11.

The filtration rate of CMC-treated asbestos fibers was found to drop off rapidly when a loading of greater than 2% CMC (by weight of asbestos) is exceeded. This represents a correction of the 10% level reported last month. The 2% CMC level is in agreement with the viscosity data. Only viscosity is affected significantly up to the 2% CMC addition, and only the filtration rate is affected at higher quantities.

A plot of the viscosity data of unmodified asbestos vs. pH gives a parabolic shaped curve with an apex at pH 7~8.

The size distribution of well drilling grade barite as determined by the Anderson pipet, indicated an average diameter of 5 microns (surface area of $BaSO_4$ = 0.68 m^2/g.). The maximum amount of this $BaSO_4$ that could be co-flocculated with High Purity Asbestos is approximately 80 grams barite per gram of asbestos. CMC-treated asbestos had a capacity of only 10-15 grams of barite per gram of asbestos.

As a result of Mr. F. W. Bennet's studies showing High Purity Asbestos to be an effective media for anti-sieze compounds, three candidate products were submitted. In order to be effective, the products apparently must be free of chloride ions and the alkali metal ions. To meet the requirements, the three products were treated accordingly. One was a distilled water-washed product, the second, an NH_4OH-washed product (ion-free asbestos), and the third, a surfactant-treated product (a material originally developed for high-temperature greases).

Union Carbide trial exhibit UC-762: R. G. Woolery to Distribution List: Monthly Summary Report on Asbestos Resea... Published by AsbestosClaims.Law
ACL Doc 15988 · Page 4 of 6 asbestosclaims.law/library/15988/4

A report received from research being conducted at Alfred University has indicated that SG-244 has higher reinforcing properties in fireclay bodies than does High Purity Asbestos. SG-244 levels of 1 and 3% resulted in 100% increase in the modulus of rupture.

Asbestos Development

Pilot plant studies of RG-200 (silica-treated) production have shown that optimum quality can best be achieved by pH control of the acid and silicate additions rather than stoichiometric addition of these reagents. Pilot plant produced RG-244, in general, has a thixotropic efficiency in polyester resin of slightly better than twice that of Cab-O-Sil. Critical processing variables have been found to be filtration pressure (less than 50 psig is recommended) and extrusion energy. Laboratory methods of product evaluation have not yielded any reproducible process control test that correlates directly with the present method of the paraplex viscosity test. Various techniques are still being explored.

Attempts to pelletize the final product without affecting the quality have also proved unsuccessful.

R. G. Woolery

RGW/bsn

Union Carbide trial exhibit UC-762: R. G. Woolery to Distribution List: Monthly Summary Report on Asbestos Resea... Published by AsbestosClaims.Law
ACL Doc 15988 · Page 5 of 6 asbestosclaims.law/library/15988/5

DISTRIBUTION

BOUND BROOK

I. Allen
W. T. Higgins
W. Miller
P. E. Pratt
R. W. Quarles
N. L. Zutty

NEW YORK

F. D. Dexter
L. P. Jehle
A. E. Pufahl
N. J. Setter
L. Shecter
J. Sidlovsky
J. F. Voit
J. R. Wilkinson

SOUTH CHARLESTON

J. W. Biddle ✓
F. B. Brown
N. R. Eldred
R. I. Hoaglin
F. Johnson
C. S. Maxwell
C. W. McGary
J. J. Smith
F. J. Welch

TARRYTOWN

T. H. Welch

GENEVA, SWITZERLAND

T. J. Hall

KING CITY

J. A. Riddle

NIAGARA FALLS

R. E. Byrne
W. H. Blackwell
S. Chwastiak
G. L. Dickson
R. A. Hard
B. L. Ingalls
M. S. Kisiel
E. J. Markiewicz
K. Park
J. E. Skvarla
F. H. Thompson
R. G. Woolery

TONAWANDA

S. Sterman