Monsanto

FROM (NAME & LOCATION): A. W. Morgan - Galt 1730

DATE: October 3, 1979

SUBJECT: Hardie Trading Ltd. Visit

REFERENCE:

TO: C. N. Keeney
B3ND

CC:

M. W. Farrar	T3B
N. W. Touchette	1730
E. L. Kaiser	B3NA
D. G. Roberts	A2NB
J. H. Orem	1730
L. O. Raether	B3NB
R. M. Hickey	B3NA
F. Newstead	5020
T. C. Mathis	1730

Mr. John Moore, Adhesives Manager, Hardie Trading Ltd., 96 Bay Street, Botany N.S.W. 2019 Australia, visited with Donald G. Roberts (Monsanto International) at Galt on October 1, 1979. Present for Monsanto were A. W. Morgan, J. H. Orem and N. W. Touchette. Hardie Trading Ltd. is a conglomerate involving importing and merchandising, insulation and packaging (including PVC record pressing compound), industrial engineering (water softeners, boilers, etc.), paints, varnishes and cleaners, and various electrical and electronics materials including switches, plugs, connectors, etc.

Mr. Moore was interested in devising flame resistant hot melt adhesives for flame retardant building laminates. These laminates are a foil/kraft laminant laminated with hot melt to a glass fiber/foil composite. The current formulation is:

Cetyl and Microcrystaline Wax	2.5-5%
Chlorinated Paraffin as liquids at 52-70% Chlorination	25%
Ethylene vinyl acetate as Carbide 7917	7.5%
Antimony oxide	1%
Alumina trihydrate	5%
Calcium carbonate	42%
Misc. Antioxidants, filler, etc.	

The hot melt adhesive is extruded on a stainless belt and shipped in rolls. Performance characteristics include an open time of 10 seconds, heat stability of 145°C for 6 days, viscosity about 1,000 centipoise at 302°F and a "five" rating by revised Australian standard #A.30-1979. This is similar to the vertical burn test used in flammable fabrics. The five rating involves "speed factor" which involves the time out, degree of burn, char characteristics, etc. Mr. Moore also discussed a severe problem they have with sedimentation of the filler when the system is used for 2-side coating. This occurs because the hot adhesive is metered through a gear pump and obviously the high shear causes the material to quickly lose viscosity with subsequent precipitation of filler. This occurs primarily with alumina trihydrate in the formulation and is probably a particle size/material coating problem.

DSW 587066

It is felt that Mr. Moore is an interesting source for determining hot melt adhesives uses and technology in Australia. For his current problem it is suggested that some triphenyl phosphate, Santicizer® 154 with a 31F grade of carpet backing alumina trihydrate would probably work. In addition, some Santicizer 160 or Santicizer 261 might help with his dispersion question. In any event, use of these materials in place of the highly viscous chlorinated paraffins would allow an improvement in viscosity, pigment volume concentration, and the phosphate/ATH interaction should improve the char. Eventually some magnesium carbonate may also be used in place of his antioxidant. Hopefully, improvements of this type would allow the incorporation of enough filler to prevent major cost increases.

We will send recommended formulations to Frank Newstead in Melbourne by November 1. Mr. Moore left us samples of his material and promised to send samples of competitive composites as well as his normal composite.

Our biggest problem will be to maintain the proper heat stability with existing products. However, this particular concept should be of interest when one considers our long term opportunities in the hot melt adhesive area. Mr. Moore is a former chlorinated polyphenyl user and mentioned several times that no suitable replacement had been found for these chlorinated systems. He does not like resin systems because of their tendency to oxidize badly on heat storage. He mentioned specifically that they are evaluating Kraton rubber and may make a switch in the future. We will look at several of these areas as part of our growth commitment and hopefully will be able to learn additional facets of this area in subsequent contact with Mr. Moore. Please call if you have any questions.

A. W. Morgan

/vw

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