Monsanto

FROM (NAME—LOCATION—PHONE) C. M. Rector - Akron

DATE : October 2, 1979

SUBJECT : New Generation EVA Copolymers

REFERENCE :

TO : D. H. Paul - Galt

CC: B. R. Dolimount - Everett
C. N. Keeney- Galt
R. S. Koehne - B3NC
Bill May - Galt
J. H. Orem - Galt
N. W. Touchette - Galt
W. T. Vreeland - B3NC
E. C. Wilde - Akron

EVA copolymer emulsions have been a factor in the water base adhesive market for some years now. They are a particular threat to our plasticizer business in that the ethylene portion of the molecule acts as an internal plasticizer. In many cases, an unmodified EVA can directly replace a compounded homopolymer emulsion adhesive. While many EVA adhesives are plasticized, it is always with a lower plasticizer loading than in the equivalent homopolymer emulsion system.

The adhesive compounders prefer homopolymer emulsions for two (2) reasons. First, PVA's require various additives including plasticizers and allow the compounder "room" for value added based on his skill, knowledge, and experience. Second, many of the larger adhesive formulators are back integrated into homopolymer polymerization. These are low pressure systems and relatively inexpensive. The growing acceptance of copolymer adhesives thus threatens all compounders' value added margin and the capital that some have invested in polymerization capacity.

The two major general purpose copolymer emulsions for water base adhesives are DuPont's Elvace 1875 and Air Products' Airflex 400. They are generally interchangeable and presently priced at 30¢/Lb. General purpose homopolymers are at 23¢/Lb. This differential has generally been maintained for several years. It gives the compounder some latitude for compounding competitive homopolymer systems.

However, recently, DuPont and Air Products have introduced new, lower ethylene content copolymer emulsions; Elvace AM and Airflex 300. These are price at 26¢ and 25¢, respectively, and significantly tighten the differential with homopolymer emulsions.

We would suggest that these new copolymers be added to your multipolymer screening list.

Cle Rector

CMR:cm

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Adhesives

FROM
(NAME—LOCATION—PHONE) J. H. Orem - Galt Labs - 1730

DATE : January 15, 1980

SUBJECT : XA-2000 3M COMPANY

REFERENCE :

cc: G. R. Beck - E2NB
R. G. Ribaudo
N. W. Touchette

TO : A. W. Morgan

Jon Simpson telephoned on January 8 to explain his preliminary testing with XA-2000. He's evaluating as a contact adhesive and found that after the adhesive film is drawn down and becomes clear (dries) it loses its auto-adhesion property (that is, it will not stick to itself).

3M coats the adhesive on hard board (birch plywood) using a 20 mil draw-down bar. They air dry (75°F/50% RH) or force dry using a high intensity IR oven where the film is ca 200°F exiting the lamps. With air dry, the auto-adhesive property was gone in about 20 minutes.

On January 10, after speaking with you and Andy, I again spoke with Jon Simpson. Told him we found only 30 minutes auto-adhesion time in current (1/8/80) testing, that we reasoned the difference between last summer's work, where we had 105 minutes and now is the much lower RH in the lab at this time. He responded that RH is a problem that constantly frustrates adhesive development work. During this conversation, I advised Jon of Andy's observation that re-moistening the dried XA-2000 film reactivated its bonding ability and made auto-adhesion again possible. Also, I suggested steam may reactivate the dried film; he said he would study "misting" dried XA-2000 films.

I said XA-2000 appeared to be a construction, rather than contact, adhesive. Jon responded that 3M had a good water-based acrylic + tackifier construction adhesive; their interest/need is for a water-based contact adhesive.

In conclusion, I advised Jon we thought it would be possible to reformulate, using this basic system, and get a contact adhesive. But, it would not be possible to get to this until March or later. Explained our lab program as noted below:

1. complete single phase studies, XA-2000 type, by end January,
2. study dual-phase adhesives which should be completed in March,
3. reformulate to obtain contact adhesive properties which may be completed by April.

At the end of each segment, I would contact him to compare our results with 3M's evaluations. This is completely agreeable with Jon Simpson.

JHO/gls

J. H. Orem

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P.S. Found the following as a definition of contact adhesives. "Adhesive

applied to 2 substrates, dried and mated under only enough pressure to result in good contact. Bond is immediate and sufficiently strong to hold pieces together without further clamping, pressing, or airing." Neoprene is the most popular base because of early bond strength development, bonding range, high ultimate strength and creep resistance, adhesion to many surfaces, durability, flexibility, chemical resistance and resistance to burning.

JHO

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