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CHEMICALS AND PLASTICS • P. O. BOX 8361, SOUTH CHARLESTON, WEST VIRGINIA 25303

To (Name) Mr. M. Belanger, Montreal
Mr. C. H. Carder, 511
Mr. D. Hurwitz, Boston
Mr. J. L. Long, Tucker
~~Dr. D. L. MacPeek, 511~~
Mr. A. S. Manzella, Somerset
Mr. H. Mayfield, 511
Mr. R. C. Pierrehumbert, Garland
Mr. J. G. Ransom, Torrance
Mr. M. O. Robinson, Alsip
Mr. W. L. Woolwine, Garland

Date January 6, 1978

Originating Dept. Research and Development

Subject

PLAINTIFF'S EXHIBIT UC-1002

Gentlemen:

Recently I have had a number of requests for formulations containing various ingredients currently promoted for use in tape joint cements. A study containing a number of such ingredients has been recently completed.

A brief summary of this study is enclosed. Representative formulations evaluated are included. A formal report will be issued later. If you have any questions, please contact me.

Sincerely,

Dale

W. Dale Massey

WDM/sb

Attachment

A23453

TAPE JOINT CEMENT FORMULATION STUDY

A Summary

By

W. D. Massey

A23454

TAPE JOINT CEMENT FORMULATIONS

Summary

Several ingredients currently promoted for use in tape joint cements were evaluated in asbestos-free formulations. An experimental design with various glycols, thickeners, dispersants, micas, talcs and active clays as variables was used to minimize the number of formulations made and tested.

The variables chosen provide a large number of possible formulation combinations. Only 25 were made and evaluated. Data analysis establishes an order of influence for each variable on measured performance properties. For example, use of an active clay decreases workability, adhesion, and crack resistance. This method allows selection of ingredients within the design limits which maximize any desired performance property.

Variables and variable designations are shown in Table I. The experimental design is shown in Table II. Formulations were based on total solids. Latex solids in total formulation solids were set at 6.0%, dispersant solids at 0.33% and thickener solids at 0.67%. The remaining solids consisted of fillers.

Formulation filler levels chosen were 800 parts by weight of limestone, 90 parts mica, 200 parts talc and 20 parts active clay. Glycol level was 20 parts by weight in each formulation. It should be noted that zero levels of glycol, dispersant, mica, talc and active clay were chosen as variables. Hence, some formulations may not contain one or more of these ingredients.

Initially enough water was added to produce a 70% total solids formulation. If the initial viscosity was greater than 570 B.U., additional water was added to lower the viscosity.

Performance properties of the 25 formulations evaluated are summarized in Table III. The influences of variables on measured performance properties are shown in Table IV. Tables V-VIII show representative formulations. Table IX shows a combination of variables not included in the design and indicates how the design may be used.

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