JOHNS-MANVILLE RESEARCH AND ENGINEERING CENTER

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Title: IMPACT STRENGTH OF AMOSITE FIBERS IN ASBESTOS-CEMENT PRODUCTS - (Project No. 8354)

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A. C. SMITH
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SUMMARY

The feasibility of using amosite fibers in asbestos-cement pipe products as a substitute for Blue fiber has been described in Report 411-700. It was concluded that the potential utility of amosite was restricted to noncritical pipe products where production rate was of prime importance and where the flexural strength requirement was relatively low.

The purpose of this work was to study the impact strength of asbestos-cement products made from amosite-chrysotile blends compared with those prepared from Blue-chrysotile blends.

The willowed fiber blends tested included 10% Cape Blue - 90% Jeffrey 4T, 10% SK amosite - 90% Jeffrey 4T and 10% M amosite - 90% Jeffrey 4T. These were the same blend samples used in Report 411-700. Also included in this study were ball milled and willowed Jeffrey 4T. Test results are given in Table 1.

The fiber properties of all the blends were about the same except that the SK amosite blend had a much lower crudy content.

The results of the impact strength tests indicated that, at the 15 per cent fiber level, the Blue blend had the highest impact strength, the SK amosite blend had a somewhat lower value, and the M amosite blend had the lowest impact strength. All the blends, however, showed higher impact strength than comparable 100 per cent chrysotile samples.

It was concluded from these limited tests that the substitution of amosite for Blue fiber in pipe blends tends to increase the product brittlness. Hence any plant runs made using amosite should be carefully checked for this property. Secondly, the SK amosite appears to be somewhat better from an impact standpoint than M amosite although the SK grade is inferior from a flexural strength standpoint (Report 411-700).

Contents: Summary and Appendix (Table 1).

Reported by J. C. Shiuh
Asbestos Evaluation & Development Section

ehp
cc: K. V. Lindell, Asb 1500
J. E. Hesse, Mvl
D. Nowlin, Mvl
K. J. Whalen, Mvl

A. C. Smith
F. L. Pundsack (2+S)
J. H. Swensen
W. C. Streib
J. C. Shiuh
Library (3)
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