

H. K. PORTER COMPANY, INC.

CHARLOTTE, NORTH CAROLINA

PROJECT REPORT NO. 70-03-002

DATE March 12, 1970

ISSUE NO. 2

TITLE: Test Procedure for Lint-Free Asbestos Products

FOR: U. S. Navy - Naval Ships Engineering Center

REQUESTED BY: Management

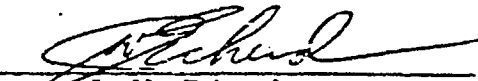
PURPOSE: To assimilate Navy rip-out procedures of asbestos products with the purpose of reducing airborne dust particles.

SUMMARY

Dust counts made during the assimilated rip-out process showed a large number of airborne dust particles (70.2 MPCF). This test was made using asbestos products with lint-free treatment. In an attempt to reduce the amount of airborne dust, a duplicate rip-out was performed with the asbestos products being subjected to steam prior to the actual rip-out. In the test neither the asbestos felt nor the pad that enclosed it had been given a lint-free treatment. The resulting dust counts showed an enormous reduction in the amount of airborne dust particles (1.77 MPCF). It is believed that this reduction is justification to conduct a similar test at a Naval Shipyard during a rip-out procedure aboard ship.

CONTENTS: Summary, Discussion, Conclusion

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DISCUSSION

The assimilated rip-out procedure was performed in an enclosed room of approximately 336 cu. feet. Two different rip-outs were made and the Midget Impinger Method was used to determine the amount of airborne dust particles.

Samples used in the first test were two asbestos pads made from 3260-M lint-free cloth. Each pad contained two layers of 1" knitted lint-free Portersite felt. The pads were laced with 1011/3 ply sewing thread and applied to 3-1/2" O. D. heavy wall steel pipe. Samples were 20" x 26" and 20" x 36".

Samples for second test were constructed in the same manner using untreated cloth and untreated woven Portersite felt. Sample size and method of applying to the pipe were the same as in the first test.

In an attempt to duplicate the conditions the pads would be exposed to in actual usage aboard ship, the inside of each pipe was heated with a welding torch to approximately 1000°F for 25 minutes. The first set of samples were placed on a special mount in the enclosed room and the pads were ripped from the pipe. Dust counts were made for ten minutes during the rip-out procedure. These counts showed an average of 70.2 MPCF, much too high for Navy standards.

Since the lint-free treatment did not prove effective in controlling airborne dust particles during rip-out, a different approach to the problem was taken. Using the second set of samples, live steam was forced into the pads for a two minute exposure prior to rip-out. Dust counts were taken again for ten minutes as the pads were ripped from the pipe. The resulting count showed the numbers of airborne dust particles reduced to 1.77 MPCF.

It is doubtful that any lint-free treatment will control dust as effectively during rip-out as the method of using live steam. If this method could be demonstrated to Navy personnel during a rip-out aboard ship, dust counts could be made that would fall within their standards.

CONCLUSION

Lint-free treatments on asbestos cloth and felt can be used to control dust during handling and installation, but loses its effectiveness after being exposed to high temperatures. By injecting steam into the asbestos pads prior to rip-out, airborne dust can be controlled to a degree that should be accepted by the Navy.