H. K. PORTER COMPANY, INC.

CHARLOTTE, NORTH CAROLINA

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ISSUE NO. 1

TITLE: Test Procedure for Lint-Free Asbestos Products

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

REQUESTED BY: Management

PURPOSE: To develope an effective method of testing lint controlled asbestos products vs non-treated asbestos products with the purpose of rewriting Military Specification ~~MIL-466E~~ SS-C-466E to include lint controlled products.

SUMMARY

Test results show a large decrease in airborne dust particles when our lint free treatments are used.

The tests were performed using a special vibrator machine similar to the one described in Military Specification MIL-1-15091C. Dust counts were made using the Midget Impinger Method.

Twenty and/or thirty minute tests were run on treated and untreated samples of Styles AG-110 Underwriters grade and 2225 AAA grade cloths. Lint-free Portersite was also tested against untreated woven Portersite. Lint-free products showed the following reduction in dust particles as compared to the corresponding untreated samples:

1. Twenty minute test:

   1.1 Style 2225 AAA ---------- 75%
   1.2 Style AG-110 ---------- 87%

2. Thirty minute test:

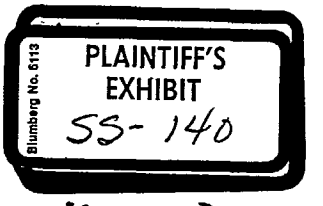
   2.1 Style 2225 AAA ---------- 43%
   2.2 Style AG-110 ---------- 50%

3. Thirty minute test:

   3.1 Knitted Portersite ---------- 69%

These tests indicate that this method may be used successfully to demonstrate the effectiveness of lint-free treatments.

CONTENTS: Summary, Discussion, Conclusion, Appendix



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APPENDIX

1. Twenty (20) Minute Test:

STYLE	SAMPLE SIZE INCHES	TREATMENT	MPCF
2225 AAA	11.75 x 12	L.F.	0.096
AG-110 Und.	11.75 x 12	L.F.	0.087
2225 AAA	11.75 x 12	Untreated	0.75
AG-110 Und.	11.75 x 12	Untreated	0.35

2. Thirty (30) Minute Test:

STYLE	SAMPLE SIZE INCHES	TREATMENT	MPCF
2225 AAA	11.75 x 16	L.F.	0.83
AG-110 Und.	11.75 x 16	L.F.	0.77
2225 AAA	11.75 x 16	Untreated	1.46
AG-110 Und.	11.75 x 16	Untreated	1.35

3. Thirty (30) Minute Test (Portersite):

STYLE	SAMPLE SIZE INCHES	TREATMENT	MPCF
Knitted	11.75 x 12	L.F.	0.20
Woven	11.75 x 12	Untreated	0.64

DISCUSSION

Preliminary tests involved the evaluation of several methods of shaking and striking the test samples with the percent loss calculated from sample weights. Since no two people would perform this type of physical tests identically, it was apparent that a mechanical vibrator would be necessary in order to duplicate results. Initial tests also indicated the"dust-counts" would be the preferred method to determine the effectiveness of the treated asbestos products.

The machine used for this test is a modification of the one described for the vibration test in Military Specification Mil-I-1509C - Insulation Felt, Thermal, Asbestos Fiber. The samples tested were vibrated at 700 vibrations per minute at a movement of one-half ($\frac{1}{2}$) inch in an enclosed box. The Midget Impinger method was used for dust counts, with the Impinger mounted inside the box which has an area of eight (8) cubic feet.

Initial tests were run on treated and untreated samples of styles AG-110 underwriters grade and 2225 AAA grade cloths for twenty (20) minutes. The tests were repeated on the same styles of cloth, using larger samples, for a period of thirty (30) minutes in order to obtain higher dust counts. Samples of both woven and knitted Portersite were also tested. Results of these tests are listed in the appendix.

CONCLUSION

Comparative results of the tests indicates that the lint-free treatment tends to lose some of its effectiveness as a dust control when the testing time is increased.

This proposed test method appears adequate for determination of the effectiveness of lint-free treatments on asbestos products.