Walker 27 V 3/23/18

June 16, 1970

Naval Ships Engineering Center
Code 6101
Hyattsville, Maryland

Attention: Mr. Leon Birnbaum

Gentlemen:

After extensive testing at our H. K. Porter Company, Inc., Thermoid Division, Charlotte, North Carolina plant for methods to control airborne dust released in the handlings of asbestos clothe, we propose that federal specification SS-C-466c be amended as follows:

Section 1.2.1, Form I-Cloth -

Add (Treated) To the following grades:

| | | | | |
|---|---|---|---|---|
| Grade U.C. | - 60 | Percent | asbestos, | blue stripe, Treated |
| Grade AA | - 90 | " | " | red stripe, Treated |
| Grade AAA | - 95 | " | " | green stripe, Treated |
| Grade AAA-W | - 95 | " | " | plain weave, wire insertion, no stripe, Treated |

3.8 Airborne dust and treatment there of - the water soluble treatment when applied to asbestos cloth (all styles) will reduce airborne dust by a minimum of fifty (50) percent when tested in accordance with Paragraph 4.4.1.8.

Paragraph 4.4.1.2 Asbestos Content - change to read as follows:

The asbestos content shall be determined in accordance with the method specified in ASTM D 1918, after removal of the water soluble treatment solids by an appropriate method such as boiling in water.

4.4.1.8 Airborne Asbestos Dust - The airborne asbestos dust shall be determined by the vibrator tester method in accordance with the following procedure.

Continued. . . .

4.4.1.8.1 SCOPE:

The test procedure is based upon a modification of the machine described for the vibration test in Military Specification MIL-I-15901C - Insulation Felt, Thermal, Asbestos Fiber. The vibrator is contained within an enclosed chamber which has a volume of eight cubic feet (2' x 2' x 2'). The sample to be tested is oscillated at 700 cycles per minute through a vertical movement of one-half inch. Dust sampling is made by the Midget Impinger Method with the Impinger mounted inside the enclosed chamber while the sample is vibrated. Air is pulled through the Impinger by a MSA Permissible Air Sampling Pump. The pump is connected to the Impinger inside the box by a length of rubber tubing which extends from an opening in the box. The sampling pump is calibrated to have a flow rate of one tenth cubic foot of air per minute. Sampling time is thirty minutes after which the Impinger and the sample are removed.

4.4.1.8.2 SAMPLING:

Obtain three samples from the test fabric. Each test specimen shall be twelve (12) inches. Caution must be exercised to avoid particle loss due to excessive handling.

4.4.1.8.3 EQUIPMENT:

Vibrator Tester
Stop Watch
MSA Sampling Pump, calibrated to a flow rate of 0.1 cubic feet per minute.
Midget Impingers
Sampling reagent (distilled water, isopropyl alcohol, etc.)
Microscope equipped with Whipple Disk reticle
Slides
Vacuum cleaner

4.4.1.8.4 PROCEDURE:

Mount test specimen on sample holder with filling yarns in a horizontal position.

Place Midget Impinger in special clamp mounted inside test chamber and connect with rubber hose to sampling pump outside.

Fasten door securely and start vibrator along with sampling pump and stop watch.

Continued. . . .

4.4.1.8.4 PROCEDURE - CONTINUED

Check sample for thirty minutes, turn off equipment and remove Impinger.

Remove sample and clean test chamber thoroughly with a vacuum cleaner prior to mounting new sample.

4.4.1.8.5 EVALUATION OF TEST DATA:*

Sampling evaluation is made after the dust particles have been counted from each Impinger used during the testing. This procedure is best performed by someone that is experienced in the Midget Impinger Method of counting dust particles.

The average number of dust particles found in five counts is used in the following formulation:

$$\frac{(\text{Avg. count} - \text{blank}) \times 4 \times 1000 \times \text{volume in ml. of Impinger reagent}}{\text{Impinger rating} \times \text{sampling time in minutes} \times 1{,}000{,}000}$$

The answer obtained from the formulation is expressed in million particles per cubic foot (MPPCF). After the dust particles have been calculated for all samples, obtain an average from the three samples that were taken from each fabric. This average can now be used as a comparison to show the amount of dust reduction or dust increase from one group of samples to another.

* Method For Determining Asbestos Dust Concentration Approved by the Asbestos Textile Institute October 4, 1965.

J. W. Echard
Director of R.& D.

JWE:etg

cc: Frank Williams