

Report of the Technical Committee of the Asbestos Textile Institute. Hotel

Warwick, Philadelphia, Pennsylvania. March 9, 1955.

By John D. McCluer, Chairman of Technical Committee.

The first item of business for the committee consisted of giving consideration to revising the tensile values in the standard ATI cloth list dated September 1952. The values originally set up in this list were realistic in 1952, but with the improved fiber situation today, realistic values would be somewhat better. At the December 1954 meeting, joint recommendation by Sales Promotion and Technical Committees was made that the Technical Committee undertake this revision. According, early in this year, questionnaires were sent to all member companies for their recommendations on revised tensiles which gave ample time for consideration prior to the meeting. During the meeting, recommendations from member companies were received and values set up for each cloth which met approval of both the Technical and Sales Promotion Committees. The foregoing consumed the morning session.

During the afternoon session, Mr. Frederick presented the data sent in to him by member companies on plain tape in sizes from 1/32" to 1/4" thickness. Full data on all these sizes and in the various widths has been accumulated which includes constructions and Ft/Lb. Considerable variation in construction exists between companies in some cases for the same size tape, but since each company prefers to make a tape by their preferred construction, it was thought best not to set up a uniform construction but rather to standardize on Ft./Lb. An average value for each size will be calculated from which it can be observed whether any individual values differ more than 7% or 10% from the average. Members were requested to send Mr. Frederick their recommended test procedures for tape.

The Braided Tubing Committee, headed by Mr. Oliver, has completed a summarization of all popular braids with exception of several missing items of data. This table gives construction and Ft/Lb. In instances where, for instance, a construction of a given size shows 2 ends up and 35 Ft/Lb. and another construction for same size shows 1 end up and 70 Ft/Lb., a double entry is being made for this. Uniform methods of testing have been agreed on by the committee.

Regarding cloths mentioned in Military and Federal Specs requiring after heat tensiles, to date no values have been adopted for lack of adequate information. This work will now be undertaken by members sending to Dr. Shaw current samples of cloths appearing in these specs for after heat tensiles at the temperatures prescribed in the specs.

In January of this year, a committee from the Institute met with the National Board of Fire Underwriters at the latter's suggestion. This Board is interested in having the Institute work out a simple method for testing the fabric portion of theatre curtains. The only method in existence now is one set up by the Bureau of Standards which is much too cumbersome for laboratories in general to use. This subject was brought to the attention of the Board of Governors Wednesday evening and the Board of Governors gave approval for Dr. Shaw to work in cooperation with the Technical Committee to work out the best test method.

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During the past quarter, a communication was received from the Wright Air Development Center requesting further information on Spec. SS-C-00466A as it pertains to tapes, thread and cloth thickness. Members were requested to send their recommendations to Dr. Shaw so that a response can be made to the Agency responsible for this spec.

On the subject of determining per cent dust in fiber, three reports have been submitted on the same fiber, a different method used in each case, but all were wet methods. K&M reported 24% dust - 100 mesh by the Clark Classifier method. J. M. reported 34% dust - 200 mesh by the McNett method. Southern reported 17% dust by a third method. The same fiber showed 7% dust by the Quebec Shaker Screen method. It is seen that there is from three to five times as much dust in fiber as generally thought. Mr. Tigert of Cassiar Asbestos Company who attended our meeting indicated that they had four methods in use for dust determination:

1. Quebec Shaker Screen Method
2. Rotap Method.
3. Suter Web Method all of which are dry methods.
4. The Bauer-McNett method, which is a wet method.

He indicated that this latter method is the one they use for the real control since it is the one that shows the highest per cent dust.

The Technical Committee wishes to thank Mr. Tigert for meeting with them and for his contributions to the meeting, all of which were much appreciated.

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## MINUTES OF THE MEETING OF THE TECHNICAL COMMITTEE OF THE ASBESTOS TEXTILE INSTITUTE AT HOTEL WARWICK, PHILADELPHIA, PENNSYLVANIA. MARCH 9, 1955.

### In Attendance:

SOUTHERN ASBESTOS CO.  
John D. McCluer, Chairman

RAYBESTOS MANHATTAN, INC.  
M. S. Maier  
M. W. Oliver

KEASBEY & MATTISON CO.  
R. L. Lanz  
C. R. Frederick

PHILADELPHIA TEXTILE INSTITUTE  
M. C. Shaw

AMERICAN ASBESTOS CO.  
E. C. Cutler

JOHNS-MANVILLE CORP.  
J. L. Tucker  
K. Q. Beyard  
E. Beale

CASSIAR ASBESTOS CO.  
T. T. Tigert

In view of the joint decision of the Sales Promotion and Technical Committees at the December meeting, a revision of the tensile values of ATI (no wire inserted) cloths was made during the forenoon session. The latest prior issue on this was September 1952 at a time when realistic values were low due to shortage of quality fiber. Questionnaires were mailed to members early in the year which enabled members to give sufficient consideration before the time of the meeting. After arriving at new values by the Technical Committee, the revised list was submitted to the Sales Promotion Committee for approval.

Data for plain tapes on constructions and Ft/Lb, fir suzes 1/32, 1/16, 1/8, 3/16" and 1/4" has been assembled showing some variation in Ft/Lb. among companies on some sizes due to variance in constructions. In order to present a useable table it was seen that it will be necessary to average Ft/Lb. for each given size and where individual companies vary more than 10% from the average, a double entry will have to be made to account for the variance in construction. This work is now in process. Members were requested to send to Mr. Frederick methods of testing plain tape.

The Braided Tubing project which has had the constant attention of the committee for the past four years is nearly complete and a table should be ready for presentation to the Sales Promotion Committee during the present quarter. This will include tubing of 1/32", 1/16", 1/8" and 3/32" together with tolerances and methods of measuring. This table should be ready for distribution to members in the near future.

Further on the subject of cloth, members were requested to review the several Military and Federal specifications and send to Dr. Shaw current samples of those cloths requiring an after heat tensile test.

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Set forth below are the 1952 values together with those set up at the present meeting.

| Weight<br>Lbs/sq.yd. | ATI<br>Style<br>No. | Sept. 1952 Values |      |       |     | March 9, 1955 Values |      |                    |               |
|----------------------|---------------------|-------------------|------|-------|-----|----------------------|------|--------------------|---------------|
|                      |                     | Com.              | Und. | A     | AA  | AAA                  | AAAA | Com.               | Und.          |
|                      |                     | W                 | F    | W     | F   | W                    | F    | W                  | F             |
| 1.00                 | 16P18               |                   | 60   | 22    |     |                      |      | 65                 | 25            |
| 1.05                 | 17P24               |                   | 55   | 50    |     |                      |      | 55                 | 50            |
| 1.25                 | 20P28               |                   | 80   | 35    |     |                      |      | 90                 | 40            |
| 1.30                 | 21P10G              |                   | 85   | 65    |     |                      |      | 35                 | 55            |
| 1.30                 | 21P14               |                   | 50   | 20    |     |                      |      | 55                 | 20            |
| 1.33                 | 21P10               | 40                | 33   |       |     |                      |      | 45                 | 35            |
| 1.35                 | 21P16               |                   |      |       |     |                      |      |                    |               |
| 1.40                 | 22P16               |                   | 75   | 35    |     |                      |      | 80                 | 40            |
| 1.40                 | 22P10G              | 90                | 65   |       |     |                      |      | 90                 | 60            |
| 1.40                 | 22P18               |                   | 80   | 25    |     |                      |      | 80                 | 40            |
| 1.45                 | 23P18               |                   | 65   | 45    |     |                      |      | 70                 | 50            |
| 1.50                 | 24P10               |                   | 45   | 37    |     |                      |      | 40                 | 40            |
| 1.50                 | 24P18               |                   | 85   | 45    |     |                      |      | 90                 | 45            |
| 1.65                 | 26P14               |                   | 65   | 55    |     |                      |      | 75                 | 70            |
| 1.75                 | 28P16               | 95                | 35   |       | 100 | 35                   |      | 95                 | 35            |
| 1.75                 | 28P18               |                   | 100  | 40    |     |                      |      | 105                | 45            |
| 1.80                 | 29P10               | 80                | 25   |       |     |                      |      | 80                 | 25            |
| 1.80                 | 29P14               | 90                | 35   |       | 90  | 35                   |      | 90                 | 35            |
| 2.10                 | 34P10               | 80                | 33   |       | 90  | 35                   |      | 90                 | 45            |
| 2.15                 | 34P12               | 95                | 40   |       |     |                      |      | 95                 | 40            |
| 2.25                 | 36P10               | 90                | 37   |       | 100 | 37                   |      | 95                 | 40            |
| 2.40                 | 38P12               |                   |      |       |     |                      |      | 110                | 45            |
| 2.45                 | 39P12               |                   |      |       |     |                      |      | 100                | 50            |
| 2.45                 | 39P12               |                   |      |       |     |                      |      | 110                | 40            |
| 2.50                 | 40P10               | 100               | 40   |       | 130 | 40                   |      | 120                | 35            |
| 2.50                 | 40H14               | 130               | 45   |       | 110 | 45                   |      | 140                | 65            |
| 3.00                 | 48P10               | 170               | 50   |       | 225 | 55                   |      | 170                | 50            |
| 3.00                 | 48P12               | 170               | 50   |       | 225 | 55                   |      | 170                | 50            |
| 3.33                 | 53P12               |                   |      |       | 170 | 50                   |      | 170                | 50            |
| 3.65                 | 58P12               |                   |      |       | 180 | 55                   |      | 180                | 55            |
| 3.70                 | 59P12               |                   |      |       | 215 | 65                   |      | 215                | 65            |
| 3.90                 | 62P12               |                   |      |       | 300 | 70                   |      | 350                | 90            |
| 4.75                 | 76P10DC             | 180               | 80   |       | 165 | 45                   |      | 165                | 45            |
| G                    | Glass Reinforced    |                   |      |       |     |                      |      |                    |               |
|                      |                     |                   | T    | Twill | P   | Plain Weave          |      |                    |               |
|                      |                     |                   |      |       |     |                      |      | D. C. Double Cloth | H Herringbone |
|                      |                     |                   |      |       |     |                      |      |                    |               |

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During the course of Dr. Shaw's fellowship work, he has noted some of the metallic cloths having no higher tensile retention than plain cloths (no wire inserted). In view of this, samples of any metallic cloths of current manufacture were requested so that he could re-check this on cloth which has not aged with time prior to the test.

As a result of a committee from the Institute meeting with the National Board of Fire Underwriters, the Technical Committee recommended and the Board of Governors approved of a project for Dr. Shaw to work in cooperation with members of the Technical Committee to work out a simple test for testing the fabric portion of theatre curtains.

The communication from Wright Air Development Center on Spec. SS-C-00466A was discussed and members were requested to send to Dr. Whaw the information requested.

On dust in fiber determination, Johns-Manville reported on the same sample of willowed 3R-34 fiber tested by the Bauer-McNett wet method showing 34% passing 200 mesh.

Mr. Tigert of Cassiar Asbestos Company reported that they used four methods, three of which are dry methods and one wet method which is the Bauer-McNett method.

The Technical Committee greatly appreciated Mr. Tigert's contributions to the meeting.

During the past quarter, a letter from Mr. Summers stated that, due to circumstances beyond control, it would be impossible for him to continue as chairman of the Cloth Committee. In view of this, Mr. Cutler has agreed to act as chairman of this committee for the balance of 1955.

John D. McCluer

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Table IV

Average - Pounds - Tensile Strength

|             | 26P14 |     |       | 36P10 |     |     |
|-------------|-------|-----|-------|-------|-----|-----|
|             | Und.  | AA  | Comm. | Und.  | AA  | AAA |
| As Received | 97    | 100 | 127   | 138   | 129 | 157 |
| 300         | 90    | 102 | 121   | 131   | 127 | 156 |
| 400         | 70    | 84  | 85    | 90    | 101 | 144 |
| 500         | 40    | 75  | 30    | 42    | 83  | 137 |
| 600         | 35    | 72  | 22    | 34    | 77  | 133 |
| 700         | 33    | 70  | 22    | 34    | 80  | 139 |
| 800         | 34    | 69  | 21    | 33    | 78  | 133 |

Table V

Percent Strength Retention

|     | 26P14 |     |       | 36P10 |    |       |
|-----|-------|-----|-------|-------|----|-------|
|     | Und.  | AA  | Comm. | Und.  | AA | AAA   |
| 300 | 94    | 101 | 95    | 96    | 98 | 100.0 |
| 400 | 72    | 84  | 66    | 65    | 81 | 92    |
| 500 | 39    | 74  | 23    | 31    | 64 | 87    |
| 600 | 35    | 72  | 17    | 25    | 60 | 84    |
| 700 | 34    | 70  | 16    | 24    | 62 | 88    |
| 800 | 35    | 68  | 16    | 23    | 60 | 84    |

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progressively decrease with increasing temperatures. Comparing the results for the Underwriters Grade in both styles, it will be seen that although the 36P10 has an "as received" value of 138 pounds compared to 97 pounds for 26P14, the same cloths at temperatures of 600°F and higher have resultant strengths that are very nearly the same. In the case of the Grade AA cloths, such equality has not been obtained under the conditions of this test but is being approached. However, if the same information is considered in terms of percent strength retention it will be observed that in all cases where a comparison is possible, the 26P14 style cloths exhibit superior qualities to the 36P10 cloths. This condition has been observed and pointed out in work previously reported by the writer.

It would therefore appear that perhaps it would be more logical, rather than attempt to establish strength retention characteristics at particular temperatures for a specific grade of cloth, to offer a tabulation such as is set forth in Table IV.

There are, no doubt, many applications in service where the tensile strength requirements are low and the strength retentions of an Underwriters cloth would satisfy the need. However, where strength requirements are of prime importance, such a tabulation will serve to indicate comparative properties in this respect. In this report the pertinent data is presented in terms of pounds tensile strength and percentage strength retention, however, it would seem that the actual strength values are more significant than the percentage retention values.

The equipment, methods of test and techniques involved in carrying out heat aging tests have been reasonably well standardized and accepted, however, unless the data so accumulated is properly and intelligently considered and presented in its proper perspective with regard to serviceability requirements the information may be highly misleading and confusing to those engineers and consumers who may be endeavoring to utilize asbestos textiles for specific services. The producing industry as represented by the Asbestos Textile Institute has the initial responsibility of determining and promoting that method of presentation which will most authoritatively present the true and factual picture which best portrays the elevated temperature history of all of the products of our industry.

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