

REPORT OF DUST STUDY IN ONE DEPT.  
OF GENERAL ASBESTOS AND RUBBER CO.  
PLANT AT NORTH CHAS., S.C.

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C O P Y



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In January and February of 1937, the U.S.P.H.S. made a dust study of the entire General Asbestos and Rubber Company Plant at North Charleston, S.C. At that time, exhaust equipment had not yet been installed (except on one machine) on the twisting and cop winding machines. Upon completion of exhaust equipment on twisting and cop winding machinery, the management of the plant requested the Industrial Hygiene Division of the S.C. State Board of Health to make a dust study on the new mechanism. This was done during the week of Nov. 1, 1937, as requested, using the procedure recommended by the U.S.P.H.S. employing the Greenburg-Smith Impinger in collecting the samples. The sampling solution was 25% grain alcohol. The results of the study, tabulated to show comparison with the unexhausted values previously obtained are as follows: (all figures in this report represent dust concentrations in millions of particles per cubic foot of air)

| Operation | Dust concentrations |                                                 |
|-----------|---------------------|-------------------------------------------------|
|           | Feb. 1937           | Nov. 1937                                       |
| Twisting  | 9.9                 | 5.2                                             |
|           | 2.5                 | 5.0                                             |
|           | 10.4                | 3.6                                             |
|           | 18.8                | 4.6                                             |
|           | 6.3                 | 2.0                                             |
|           | 18.0                | 2.6                                             |
|           | 18.0                | 5.2                                             |
|           | Avg. 11.0           | Avg. 4.0<br>64% decrease from<br>previous value |

| Operation   | Dust concentrations |                                                 |
|-------------|---------------------|-------------------------------------------------|
|             | Feb. 1937           | Nov. 1937                                       |
| Cop winding | 2.3                 | 2.8                                             |
|             | 11.5                | 3.9                                             |
|             | 11.5                | 2.5                                             |
|             | Avg. 6.9            | Avg. 3.1<br>55% decrease from<br>previous value |

Samples taken on the ring spinning machines during the previous study gave rather high values. It was suspected that these high counts were due to the twisting machines nearby, rather than to the ring spinning operation. The ring spinning was checked and such was found to be the case. Figures below show the comparison:

| Operation     | Dust concentrations |                                                 |
|---------------|---------------------|-------------------------------------------------|
|               | Feb. 1937           | Nov. 1937                                       |
| Ring spinning | 6.0                 | 3.2                                             |
|               | .8                  | 3.2                                             |
|               | 8.1                 |                                                 |
|               | Avg. 5.0            | Avg. 3.2<br>36% decrease from<br>previous value |

The department studied also contains the universal winding machines which are productive of only a very low concentration of dust (2.6 avg. from the February study). Due to the low figure previously obtained and the fact that the universal winders were not being operated to any extent at all during the November study, no check was run on the winding machines. The dust concentrations from these machines would, therefore, not tend to raise those around the other machines in the department but would rather be affected themselves as in the case of the ring spinning operation.

The department averages for twisting, cop winding and ring spinning compared as follows:

| Operation     | Dust concentrations (avgs.) |                                            |
|---------------|-----------------------------|--------------------------------------------|
|               | Feb. 1937                   | Nov. 1937                                  |
| Twisting      | 11.0                        | 4.0                                        |
| Cop winding   | 6.9                         | 3.1                                        |
| Ring spinning | 5.0                         | 3.2                                        |
| Dept. Avg.    | 7.6                         | 3.4<br>54% decrease from<br>previous value |

Conclusions

From information in the literature available today and present day knowledge of asbestos and its processing it is concluded, in the light of the figures obtained in this study, that as long as the present control equipment is maintained in the condition it was in during the time the study was made, dust concentrations in the department studied will be below that minimum necessary to cause asbestosis in the workers.

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