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BRAKE EMISSIONS: EMISSION MEASUREMENTS FROM BRAKE AND CLUTCH LININGS FROM SELECTED MOBILE SOURCES

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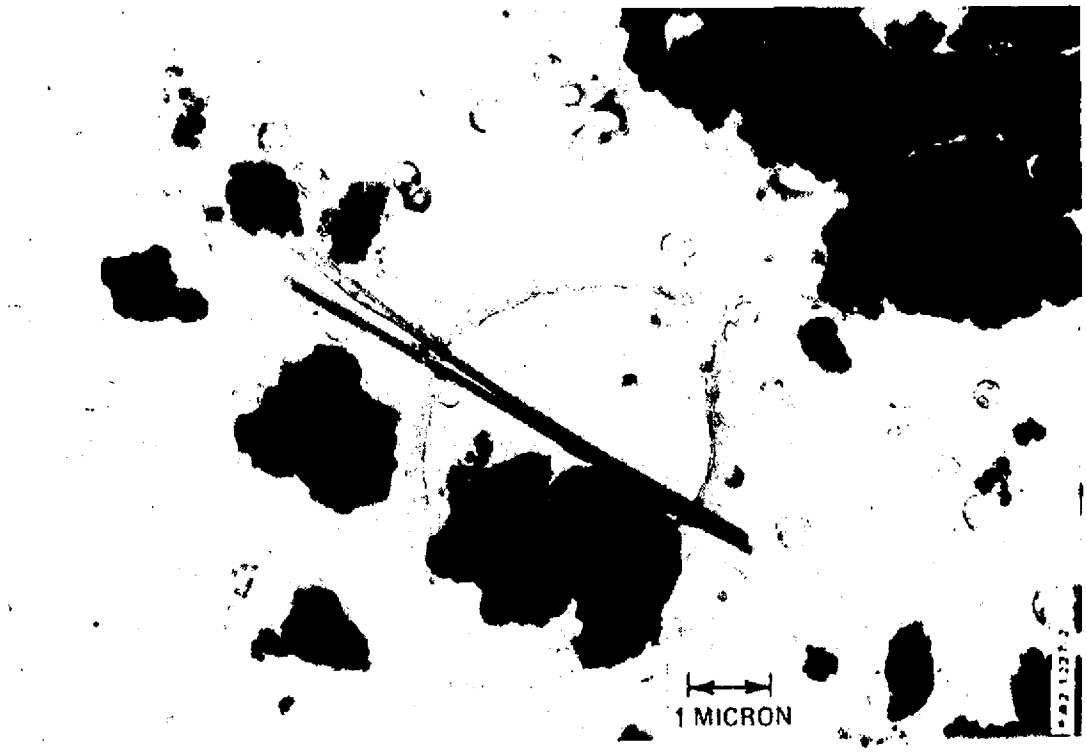


Figure 8-11 - Asbestos Fiber in Brake Emission

These values are given in Figure 8-13. Then it is necessary to multiply the number of fibers given in each box in Figure 8-12 by the volume given for the corresponding box as shown in Figure 8-13.

The typical microscopy count shown in Figure 8-12 is used to calculate asbestos content in the following manner. The fibers of each group are totaled as shown in Table 8-5. The total number of fibers per group (n) is then multiplied by the average volume per group ($\bar{V}$) to obtain the product ($n \times \bar{V}$). All products are then totalled to arrive at the total volume of asbestos detected.

Since only a fraction of the total area is actually scanned, the volume observed must be normalized to the entire area containing wear debris:

$$\text{Total Fiber Volume (by EM or OM)} = \text{Volume obtained (cc)} \times \frac{\text{Total Area of Filter}}{(\text{No. of Fields Counted}) \times (\text{Area of a Field})}$$

$$= \Sigma\,(n \times \bar{V}) \times \frac{990\ \text{mm}^2}{\Sigma F \times (\text{Area of Field})}$$

Table 10-13 - Asbestos Content of Automotive Friction Materials

Vehicle and Brake Type	Average Percent Asbestos Content by Weight*
Passenger Cars	
Drum Linings	68 ± 5
Disc Pads	60 ± 5
Truck Segments	55 ± 5
Clutch Facings	50 ± 5
"Average composition" for use in the calculations in this report.	60

*Sources Estimates made for this study.

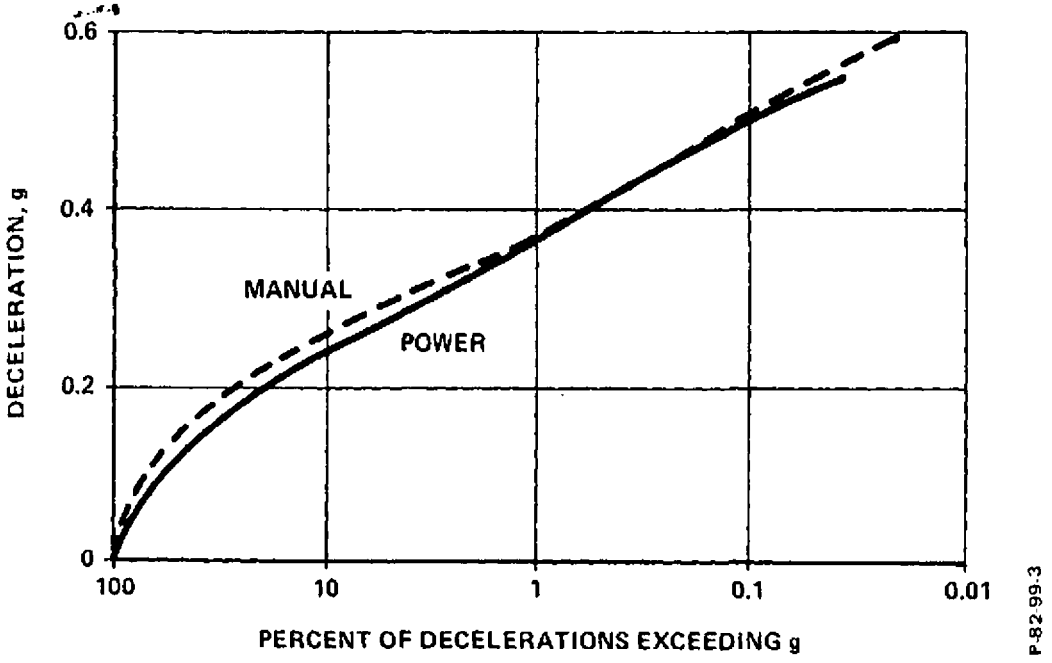


Figure 10-1 - Frequency Distribution of Braking Decelerations