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NO: 5

THE PROBLEM OF DUST

IN

ASBESTOS PREPARATION

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Chapter 5

DUST CONTROL IN AN ASBESTOS MILL.

From a milling point of view, the more rapid the movement of material through the mill circuit, the greater the tonnage of ore that can be handled. From the standpoint of dust control, the less movement the better. It therefore, follows that a compromise between these two points of view must be reached. It being accepted that dust generation is unavoidable and that dust produced must be controlled, the methods used to control it must not interfere with methods of production more than is absolutely necessary.

Broadly speaking, dust control methods consist of breaking or cushioning the fall of material wherever possible, and enclosing the various processes. Here again, compromise is necessary in the interests of maintenance and inspection. Direct air suction from canopy hoods is used over those sections which cannot be enclosed.

The essential points to be noted in connection with the control of dust are enumerated hereunder:-

1. The exhaust system must be designed on the basis of conveying velocity applicable to the material to be conveyed. It must also be designed to conform, as far as practicable, with the laws of air flow. A poorly designed system will render even the most elaborate enclosure only partially effective.

2. The source of dust generation must be enclosed as far as may be practicable.

3. Where enclosure is not practicable, a suction hood should be located and constructed in such a manner that full advantage is taken of the direction and speed imparted to the dust particles by the operation generating them.

4. The maximum area of exhaust hoods should not be more than 16 times the area of the exhaust pipe to which they are connected.

5. A suction point on an enclosure, should be located so that the fine dust can reach it by the shortest possible path under the conditions obtaining, and be far enough away from bouncing particles of coarse dust to minimise or prevent their entry into the zone of high velocity in the pipe connected to the hood.

6. The exhaust volume must be sufficient to keep an in-draft through all openings in the enclosures, and to maintain a slight negative pressure.

7. The fall of material at transfer points should be broken by reducing the angle of the chute before the material is discharged. This may also be achieved by means of the ordinary zig-zag type of chute.

8. The rapid decrease in velocity below a hood must be taken into consideration.

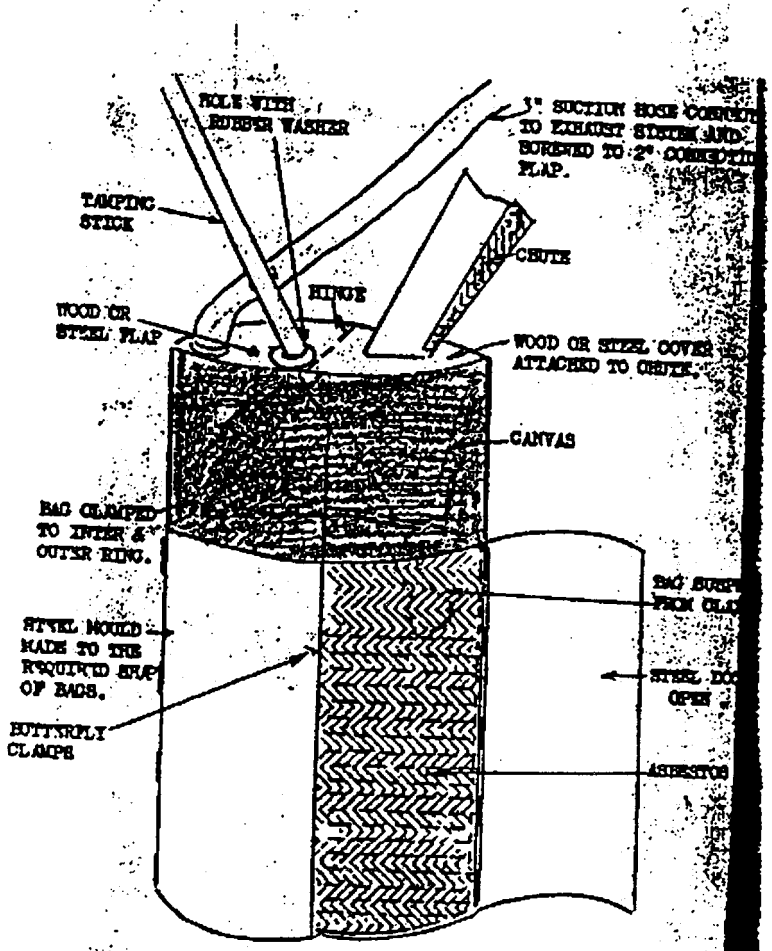
For example, if the velocity at the face of a circular hood 18" in diameter was 700 ft/min, the velocity 9" away from it would be only 175 ft/min. Refer Fig. 6

9. The greater the length of a suction hood, the greater its effectiveness as a classifier. A 30° included angle will be found suitable. This permits a gradual increase from face velocity to pipe velocity in conjunction with a reasonably low co-efficient of entry to the system.

Canopy hoods [illegible] require a relatively large included angle

FIG 18

COVER FOR USE WHEN FILLING BAGS BY HAND TAMPING THE ASBESTOS.



Note: [illegible] this operation is performed by a machine [illegible] the asbestos into the bag automatically, [illegible]