Dust particles in samples taken during the operation of Universal grinders have these characteristics (Continued):

Material Being Ground	Size of Wheel	Type of Wheel	Characteristics of Dust Particles. (Sizes and Percentages Estimated)
Hardened Carbonated Steel (Pipe Grip for Pipe Machine)	1/2" x 5"	Alundum (3846 J 5B)	About 30% angular crystalline, about 2 microns or less in size; 70% round black opaque, less than 1 micron in size. Numerous black specks too small to count. Several large oblong black opaque particles about 20 microns wide and 35 or 40 microns long.
Case Hardened Steel (Plungers for Filling Machine)	2" x 3-1/2"	Aloxite (Grit 401-P-25 Type 12)	All particles black opaque, 1 micron or less in size.

E - SURFACE GRINDERS: Surface grinders are used almost exclusively on valves and dies. They are equipped with either 1/2" x 8" Norton Alundum (1946H) wheels or 1/2" x 4" to 6" Carborundum (Aloxite) wheels. No dust collectors are provided, the dust being thrown out into the atmosphere. Samples taken during the operation of surface grinders had the following dust concentration (10 microns or less):

Operation	Particles per cu. ft.
Grinding Soft Cast Steel Valve on 1/2" x 6" Carborundum Aloxite Wheel.....	566,400
" Tool Steel Die on 1/2" x 8" Alundum (1946H) Wheel.....	1,019,520
Dressing Surface of 1/2" x 8" Alundum Wheel with a "Diamond Point".....	1,132,800

About 70% of the particles from grinding the steel die were metallic, 3 microns or less, whereas 98% of the particles from grinding the soft steel valve were metallic. Many of the particles were too small to identify or count accurately.

F - LANDIS TOOL GRINDERS: Landis tool grinders are usually equipped with two different types of wheels, one for side grinding and the other the ordinary type. 1-1/2" x 12" Carborundum Aloxite (Grit 40, Grade H, Bond 33) is used for general purpose grinding such as bull chisels, diamond points, cold chisels, flanges and scrappers. The Side Grinding Type is usually a 2-1/2" x 1-1/2" x 12" Grit 46A-P P678 Aloxite brand AA wheel used for grinding Landis dies. At one plant the wheels of the Landis tool grinder are enclosed by hoods at the rear of each of which is attached a two-inch pipe connected to a three-inch pipe which discharges into a sewer. Suction is induced by a stream of compressed air from a half-inch pipe inserted in the two-inch pipe just back of the hand. This arrangement acts as a syphon and pulls the dust away from the person using the grinder. Samples taken during the operation of Landis tool grinders had dust concentrations as follows: