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Table 94. DUST AND FUME DISCHARGE FROM ASPHALT BATCH

Test No.	C-426		C-537	
Batch plant data				
Mixer capacity, lb	6,000		6,000	
Process weight, lb/hr	364,000		346,000	
Drier fuel	Oil, PS300		Oil, PS300	
Type of mix	City street, surface		Highway, surface	
Aggregate feed to drier, wt %				
+10 mesh	70.8		68.1	
-10 to +100 mesh	24.7		28.9	
-100 to +200 mesh	1.7		1.4	
-200 mesh	2.8		1.6	
Dust and fume data	Vent line[a]	Drier	Vent line[a]	Drier
Gas volume, scfm	2,800	21,000	3,715	22,050
Gas temperature, °F	215	180	200	430
Dust loading, lb/hr	2,000	6,700	740	4,720
Dust loading, grains/scf	81.8	37.2	23.29	24.98
Sieve analysis of dust, wt %				
+100 mesh	4.3	17.0	0.5	18.9
-100 to +200 mesh	6.5	25.2	4.6	32.2
-200 mesh	89.2	57.8	94.9	48.9
Particle size of -200 mesh				
0 to 5 μ, wt %	19.3	10.1	18.8	9.2
5 to 10 μ, wt %	20.4	11.0	27.6	12.3
10 to 20 μ, wt %	21.0	11.0	40.4	22.7
20 to 50 μ, wt %	25.1	21.4	12.1	49.3
> 50 μ, wt %	14.2	46.5	1.1	6.5

[a] Vent line serves hot elevator, screens, bin, weigh hopper, and mixer.

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Drier dust emissions increase with air mass velocity, increasing rate of rotation, and feed rate, but are independent of drier slope (Friedman and Marshall, 1949). Particle size distribution of the drier feed has an appreciable effect on the discharge of dust. Tests show that about 55 percent of the minus 200-mesh fraction in the drier feed can be lost in processing. The dust emissions from the secondary sources vary with the amount of fine material in the feed and the mechanical condition of the equipment. Table 94 and Figure 222 give results of source tests of two typical plants. Particle size of the dust emissions and of the aggregate feed to the drier are also shown.

HOODING AND VENTILATION REQUIREMENTS

Dust pickup must be provided at all the sources of dust discharge. Total ventilation requirements vary according to the size of the plant. For a 6,000-pound-per-batch plant, 22,000 scfm is typical, of which 18,000 to 19,000 scfm is allotted for use in controlling the drier emissions. The top end of the drier must be closely hooded to provide for exhaust of the products of combustion and entrained dust. A ring-type hood located between the stationary portion of the burner housing and the drier proper [illegible] end of the drier. An indraft velocity of 200 fpm should be provided at the annular opening between the circumference of the drier and the ring-type hood.

The secondary dust sources, that is, the elevator, vibrating screens, hot aggregate bins, weigh hopper, and mixer, are all totally enclosed, and hence, no separate hooding is required. Dust collection is provided by connecting this equipment through branch ducting to the main exhaust system. Approximately 3,000 to 3,500 scfm will adequately ventilate these secondary sources.

AIR POLLUTION CONTROL EQUIPMENT

Primary dust collection equipment usually consists of a cyclone. Twin or multiple cyclones are also used. The catch of the primary dust collector is returned to the hot bucket elevator where it comes in contact with the main bulk of the drier aggregate. The air discharge from the primary dust collector is ducted to the final dust collection system.

Two principal types of final control equipment have evolved from the many types employed over the [illegible]