

TECHNICAL BULLETIN



Subject:

Typical Dust Emissions from Purge Central Vac

Bulletin #: **116829** Rev: **B** Created by: **RZV** Date: **2018-02-16**

Task # **56806** Production: - Service: - Sales: X
Product Lines: Transportation Equipment: - Agri-vac/Pneumatic Equipment: X

This technical bulletin details typical dust accumulation and emission of a purge style Walinga Central-Vac. The mass of dust accumulation over a one hour period, under typical operating conditions (5 tonnes per hour conveying rate) are as follows:

- Average of 0.157 lbs of dust is removed from each filter between purge cycles (every two minutes).
- Average dust removed from four filters between purge cycles (every two minutes) is 0.627 lbs
- The filters hold onto 1.45 lbs each of dust during regular operation
- Total dust weight gained for all four filters is 5.8 lbs

The filters (spunbound polyester) have the following efficiency:

- 98.91% @ 0.5 micron
- 99.35% @ 1 micron
- 100% @ 2 micron and larger

Particle size distribution of wheat dust is as follows:

Micron	Particle Size Distribution
< 5.04	88.7%
2.00-5.04	9.9%
2.00-2.52	1.5%
2.52-3.17	1.9%
3.17-4.00	2.7%
4.00-5.04	3.8%
< 2.00	1.3%
1.59-2.00	1.3%

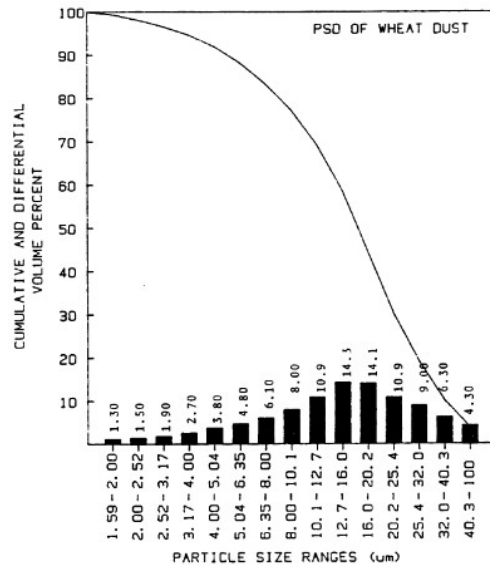


FIGURE 5. Differential and cumulative histograms for the particle size distribution of wheat <100 µm.

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Using the details found above, the dust emissions can be calculated as follows:

0-2 micron	
98.91%	efficiency
Dust Emissions	
.0032	lbs/hr
1.441	gram/hr

2-5 micron	
99.35%	efficiency
Dust Emissions	
.0019	lbs/hr
0.859	gram/hr

At 5 tonnes per hour conveying rate the volume of dust being emitted into the atmosphere, or into the facility if the unit is installed inside, is 2.3 grams per hour. This is within the parameters stated in NFPA 61, Chapter 5.2.1, which states that the emission must be less than 0.02 grams/cubic meter of air into a building (which is equivalent to 12 g/hour in this application).