SERIES PMT2 | DUST CONCENTRATION CORRELATION & AIR VELOCITY TEST RESULTS

PURPOSE

Dwyer Instruments, Inc. had the PMT2 independently tested to establish correlation between the PMT2 milliamp output and dust concentration in milligrams per cubic meter, as well as the effects of air velocity on the PMT2 probe.

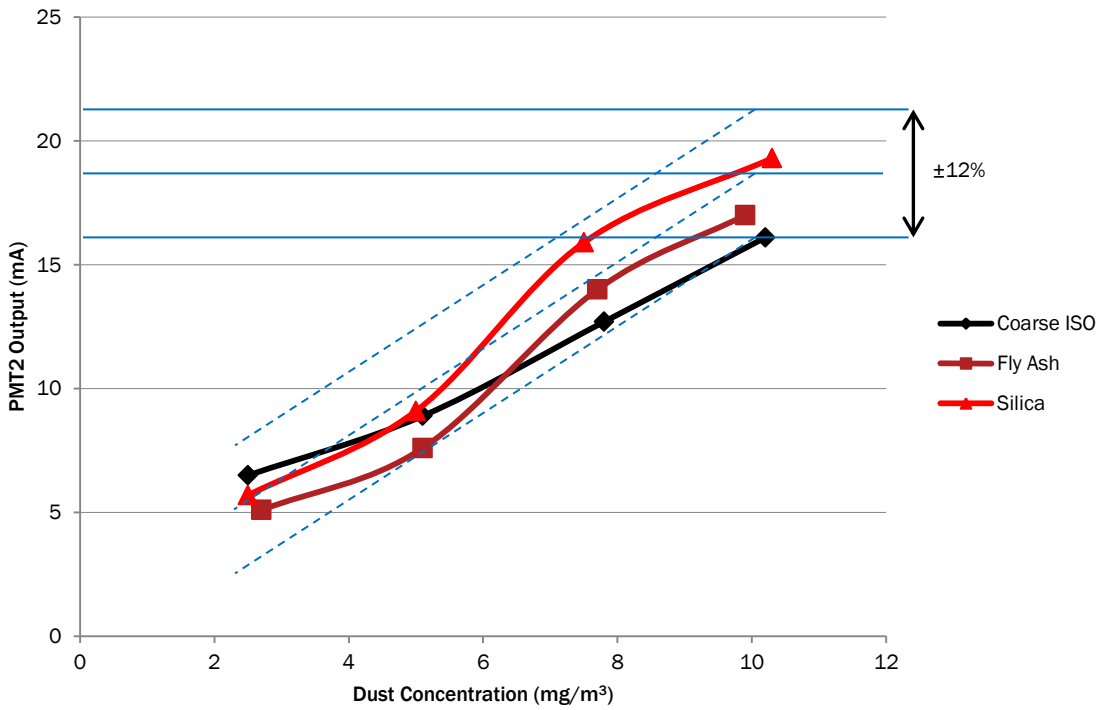
DUST CONCENTRATION CORRELATION

The PMT2 responds with reasonable correlation (±12%) when particle size is greater than 33 micrometers. This was the median diameter of the course ISO test dust, and this size also includes the fly ash and silica that was tested. For these and similar materials and sizes, the concentration can be estimated as 0.55 mg/m3 per milliamp of output from the PMT2, when set to range 4 (5 to 500 pA), over the range of 2 to 10 mg/m3 with flow rates below 300 ACFM.

The PMT2 showed significantly lower outputs for fine ISO test dust, with median particle size of approximately 8 micrometers, relative to the other materials. The PMT2 should be calibrated in the application at a constant flow rate to achieve an accurate concentration correlation.

Note: All data in Figure 1 was gathered on range 4 (5 to 500 pA).

Figure 1: Dust Concentration Correlation



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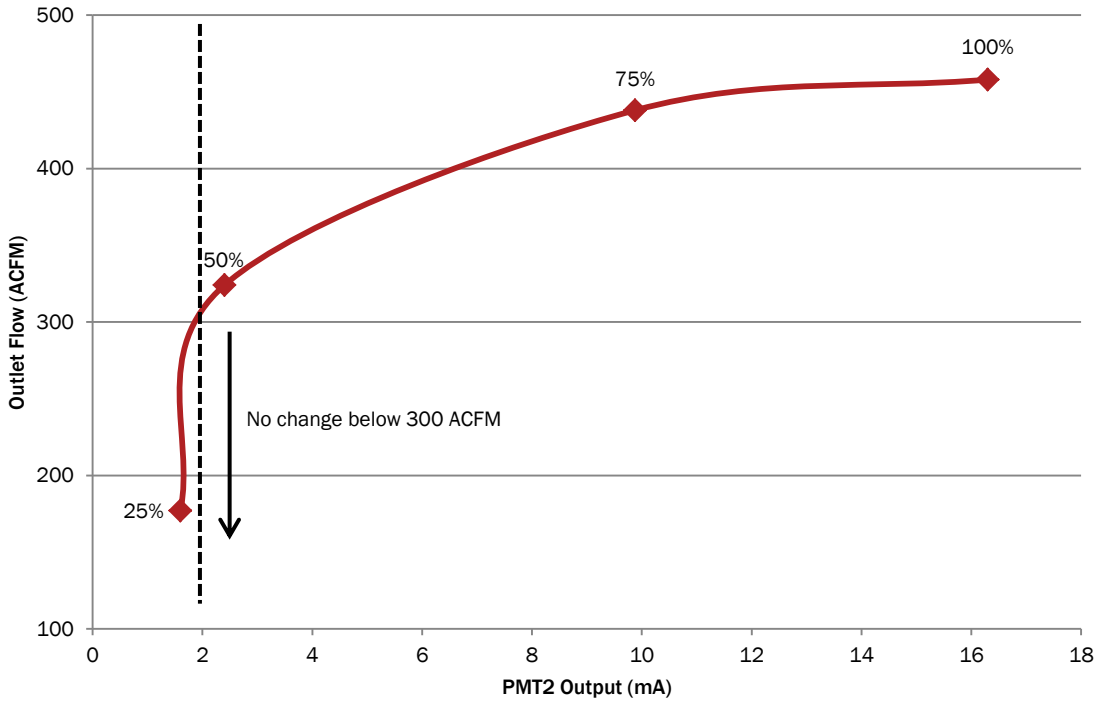
AIR VELOCITY

The accuracy of the PMT2 varies little with velocity when flow rates are below ACFM, as shown in Figure 2.

Note: All data in Figure 2 was gathered on range setting 3 (5 to 100 pA).

Figure 2: Effects of Air Velocity



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