




# MILWAUKEE TOOL

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To Whom It May Concern,

Milwaukee®, in partnership with Industrial Hygiene Sciences, LLC, has conducted testing on the Milwaukee M18™ FUEL™ 6 Gallon Wet/Dry Vacuum (0910-20) with HEPA filter (49-90-1977) paired with the M18 FUEL™ 1" SDS Plus D-Handle Rotary Hammer (2713-20), SDS Plus 5/8" X 8" 2-Cutter Carbide Tip Bit (48-20-7602), and the M18 FUEL™ HAMMERVAC™ 1-1/4" Dedicated Dust Extractor. Results show that the user will be below the Permissible Exposure Limit (PEL) as described by OSHA 29 CFR 1926.1153 when using the above combination, assuming it is used in accordance with manufacturer’s instructions. Testing results and procedures are outlined below:

Unit Tested	Average # of Holes Drilled	Average Sample Duration	% Silica (Quartz) in Sample	Average Respirable Crystalline Silica Concentration (µg/m³)	OSHA PEL in 1926.1153 (µg/m³)
	30	60 minutes	N/A	< 2.53 µg/m³ TWA	50 µg/m³

<: Less than. The analyte, if present, is at a level too low to be accurately quantified by the method used. The actual amount in the sample is less than the reported value.

N/A= Not available. The percent silica could not be quantified as the weight gain on the filter was too low.

- All drilling was performed using a Milwaukee M18™ FUEL™ 6 Gallon Wet/Dry Vacuum (0910-20) paired with the M18 FUEL™ 1" SDS Plus D-Handle Rotary Hammer (2713-20), SDS Plus 5/8" X 8" 2-Cutter Carbide Tip Bit (48-20-7602), and the M18 FUEL™ HAMMERVAC™ 1-1/4" Dedicated Dust Extractor
- In each trial, 30 four-inch holes were drilled overhead to a 4' X 4' X 8" concrete block mounted in a fixture.
- The concrete blocks were poured from a 5000 PSI concrete mix.
- There was no filter cleaning or emptying the tank during the trial.
- A new HEPA filter and clean tank were used for each trial.
- The vacuum was turned to low speed.
- The trials were performed in an enclosure with no outside air ventilation. Ambient air cleaner with HEPA filtration was used between each trial.
- Samples were collected on 3-piece 37 mm diameter preweighed PVC filter mounted in a BGI GK2.69 respirable dust sampler, run at 4.2 lpm and connected to a GilAir Plus air sampling pump. The flow rate through the sampling train was measured using a TSI 4146 Calibrator before and after each Trial. A field blank was submitted with each day’s set of samples.
- Samples were analyzed using OSHA ID-142 by the Wisconsin Occupational Health Laboratory, an AIHA Accredited laboratory. The sampling method used meets the definition of respirable crystalline silica in 1926.1153 (a) and Appendix A of the OSHA Respirable Crystalline Silica Standard (1926.1153).
- The Time Weighted Average (TWA) was calculated assuming zero exposure to respirable crystalline silica for the non-sampled portion of a 480 minutes (8 hour) shift. Longer exposure times, assuming that the dust exposures would be similar to those collected in these trials, would likely result in higher TWAs. Factors, including, but not limited to, the ventilation and air flow patterns in the space where the work is done, how the tool is used, how sharp the blade is, the user’s technique, the silica content of the cement board, how many cuts are made, the presence of other respirable silica dust generating activities in the area, and vacuum maintenance could affect actual user exposures.

\*A 5/8" X 8" SDS Plus 2-Cutter Carbide Tip bit reflects the dust generating application used in this test, the table below suggest other bit sizes, based on volume of dust, would also be compliant when using the Milwaukee M18™ FUEL™ 6 Gallon Wet/Dry Vacuum.

Details on how to properly implement as a part of a complete exposure plan are outlined below\*:

### Maximum Number of Holes per Day\*\*

#### Hole Diameter

Hole Depth	7/16"	½"	9/16"	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"
1"	4,824	3,693	2,918	2,364	1,641	1,206	923	729	591
1.5"	3,216	2,462	1,945	1,576	1,094	804	615	486	394
2"	2,412	1,846	1,459	1,182	820	603	461	364	295
2.5"	1,929	1,477	1,167	945	656	482	369	291	236
3"	1,608	1,231	972	788	547	402	307	243	197
3.5"	1,378	1,055	833	675	469	344	263	208	168
4"	1,206	923	729	591	410	301	230	182	147
5"	964	738	583	472	328	241	184	145	118
6"	804	615	486	394	273	201	153	121	98
7"	689	527	416	337	234	172	131	104	84
8"	603	461	364	295	205	150	115	91	73
9"	536	410	324	262	182	134	102	81	65
10"	482	369	291	236	164	120	92	72	59

\*These calculations are offered for reference and are calculated values based on previously recorded test data and represent a full workday of the tested application

\*\* The user must drill the same number or fewer holes than those listed above for the given application in order to be considered compliant with the objective data clause of 29 CFR 1926.1153 OSHA regulation on crystalline silica dust.

It is the responsibility of the user to operate the tool in accordance with manufacturer's instructions. For the latest listings of approvals, visit [milwaukeetool.com](http://milwaukeetool.com). For technical or service assistance, contact Milwaukee Customer Service at 1-800-729-3878.