



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™ 2 Gallon Wet/Dry Vacuum (0880-20) paired with the M18 FUEL™ 1-3/4” SDS MAX Rotary Hammer (2718-20), 1-1/4” X 15” SDS MAX Four Cutter Carbide Tip Bit (48-20-3970), and SDS MAX Dust extractor (5317-DE). 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	Number of Holes Drilled	Average Sample Duration	% Silica (Quartz) in Sample	Average Respirable Crystalline Silica Concentration (µg/m³)	OSHA PEL in 1926.1153
	9	60 mins	10.15%	7.95 µg/m³ TWA	50 µg/m³

- All drilling was performed using a Milwaukee M18™ 2 Gallon Wet/Dry Vacuum (0880-20) paired with the M18 FUEL™ SDS Max Rotary Hammer (2718-20), 1-1/4” X 15” SDS MAX Four Cutter Carbide Tip Bit (48-20-3970), and SDS MAX Dust Extractor (5317-DE).
- The drilling was completed horizontally to a 4’ X 4’ X 8” mounted concrete block. The holes were drilled to the full depth of the block.
- The HEPA filter was knocked out into a garbage can after every two holes drilled and the vacuum box was emptied after the sixth hole was drilled.
- A new HEPA filter and clean box were used for each trial.
- Work was performed in an enclosure with no outside ventilation. The room was aired out with a fan after 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 dull the bit is, how flat the concrete surface is, the condition of the shroud, how well the shroud adheres to the concrete surface, the silica content of the concrete, the presence of other respirable silica dust generating activities in the area, how often the user knocks collected dust from the HEPA filter, how aggressively the HEPA filter is knocked off, how often the vacuum box is dumped and where the filter cleaning is done could affect actual user exposures.

*A 1-1/4" X 15" SDS MAX Four Cutter Carbide Tip Bit reflects the dust generating application used in this test. The table below suggests other bit sizes, based on volume of dust, would also be compliant when using the Milwaukee M18™ 2-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

	<u>1"</u>	<u>1.25"</u>	<u>1.5"</u>	<u>1.75"</u>	<u>2"</u>	<u>2.5"</u>	
Hole Depth	<u>1"</u>	707	452	314	231	176	113
	<u>2"</u>	353	226	157	115	88	56
	<u>3"</u>	235	150	104	77	58	37
	<u>4"</u>	176	113	78	57	44	28
	<u>5"</u>	141	90	62	46	35	22
	<u>6"</u>	117	75	52	38	29	18
	<u>7"</u>	101	64	44	33	25	16
	<u>8"</u>	88	56	39	28	22	14
	<u>9"</u>	78	50	34	25	19	12
	<u>10"</u>	70	45	31	23	17	11
	<u>11"</u>	64	41	28	21	16	10
	<u>12"</u>	58	37	26	19	14	9
	<u>13"</u>	54	34	24	17	13	8
	<u>14"</u>	50	32	22	16	12	8
	<u>15"</u>	47	30	20	15	11	7

*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. For technical or service assistance, contact Milwaukee Customer Service at 1-800-729-3878.