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™ 3-in-1 Backpack Vacuum (0895-20) with the kitted HEPA Filter (49-90-1961) paired with the M18™ FUEL™ 1-9/16" SDS Max Rotary Hammer (2717-20), 1-1/4 X 15" SDS MAX 4-Cutter Carbide Tip bit (48-20-3970), and SDS Max Dust Extraction Attachment (5319-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	# of Holes Drilled	Average Sample Duration	% Silica (Quartz) in Sample	Average Respirable Crystalline Silica Concentration (µg/m³)	OSHA PEL in 1926.1153 (µg/m³)
	8	60 minutes	N/A	< 2.5 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 percentage of silica could not be quantified as the weight gain on the filter was too low.

Additional Test Information

- All drilling was performed using a Milwaukee M18™ FUEL™ 3-in-1 Backpack Vacuum (0895-20) paired with the M18™ FUEL™ 1-9/16" SDS Max Rotary Hammer (2717-20), 1-1/4 X 15" SDS MAX 4-Cutter Carbide Tip bit (48-20-3970), and SDS Max Dust Extraction Attachment (5319-DE).
- Each trial consisted of drilling 8 holes horizontally, 10" deep into a block of concrete.
- Concrete Blocks were poured from a 5000 PSI concrete mix into 4' X 4' X 8' frames and positioned in an upright fixture.
- After every 4 holes drilled, the Vacuum tank was emptied and the HEPA Filter was knocked out into a bin.
- A new HEPA filter was used for each new trial.
- The Vacuum was turned to high speed.

Sample Method

- 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 Mesa Labs Defender 520 calibrator before and after each Trial. A field blank was submitted with the batch of samples.
- The samples and blank 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).
- Work was performed in a room with no outside ventilation. The room door was closed. An ambient air cleaner with HEPA filtration was used between each trial to clean the air.

TWA Calculation

- 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, the condition of the dust extractor boot, the positioning of the boot on the chisel, clogging of the air intake of the boot, the silica content of the concrete, the presence of other respirable silica dust generating activities in the area, and vacuum maintenance could affect actual user exposures.

*A 1-1/4 X 15" SDS MAX 4-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™ 3-in-1 Backpack Vacuum (0895-20).

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	3/8"	½"	5/8"	7/8"	¾"	1"	1-1/8"	1-1/4"	1-1/2"	2"
6"	2,963	1,667	1,067	544	741	417	329	267	185	104
8"	2,222	1,250	800	408	556	313	247	200	139	78
10"	1,778	1,000	640	327	444	250	198	160	111	63
12"	1,481	833	533	272	370	208	165	133	93	52
14"	1,270	714	457	233	317	179	141	114	79	45
16"	1,111	625	400	204	278	156	123	100	69	39
18"	988	556	356	181	247	139	110	89	62	35
20"	889	500	320	163	222	125	99	80	56	31
22"	808	455	291	148	202	114	90	73	51	28
24"	741	417	267	136	185	104	82	67	46	26
26"	684	385	246	126	171	96	76	62	43	24

*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 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.