

delivery. Objective data is included below. The DustBull requires a minimum rated airflow of 260 CFM. Use two Dustless HEP water  
 Wet+Dry, HEPA Wet+Dry Pro (see OSHA Silica Rule Info for the [Dustless HEPA Wet+Dry](#) for dual vacuum objective data), DustDroid A Wet+Dry,  
 or DustDroid 600 vacuums to collect dust. A HEPA vacuum is required for housekeeping. 300,

- Table 1, Section (ii) requires an integrated water delivery system. If using water for dust suppression, EPA forbids disposing of concrete slurry in storm drains. Use a Dustless Slurry Vac or Wet+Dry Vac to collect the slurry and a separating agent or allowing the concrete to settle out before draining the water. Dispose of the concrete dust in any dumpster. The Dustless Wunderbag can be used in the Wet+Dry Vac to filter the water.
- When cutting, keep the DustBull angled so that the most concentrated portion of the dust plume is centered in the mouth of the shroud.
- Wear the personal protective equipment meeting the APF recommendation in the objective data. Always use eye and ear protection.

Task	Table 1 Compliant?	Objective Data Required?	Objective Data Available	Minimum CFM required	Recommended Dust Collector	Notes
Dry cutting stone or masonry with a gas-powered saw	No	Yes	See below	260	Wet+Dry, HEPA Wet+Dry, HEPA Wet+Dry Pro, HEPA Backpack, DustDroid 300, DustDroid 600	Keep the DustBull angled so that the most concentrated portion of the dust plume is centered in the mouth of the shroud
Wet cutting stone or masonry with a gas-powered saw	Yes	No	N/A	115	Wet+Dry, HEPA Wet+Dry, HEPA Wet+Dry Pro, Slurry Vac	Vacuum up accumulated slurry, use a separating agent or let the concrete settle out of the water before draining. Dispose of concrete in any dumpster.

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## Objective Test Data – D1765 DustBull for Gas-Powered Saws

References: OSHA 29 CFR §1926.1153, Final Rule to Protect Workers from Exposure to Respirable Crystalline Silica (Silica Rule) (Construction Standard)

- Paragraph (b) Definitions, “Objective Data;”
- Paragraph (c) Specified exposure control methods, Table 1, (ii) (ii) Handheld power saws (any blade diameter)
- Paragraph (d) Alternative exposure control methods, (ii) Performance option.
- Terracon Project: 61167595 “Industrial Hygiene Exposure Assessment, Dustless Technologies” prepared by Terracon Consultants, Inc., dated March 30, 2017 in Price, UT

Objective data is a result of independent testing conducted by certified industrial hygienists from Terracon Consultants, Inc. in Midvale, Utah.

### Methods of Compliance:

1. Fully compliant per Table 1 when used as directed using an integrated water delivery system:
  - a. Paragraph (c) Specified exposure control methods, Table 1, section (ii)

Equipment / Task		Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor		
			(APF)		
Shift	> 4 hours /shift			≤ 4 hours /s	
	(ii) Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.  Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.			
		- When used outdoors.	None		APF
		- When used indoors or in an enclosed area.	APF 10		APF

2. For all other tasks where a gas-powered (cutoff) saw is used to cut silica-containing stone, brick, pavers, and similar materials, this documentation should be included in your written exposure control plan.
  - a. Paragraph (d) Alternative exposure control methods, subparagraph (ii) Performance option
    - i. Definition: Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.
    - ii. This has been interpreted to include manufacturer test data, which is detailed below.
3. Independent certified industrial hygienists from Terracon Consultants, Inc. conducted exposure tests on workers using saws to cut concrete. The conditions and tools used in the test were:
  - a. Tool: Stihl TS410 gas-powered saw with a 14-inch diamond blade attached to a DustBull collection shroud. The shroud was connected to two Dustless Technologies HEPA Wet+Dry Vacuums tethered together with a Y-connector through a 12.5-ft x 2-in hose. Each vacuum was rated at 130 CFM for a total rating of 260 CFM.
  - b. Task: 345 total cuts of 8-in x 4-in x 2.5-in concrete bricks
  - c. Work area and airflow: 10-ft x 10-ft x 8-ft outdoor open-topped enclosure with plastic sheeting on all walls.

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- d. Test equipment and methods: the respirable particulate and respirable crystalline silica samples were collected in accordance with National Institute for Occupational Safety and Health (NIOSH) Methods 0600 and 7500, respectively, using three-piece 37-mm cassettes, with pre-weighed 5.0-micrometer (µm), polyvinyl chloride (PVC) filters; a standard size-selecting aluminum cyclone was attached to the sample cassette. The sample was connected to an SKC AirChek™ 52 personal air sampling pump. The sampling train was calibrated at 2.5 liters per minute before sampling and post-calibrated after sampling using a BIOS DryCal® DCL-H primary standard calibrator.
4. Results of the test and recommendations for required APF are in the tables below. For clarity, the respiratory protection requirements table is formatted the same as Table 1. If conditions on your job are more favorable than those detailed in the tables below, this data can be used as objective data for compliance under Paragraph (d).

**Respiratory Protection Requirements**  
March 7, 2017

Sample Number	Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
			< 4 hours / shift	> 4 hours / shift
595-06	STIHL TS-410 Gas-powered saw equipped with a "DustBull" while cutting concrete pavers (345 total paver cuts of 8" x 4" x 2.5")	Performed dry, outdoors in a 10' x 10' x 8' temporary room constructed of wooden 2" x 4" studs and polyethylene sheeting	APF 10	APF 25

5. The above table was based on the objective data in the table below.
- a. Key terms in the table
- PBZ – Personal Breathing Zone or where the collection point was located.
  - OSHA AL TWA – OSHA Action Level Time Weighted Average (set by the Silica Rule)
  - OSHA PEL TWA – OSHA Permissible Exposure Limits Time Weighted Average (set by the Silica Rule)
  - ACGIH TLV – American Conference of Governmental Industrial Hygienists Threshold Limit Value (not part of the Silica Rule)

**Respirable Dust and Silica Exposure Assessment**  
Air Sampling Results  
March 7, 2017

Sample #	Sample Type	Sample Information: Name Tool Work Done Dustless Attachment	Vacuum Air Flow	Sampling Period (Minutes)	Sample Volume (Liters)	Analyte	Results			Standard			UNITS
							Sample Results	Exposure if Conducted <4-hr/shift	Exposure if Conducted 8-hr/shift	OSHA AL TWA	OSHA PEL TWA	ACGIH TLV TWA	
595-06	PBZ	STIHL TS410 gas-powered 14-inch circular saw paver cuts DustBull	51.04	133	326	Respirable Dust	2.9	1.5	2.9	5	5	3	mg/m <sup>3</sup>
						Respirable Silica	600	300	600	25	50	25	µg/m <sup>3</sup>

6. The final table includes the silica content of the concrete used in this testing determined by test on a sample taken during the test.

**Respirable Dust and Silica Exposure Assessment**  
Bulk Sampling Results  
March 7, 2017

Sample #	Sample Date	Sample Type	Sample Information:	Analyte	Results	UNITS
					Sample Results	
595-01B	3/7/2017	Bulk	Bulk sample of concrete being cut during all sampled tasks	Total Silica	9.30%	percent

7. If your OSHA inspector or Competent Person requires more data than that contained in this document, please call Dustless Customer Service at (800) 568-3949.