



# mideco

Your Partner in Environment Technology

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## ***Bat Booth***® Crystalline Silica (Quartz) removal efficiency

Mideco is studying dust removal and collection efficiency of the ***Bat Booth*** in the field, specifically hard rock quarries. The objective is to provide real world data on how it protects those who use it. We are doing this by means of taking samples from ***Bat Booths*** we service.

As of today, two sets of samples have been taken, during our April 2019 service we collected 1 sample (**Q 0** in **Table 1**) and then during our August 2019 service we collected 5 samples (**Q1, Q2, Q3, Q4, Q5** in **Table 1**). The tables below illustrate the results of the analysis for the samples of dust containing silica.

**Table 1.** August and April Samples – Respirable Dust and Quartz content analysis results

Unit No.	Respirable Dust content	Dust Total Quartz Content	Dust Respirable Quartz Content
Q 0	33%	18%	1.3%
Q 1	36.20%	1%	<1% <sup>1</sup>
Q 2	45.89%	2%	<1% <sup>1</sup>
Q 3	26.42%	<1% <sup>1</sup>	<1% <sup>1</sup>
Q 4	46.29%	21%	4%
Q 5	45%	25%	8%

Source: Adapted from SIMTARS (2019)

The samples taken during the August 2019 service correspond to 5 active units located in different quarries that are distributed in New South Wales and Queensland.

**Table 2.** August Service - Collected and analysed data results for Respirable Dust and Quartz content

1	2	3	4	5	6	7	8
Unit No.	Total Dust in <b><i>Bat Booth</i></b> (g)	Total Dust in Cartridges (g)	Number of times the unit was used	Dust content in Cartridges Removed per Use (g)	Respirable dust in cartridges Removed Per Use (g)	Dust Quartz content in Cartridges Removed per Use (g)	Respirable Quartz content in Cartridges Removed per Use (g)
Q 1	33800	31090	1236	27.35	9.11	0.252	<b>0.249</b> <sup>2</sup>
Q 2	37990	35570	999	38.03	16.34	0.712	<b>0.352</b> <sup>2</sup>
Q 3	11990	11100	405	29.60	7.24	<b>0.271</b> <sup>2</sup>	<b>0.271</b> <sup>2</sup>
Q 4	13740	13040	560	24.54	10.78	4.890	0.970
Q 5	15320	14180	431	35.55	14.90	8.225	2.632

Sources: Mideco, 2019 - Adapted from SIMTARS (2019)

<sup>1</sup> **Limit of reporting (LOR).** The exact content of quartz will vary in a range between 0% and 0.99%

<sup>2</sup> For calculation purposes the percentage that was assumed was 0.99%

Notes;

**Respirable dust in cartridges Removed per Use** (See **Column 6, Table 2**) and **Respirable Quartz content in Cartridges Removed per Use** (See **Column 8, Table 2**) means the weight in grams of dust removed every time a person uses the ***Bat Booth***. The first is not specified and the second is a proportion of the first. This is about health.

**Dust content in Cartridges Removed per Use** (See **Column 5, Table 2**) and **Quartz content in Cartridges Removed per Use** (See **Column 7, Table 2**) means the weight in grams of dust removed every time a person uses the ***Bat Booth***. The first is not specified the second is a proportion of the first. This is about being clean.

We will have a stand in the IMARC show in Melbourne where this information will be available for the public.

Yours faithfully,

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## REFERENCES

SIMTARS 2019, Lynch, P., Report No. OL693885P2, Results for Quartz (Silica) Analysis, Quartz by FTIR using Simtars in-house procedure LP0016, page 2.

SIMTARS 2019, Respirable Size Analysis & Respirable Fractions, Report Number MR3060030-0002, Mastersizer - v3.72, page 1.



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