

September 18, 2020

DeLio Peterson & Curcio LLC  
700 State Street, Suite 402  
New Haven, CT 06511

Attn: Peter Peterson

RE: Industrial Hygiene Sampling Report  
Airborne Respirable Crystalline Silica Assessment – Laboratory Test

Dear Mr. Petersen:

This letter report summarizes the results of air sampling conducted on September 2, 2020, by Fuss & O'Neill Manufacturing Solutions (FOMS) at the Laticrete International Analytical Lab located at One Laticrete Park North, Bethany, CT. Results for respirable crystalline silica are compared to the exposure limit established by the Occupational Safety and Health Administration (OSHA).

#### Conclusions and Interpretation of Results

- 1) No respirable crystalline silica was measured above the level of quantitation (LOQ), or lower detection level, in any of the samples collected during this event.
- 2) The tub sampling protocol was designed to simulate a very heavy inhalation exposure to airborne dust, (confined to a small volume, in close proximity to the intake, with no engineering controls) a worker might experience during the mixing of various product powders. All samples reported "less than detectable" quantities of respirable crystalline silica for an "exposure" of three hours. Using previous tub sampling results, this duration was selected so as not to overload the filters with respirable *dust*, resulting in a possible higher MRL (Method Reporting Limit, which is the lowest concentration of a contaminant that the laboratory will routinely report for all samples, barring sample-related interferences and approximately equal to the LOQ). High filter dust loading can also mask respirable crystalline silica in the analysis process.
- 3) OSHA's permissible exposure limit (PEL) for respirable crystalline silica is 0.05 mg/m<sup>3</sup> (50 ug/m<sup>3</sup>) for an 8-hour time weighted average (TWA). Half of that, or 0.025 mg/m<sup>3</sup> (25ug/m<sup>3</sup>), is known as the action level. It is the actual, or reasonable potential exposure to this latter average concentration that triggers "action". (See item 5, below.)
- 4) In order to relate this 3-hour sample to a potential full-shift worker exposure, some interpolation is necessary. Not considering other tasks, the worst case total dust exposure would be if a worker were to be dumping bags of dusty material for mixing for an entire 8-hour shift. (A simulation that we could not do for probable overloading of the filters.) That would mean not taking into consideration time for set-up, clean-up, breaks and other duties. Being very conservative, and using 5 ug (not <5ug as shown in the lab results) for the amount of respirable crystalline silica

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deposited on the filter after three hours, would equate to 13.3 ug of respirable crystalline silica after eight hours. This translates to what is essentially a maximum concentration of 11.1 ug/m<sup>3</sup> as an 8-hour average exposure. This compares very favorably to the OSHA action level of 25 ug/m<sup>3</sup> for respirable crystalline silica.

- 5) As previously described, the relevant sections of the OSHA construction standard for respirable crystalline silica, 29CFR 1926.1153, read as follows (emphasis added):

1926.1153(d)(2)(i) - *The employer shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level in accordance with either the performance option in paragraph (d)(2)(ii) or the scheduled monitoring option in paragraph (d)(2)(iii) of this section.*

1926.1153(d)(2)(ii) - The performance option states: *"The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica."*

1926.1153(b) - Objective data is defined as *"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."* OSHA goes on to specify that *"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."*

- 6) The objective data gathered from this lab sampling, along with the simulation assumptions made by Laticrete, should demonstrate compliance with OSHA's exposure assessment requirement for respirable crystalline silica. The data should also show that a worker would not reasonably be expected to have an exposure to respirable crystalline silica over the action level while specifically performing mixing of these products at the frequencies simulated, for up to an entire 8-hour shift.

#### Analysis: Respirable Crystalline Silica

Analytical Method: X-Ray Diffraction;  
Modified NIOSH 7500/mod. OSHA ID-142 7500  
Collection Media: PVC Pre-weighed 37mm  
Analysis Dates: September 4-8, 2020

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LATICRETE Product	Air Volume (Liters)	Component Respirable Crystalline Silica	Measured Amount	OSHA Action Level
3701 Lite Mortar R	450	Quartz	< 0.011 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>
3701 Lite Mortar	450	Quartz	< 0.011 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>
Tri-Lite R	450	Quartz	< 0.011 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>
NXT Level Flow	450	Quartz	< 0.011 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>
Multimax Lite	450	Quartz	< 0.011 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>
LHT Plus	455	Quartz	< 0.011 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>
252 Silver	450	Quartz	< 0.011 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>
LHT	450	Quartz	< 0.011 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>

### Operational Description / Sampling Methodology

Testing was carried out over three hours in 66-liter, clear plastic tubs using standard industrial hygiene sampling protocols. Gilian GilAir3 sampling pumps were connected to cyclone particle separator devices\* containing pre-weighed 37mm PVC filters flowing 2.5 liters/minute. Cyclones are designed to provide sharp size selection criteria between inhalable and respirable fractions at 4 µm. The cyclone collectors were positioned inside the center of each tub, with the top closed. Testing was carried out over a period of three (3) hours with test material periodically dropped into the tub, alternately from four otherwise sealed openings at the corners. The period and volume of material addition was chosen for each product to resemble, and even exceed, a potential worker exposure in the field.

\*Sampling devices meeting the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling.

(See lab attached lab report for additional information.)

The sample media were delivered to the SGS Galson Lab, an AIHA-approved Laboratory (AIHA-LAP, LLC accredited laboratory #100324), in East Syracuse, New York, for analysis.

Thank you for the opportunity to provide this support to LATICRETE International, Inc.

Sincerely,



Donald Gardner, CSP  
Associate/Sr. Project Manager

Reviewed by,



Robert Levandoski, CSP, CIH, CHMM  
President

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