

ASBESTOS TEM LABORATORIES, INC.

ATEM SOP-XRD-01
(NIOSH 7500)

X-Ray Diffraction

Respirable Crystalline Silica Analysis Report

Laboratory Job # 365258

600 Bancroft Way, Ste. A
Berkeley, CA 94710
(510) 704-8930
FAX (510) 704-8429
www.asbestostemplabs.com



ASBESTOS TEM LABORATORIES, INC

Sep/30/2019
Monalisa Wallace
Safe Sand Company
2912 Diamond St No 331
SF, CA, 94131

RE: LABORATORY JOB # 365258
X-ray diffraction analytical results for 2 air/dust sample(s).
Job Site: Monterey CA/Ontario, CAN
Job No.:

Enclosed please find results for the X-ray diffraction (XRD) silica analysis of one or more air samples. Sample preparation and analysis procedures were performed using ATEM SOP-XRD-01 (NIOSH 7500).

Prior to analysis, samples are checked for damage and disruption of the chain-of-custody seal. Samples are then logged-in, each given a unique laboratory number, and a hard copy containing all pertinent information is generated. This, and all other relevant paper work are kept with each sample throughout the analytical procedures to assure proper analysis.

Air sampling cassettes are opened and filters are removed and emplaced into a pyrex beaker which is placed into a plasma etcher to ash away the PVC filter material. After ashing, the beaker is filled with 2-propanol to bring it to volume. The beaker is agitated in an ultrasonic bath to suspend contained particulate. A 25mm diameter silver filter with 0.45um pore size is placed into a filtration apparatus with the sample suspension then poured into it. The beaker is rinsed with 2-propanol to be sure all particulate is transferred onto the filter. Filters are dried, adhered to a 25mm diameter glass slide, and mounted into a special sample holder. Samples, including calibration standards, are then inserted into a Siemens/Bruker D5000 X-ray diffractometer (XRD) running in a theta-theta mode using a copper anode.

Prior to analysis, the XRD is calibrated using NIST traceable silica standards (quartz, cristobailite) and/or in-house standards (tridymite), depending on the silica species analysis requested. The standards are scanned over the XRD 2-theta ranges of interest (usually the primary silica XRD peaks) for the requested silica species under conditions known to meet required analytical sensitivities/detection limits for the test method. Using the Jade 9 XRD software analysis program, a linear XRD peak area vs. known concentration relationship of sufficient statistical certainty is obtained which must meet or exceed the required analytical sensitivities/detection limits. Customer samples are then scanned over the XRD 2-theta ranges of interest under identical analysis conditions as the standard materials. The spectral data is reviewed by a geologist/mineralogist trained in XRD mineral analysis to assess the quality of the spectra and the potential adverse effect of interfering minerals. If no problems are found, quantifiable silica concentrations are obtained using the Jade 9 XRD pattern analysis software program following the same protocol as the standards. If interfering minerals are found, an assessment is made as to their effect on the spectra and resulting concentrations. If necessary, the standards and samples are then rerun to allow the use of secondary and/or tertiary XRD silica species peaks for quantitation.

QA/QC activities are performed during the analytical procedures include running of blanks and reanalysis of previously run samples. Analytical results are compiled into standard report formats and given to the Lab Manager for review. Results and then made available to the client.

Please note: Sample results are not corrected for contamination based on field or other analytical blanks.

Additional note: It is recommended to analyze field blanks collected in parallel with all samples collected in the field as a check against media contamination from the manufacturer or in the field. Whenever possible, ATEM highly recommends the field blanks be submitted with each sample set.

Sincerely Yours,

Laboratory Manager
ASBESTOS TEM LABORATORIES, INC.

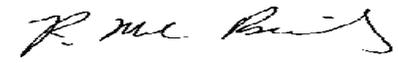
Results for routine quality control samples run in parallel to the samples reported here were within acceptable limits. These results relate only to the sample material(s) tested and must not be reproduced, except in full, with the approval of the laboratory.

X-RAY DIFFRACTION OF RESPIRABLE CRYSTALLINE SILICA AIR SAMPLE ANALYSIS REPORT ATEM SOP-XRD-01 (NIOSH 7500)

Contact: Monalisa Wallace Address: Safe Sand Company 2912 Diamond St No 331 SF, CA, 94131	Samples Submitted: 2 Samples Analyzed: 2 Job Site / No. Monterey CA/Ontario, CAN	Report No.: 365258 Date Submitted: Jul-30-19 Date Reported: Aug-30-19
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SAMPLE ID	Silica Species	Concentration		TOTAL μg/m ³	Description / Sampling Parameters
		μg/filter	μg/m ³		
1 Lab ID # 96-02937-001	Quartz Cristobalite Tridymite	<10 <10 <10		NA	CA beach sand <u>Sampling Date</u> <u>Volume(L)</u> <u>Run Time(Min)</u> <u>Flow Rate(LPM)</u>
2 Lab ID # 96-02937-002	Quartz Cristobalite Tridymite	<10 <10 <10		NA	Safe snad-white inert feldspathic sand <u>Sampling Date</u> <u>Volume(L)</u> <u>Run Time(Min)</u> <u>Flow Rate(LPM)</u>
Lab ID #	Quartz Cristobalite Tridymite				<u>Sampling Date</u> <u>Volume(L)</u> <u>Run Time(Min)</u> <u>Flow Rate(LPM)</u>
Lab ID #	Quartz Cristobalite Tridymite				<u>Sampling Date</u> <u>Volume(L)</u> <u>Run Time(Min)</u> <u>Flow Rate(LPM)</u>
Lab ID #	Quartz Cristobalite Tridymite				<u>Sampling Date</u> <u>Volume(L)</u> <u>Run Time(Min)</u> <u>Flow Rate(LPM)</u>
Lab ID #	Quartz Cristobalite Tridymite				<u>Sampling Date</u> <u>Volume(L)</u> <u>Run Time(Min)</u> <u>Flow Rate(LPM)</u>
Lab ID #	Quartz Cristobalite Tridymite				<u>Sampling Date</u> <u>Volume(L)</u> <u>Run Time(Min)</u> <u>Flow Rate(LPM)</u>
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Lab ID #	Quartz Cristobalite Tridymite				<u>Sampling Date</u> <u>Volume(L)</u> <u>Run Time(Min)</u> <u>Flow Rate(LPM)</u>

Reporting Limit = 10 ug/filter

Analyst 
R. Mark Bailey

