

## The sweet spot:

In baseball, that line drive ball in the gap is usually “barreled-up”. This refers to the sweet spot on the bat where maximum contact and power are achieved. Other analogies could be made outside of sports, but the concept is that - in order to get the maximum result a specific criterion must be obtained.

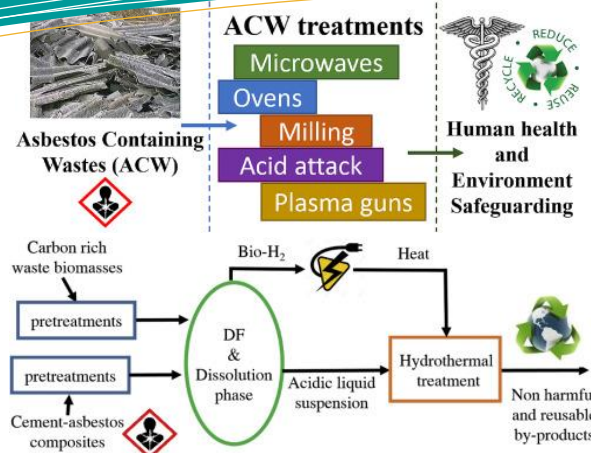
We see this in the laboratory to maximize analytical sensitivities, detection limits, etc., that the instrument must be aligned, calibrated, and conditions exact in order to secure the best analytical result.

### Altering Asbestos Minerals

In similar fashion as to how these minerals are created geologically, we can apply thermal, pressure, and chemical means to alter the mineral's chemistry and crystal structure... thus changing its definition to “not asbestos”. And, poof, like magic, no more problems as a whole host of issues disappear.

### Wait, what...?!

In order to achieve this alteration, we have to really hit the sweet spot in the vitrification or de-naturing process. Too many times, upon close inspection, the bundles of asbestos mineral help to perfectly insulate their neighbors. The result – a mixture of non-asbestos and un-altered unintentional asbestos mineral. That would be Strike 1, Strike 2, and...!



## this issue

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## Int'l Efforts Study Asbestos De-Naturing – Part 2

This is a follow-up to the earlier newsletter feature on this issue. Previously we (i) introduced the concept and process of de-naturing, (ii) mentioned iATL's experience with five such projects on two continents over three decades, (iii) how success and failure are measured (has the result eliminated all regulated asbestos minerals?), and (iv) that renewed interest internationally has grown. In this issue we will detail some recent international evaluations de-naturing projects.

### Destroy, De-Nature, Alter, Re-Use

There are various degrees to which the asbestos mineral can be made harmless. Remember, these are bio-persistent, high tensile strength, unique crystalline fibrous minerals. If we follow basic physics and chemistry, we know that the energy that went into creating them geologically, will have to be applied towards their transformation. We can destroy just about anything with (a) high temperature, (b) mechanical reduction, (c) chemical alteration, and new to the scene (d) biological (fungi, bacteria) which can, in the right setting, breakdown these minerals.

The Dutch Ministry of Infrastructure and Waste Management conducted the most comprehensive independent review of the current global status of these efforts in 2018. A large expert panel developed systematic evaluation tools to quantify the effectiveness under a number of categories including: the types of options listed above along with criteria of Technological Readiness, Distance to Market (licensable, marketable, profitable), fiber destruction, reusability of residue/powders, risk, and carbon emissions from energy requirements.

The over 120 page report details the economic and

environmental impact. A wealth of data and statistics are included for the curious reader.

Three of the five iATL projects dealt solely with mechanical and thermal options, another project added industrial waste acid to the mix, and a final project used only a spray-on high grade low pH acids. Each project had some successes and failures. While the majority of asbestos mineral was reduced in size and sufficiently altered, not all the asbestos was destroyed. In one case, the hydrofluoric acid (a highly hazardous chemical in its own right) was sprayed onto thermal system insulation and spray-on fireproof insulation coating steel beams and reinforced concrete in a three-story building waiting demolition. The concept was, supposedly, to digest the asbestos minerals and leave the structural component unaltered. The unfortunate consequence was that the steel components were weakened, the ability to manage the HF was suspect, and unaltered asbestos was still intact.

### How is Effectiveness Measured?

Pilot studies continue to reveal that the high cost of energy into the thermal phase options is costly and alone ineffective. Accordingly, what other considerations must be accounted for to determine success?

- Energy costs to heat materials to over 1200°C
- Hazardous Chemical costs/safety issues
- Biochemical pre-treatments that may then represent further disposal problems,
- Mechanical reduction that creates airborne concerns

A copy of the Dutch report is available by contacting [CustomerService@iatl.com](mailto:CustomerService@iatl.com).

## Context:

You put in the time and money getting trained and certified to monitor and provide exposure assessments for various clients. This includes calibrating pumps, assuring that the correct sampling cassettes, tubing, filters, etc. are available and that no Lot #s have expired. You travel at un-godly hours to construction and demolition sites, concrete cutting sites, stone quarry sites, etc. to set-up area and personnel sampling devices (yes, workers do not always love you), and then you look for a space that you can call your own. An out-of-the-way desk in warm office overlooking the activities – yeah right, how 'bout in between the diesel and propane fumes of heavy equipment as you avoid eyesight of the project managers on site that cannot see the obvious violations so apparent to you....

### All this to say:

All you can really do is focus on your duty and task at hand. Your chain-of-custody and detailed sample log that describe the site, the weather, the conditions, and each sample's essential attributes of calibrated flow rates, time(s), and calculated volumes. Oh yeah, and those regulatory required blanks. You take pride in this occupational health and safety practice. You ship the samples off to that accredited IH laboratory and a couple days later – whether by email, or client portal, or link sent to your device – there, finally, is your analytical report. Now what?!

# Silica – Report Interpretation Part 2... Next Level

iATL's various accreditations, especially ISO17025 through AIHA LAP and others, restrict the ability to provide interpretation of analytical data for customers. Yet, these rules apply generally to NOT providing prescriptive answers like "yes, it passes" or "no, it fails and you should do X or Y about it". That said, we are at liberty to provide vital references, resources, and dialog with customers to increase awareness and understanding of the analytical data and its meaning.

### Your RCS Analytical Report:

The analytical report is loaded with vital information traceable back to all the work you completed at the project site. It also lays out various components of the samples broken down here as "the Basics", some "Next Level" Data, and finally the meat of the report and method: the "OSHA Level Results". See our Previous Next Level Newsletter to see Part 1. Here in Part 2 we describe the OSHA Level Results.

Sample ID	Media	Analyte / Method	Volume	Sample Date/Time	Location	Start Time	Stop Time	Flow Rate (L/min)
A1.1	37mm RCSm PVC	Crystalline Silica	455	10/8/22	OWA-By the token	2:30	5:32	2.5
A1.2	-/-	-/-	632.5	-/-	booth #R127	5:32	9:45	2.5
A2.1	-/-	-/-	447.5	-/-	IWA-By the V179+50	2:35	5:34	2.5
A2.2	-/-	-/-	635	-/-	marker on Platform	5:34	9:48	2.5
P1.1	-/-	-/-	442.5	-/-	on worker named	2:40	5:37	2.5
P1.2	-/-	-/-	632.5	-/-	"Christian Tenesara"	5:37	9:50	2.5
FB1	-/-	-/-	-	-/-	Field Blank 1	-	-	-
FB2	-/-	-/-	-	-/-	Field Blank 2	-	-	-

Notes: Most NIOSH and OSHA methods require field blanks. In the US field blanks are required for all samples. Analytical Method: Gravimetry, NIOSH 0600\* and X-Ray Diffraction, NIOSH 7500, 03/15/03

iATL No.	Client Sample No.	Volume (L)	Respirable Dust Mass (mg/filter)	Masses of Respirable Crystalline Silica Minerals (mg/filter)			Weight Percentage of Respirable Crystalline Silica Minerals			Airborne Concentrations (mg/M <sup>3</sup> )			
				Quartz	Cristobalite	Tridymite	Quartz	Cristobalite	Tridymite	Respirable	Quartz	Cristobalite	Tridymite
7507589	A1.1	455	<0.10	<0.005	<0.01	<0.01	<5	<10	<10	<0.22	<0.011	<0.022	<0.022
7507590	A1.2	632.5	<0.10	<0.005	<0.01	<0.01	<5	<10	<10	<0.158	<0.008	<0.016	<0.016
7507591	A2.1	447.5	<0.10	<0.005	<0.01	<0.01	<5	<10	<10	<0.223	<0.011	<0.022	<0.022
7507592	A2.2	635	0.15	0.009	<0.01	<0.01	5.9	<6.7	<6.7	0.235	0.014	<0.016	<0.016
7507593	P1.1	442.5	0.49	0.056	<0.01	<0.01	11.3	<2	<2	1.116	0.127	<0.023	<0.023
7507594	P1.2	632.5	0.41	0.083	<0.01	<0.01	20.4	<2.5	<2.5	0.643	0.131	<0.016	<0.016
7507595	FB1	FB	<0.10	<0.005	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA
7507596	FB2	FB	6.03	<0.005	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA

X-Ray Diffraction by NIOSH 7500. Total respirable dust by NIOSH 0600\* (gravimetric). iATL assumes all sampling methods and data upon which these results are based have been accurately supplied by the client. 1000L = 1M<sup>3</sup>. FB = Field Blank. Filter Type: 37mm 5.0um PVC. Reference OSHA 29 CFR 1910.1053. Absorption correction factor is not applied unless noted. AIHA-LAP, LLC Lab No. 100188. \*NIOSH 0600 Modified - see attached appendix

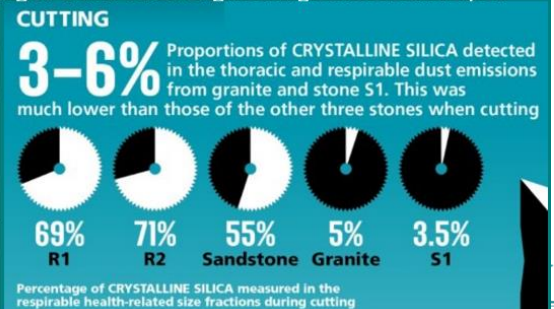
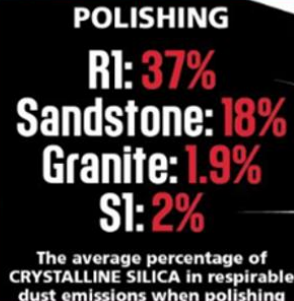
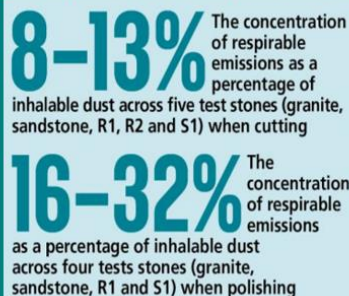
Above iATL Respirable Crystalline Silica Report that also lists Lab and client sample ID numbers, volumes, and a wealth of additional data. The OSHA PEL for Respirable Dust is not a number, but a function that is dependent on the percentage of crystalline silica in the dust. That is, the relationship between the amount of total dust and the total silica minerals in that dust. So, in the example report above we do have a sample (7507594) that has ~20% silica in the dust. Therefore, the total silica in that sample is 20.4% x the respirable fraction concentration of 0.643mg/M<sup>3</sup> or 0.131mg/M<sup>3</sup>. This compares to OSHA's newer PEL of 0.05mg/M<sup>3</sup> and the action level of 0.025mg/M<sup>3</sup> – exceeding both threshold values. For this project, we exceed the PEL and action thresholds for samples 7507594 and 7507593 only. To request a copy of iATL's Technical Bulletin No. 31 on Understanding your RCS Report Data and a copy of our AIHA LAP IHLAP accreditation – please contact [CustomerService@iatl.com](mailto:CustomerService@iatl.com).

## This Month's Q&A...

**Q: While cutting and polishing stone is a leading cause of silica exposure, which is worse and why?**

**A:** A recent study from the British Occupational Health Society (BOHS) explored the risks of exposure to respirable crystalline silica as related to rapidly rising cases of silicosis. When comparing work of the same duration, workers are likely to be exposed to higher concentration of RCS when cutting, yet – particles from polishing are smaller and penetrate deeper into lung tissue. For both methods, the higher level of RCS in the bulk material source, the higher level of silica in the emissions. Testing sources, adapting PPE and other engineering controls all helped reduce exposures.

Ask iATL about RCS testing  
And receive a copy of  
this study.



## EYE ON IT

## States Expand Regulations on Lead Hazards

Similar to the recent NJ Department of Community Affairs action, other states from the northeast, southeast, and northwest are considering changes to current lead (Pb) regulations in the built environment. While most states are updating sections of existing codes, some are adding references to new technology used in monitoring and measuring damage, changes in what defines lead hazards, and potential exposure vectors. For a complete listing, see some links listed below. How might this impact your future business opportunities?

## NJ Expands Regulations on Lead Paint Hazards

### Lead 101

Basic understanding of lead (Pb) hazards is well-known in the built environment as well as in occupational settings. Likewise, we know much about the associated health effects, and most importantly, when it comes to exposures and implications on childhood development. Most childhood exposures start with lead-based paint (LBP) in paint chips or dust from those sources in residential dwellings.

Lead was added to paint for a number of reasons that would be favorable to the manufacturer's goals for better product durability, as a component to provide consistent drying (drying agent), and as a white pigment - all among properties of the lead containing paint.

After the Clean Air Act in the early 1970's, lead in products (think methyl ethyl lead as a gas additive) started to diminish, and in many cases to be banned nationally and at the state level. New Jersey banned its use in paint in 1972 and nationally it was banned in most, not all, paint/pigment products, by 1978 in residential paint products.

### Jersey? What Exit?

In the Fall of 2022, the New Jersey Department of Community Affairs (NJ DCA) published updates on the decades old rule to protect residential properties and their inhabitants. The update targets mostly single-family, two-family and multiple rental dwellings with few exceptions, including those constructed once the federal ban was enacted.

Effective July 2022 and pursuant to P.L.2021, c.182, all rental dwelling units "must be inspected for lead-based paint within two years of the effective date of the law, July 22, 2022, or upon tenant turnover, whichever is earlier." Know that this one-time, initial inspection is only part of the updated law. Ongoing inspections are required every three years or each time there is tenant turnover.

Inspections, a long-tenured regulated aspect of the update, has been expanded to the type of rental dwelling (house, condo, apartment, etc.) and must be conducted by a NJ certified lead evaluation contractor. The examinations usually include visual inspections, paint and/or dust wipe sample collections with some specifications mandated by local authorities in NJ.

Visually, inspectors are looking for damaged or deteriorated paint that is chipping or peeling, visible surface dust, and/or paint dust/debris. In the case of dust wipe sampling, they are to be collected in accordance with HUD-approved guidelines. If no lead-based paint hazards are found, a "lead-safe certificate" is provided which is valid for two years.

### And...

So, what if the inspection portion reveals LBP exposure or risk (as defined in the new regulation)? The updated reg contains clarification for action including the remediation using temporary controls and even remediation.

Controls include typical management components like paint stabilization, making surfaces smooth / cleanable and correcting dust-generative conditions. Abatement is also specific covering the usual items such as paint removal, building component replacement and enclosures of such lead-based paint hazards behind drywall or other materials. Post-remediation the dwelling must undergo an additional inspection either by the local authority or lead evaluation contractor.

These constructive additions will reduce likely exposures and prevent health consequences to New Jersey residents. For building owners – deadlines are approaching since last July. NJ DCA has lists of certified New Jersey Lead Inspector/Risk Assessors.

Additional recommendations are available by contacting [CustomerService@iatl.com](mailto:CustomerService@iatl.com).

### iATL Customer Resources

#### Because you asked...

Data interpretation and summary USEPA's Toxicity Characterization Leachate Program (TCLP) including sample collection, two-tiered laboratory preparations, analysis, data reports, and MCL's. Ask [CustomerService@iatl.com](mailto:CustomerService@iatl.com)



#### Helpful Links...

- [NJ DCA](#)
- [USEPA Lead](#)
- [USHUD States](#)

## Professional Development

Is it time to increase your understanding and awareness of some nuanced technical issues? email [info@iatl.com](mailto:info@iatl.com).

### 2023 iATL Online Workshops

iATL Laboratory Director and noted speaker and presenter, Frank Ehrenfeld, will reprise many recent workshop-style presentations for our clients throughout 2023. Please Request a custom workshop for your staff below.

Topics may include:

- Asbestos and Talc Issues
- Erionite and other EMPs
- Natural Occurrences of Asbestos (NOA) – Evolving International Solutions
- Analytical Methods for Asbestos & International Advances
- WTC 9/11, 20 Years Later Lessons Learned
- Asbestos in Dust - Updates
- Asbestos in Water – What's New
- In situ Asbestos Analyzers
- Asbestos Disease Med Updates
- Vermiculite Method News
- Asbestos Work Practice Studies
- Asbestos in New Building Mat'ls
- Asbestos Vitrification – Updates
- Artificial Intelligence (AI) and Asbestos Analysis Progress
- eLearning through ASTM Int'l
- Combustion By-Product Analysis: Fire, Insurance, and Forensics

Request presentations and workshops here.

Request

### NEXT LEVEL

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Mention this Newsletter Issue and receive 5% off your next sample submittal

## Next Level

Our traditional workweek 😊 of Monday through Friday constitutes 71% of our week with the traditional weekend, and all that can represent 😊 with the remaining 29% of our week.



At iATL we understand this dichotomy all too well. Yet, we still want to provide THE best customer service possible. Over the last 36 years we've evolved from the traditional weekly setting towards a full 24/7 approach, and as we matured (*using that word loosely*), came to provide at least a balance between, staff's need for rest/refreshment/family time, with some opportunities to assist clients on weekend projects.

We routinely partner with customers who have emergencies, and sometimes long-planned and tightly choreographed weekend projects. It can be public building clearance samples, large apartment complex renovation and re-occupancy testing, spills, fires, floods, etc. or some response that needs analytical services between late Friday evening and crack of dawn Monday morning. We can help when you have these special circumstances.

Let's figure this out together!

Contact our [CustomerService@iatl.com](mailto:CustomerService@iatl.com) team to start the process so that you can have some playweek at the end of your workweek.

### iATL Customer Service Contacts:

Need assistance with questions on upcoming projects, or information on samples in the laboratory? Get answers from staff during normal business hours – or contact us...

[customerservice@iatl.com](mailto:customerservice@iatl.com)

[sales@iatl.com](mailto:sales@iatl.com)

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Toll Free (877) 428-4285

Emergency Contact(s):

(609) 923-7300

(609) 929-4211

Ask us about iATL's interactive LIMS Database, **iTRACC** Client Portal - for your devices - for your convenience

## Upcoming Events

- AIHA's Annual Conference: [AIHce 2023](#)  
✓ May 20-25, 2023 Phoenix AZ -
- Geological Society of America: [GSA 2023](#)  
Oct 15-18, 2023 Pittsburgh PA
- FAMANZ Annual Conference: [FAMANZ'23](#)  
✓ Mar 21-23, 2023 Auckland NZ -
- EIA Annual Conference: [EIA 2023](#)  
Mar 26-29, 2023 Nashville TN

## Next Issues for Next Level

- States expand lead (Pb) Regs
- Asbestos/Talc Issues – what's new?
- Reporting Uncertainty
- Libby Amphiboles: LA or LAA?  
✓ iATL scheduled speaker

[Link to archived Next Level issues](#)