

Build Back Better

As outlined in our previous newsletter issue, the US Government's long awaited investment in Infrastructure will have short and long term implications on the environmental and occupational health and safety industries.

Laboratory Investments

Unlike bridges near collapse, a viable laboratory that meets the requirements of the ISO17025 laboratory quality standard, must maintain certain levels of facilities including ventilation, instrument performance, and ability to meet or exceed regulatory limits of detection (LOD) metrics.

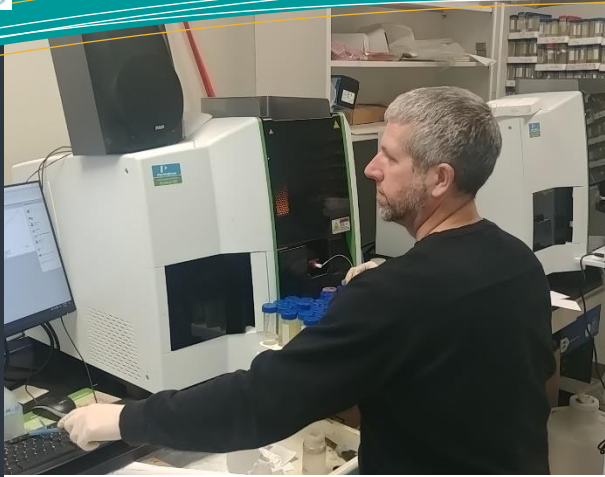
WHY We Invest

It's not meeting a short term objective, it's realizing that a steady pace of re-investment allows for the achievement of long term vision such as maintaining quality standards, expansion into more fields of testing, exceeding customer demands, keeping pace with technology, and preparing to keep iATL going another 35 years!

Oh yeah, and this too...

iATL installs its fourth TEM - Hitachi 7650, 120keV, with Bruker Quantax EDS and AMT Digital Imaging!!

"Success doesn't come from what you do occasionally. It comes from what you do consistently."
- George Halas



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Metals Lab Expansion: Re-investment for the Future

The iATL metals laboratory added two brand new Perkin Elmer AA500 Atomic Absorption Spectrophotometers (AAS) in late 2021. These additions bring our capacity to five viable AAS units that supply customers with state-of-the-art analysis for metals, including lead (Pb) and other industrial hygiene and environmental metals of interest like copper, chromium, manganese, nickel, and zinc. In addition, two of the relatively new Shimadzu AAS units are both dedicated as AAS Graphite Furnace for lead (Pb) in water analysis.

This re-investment, always part of iATL's vision to maintain a strong commercial analytical presence, will sustain the metals labs for many years, while keeping pace with technology and customer demands. The addition will not just increase capacity in our metals laboratory, but will also exceed the requirements of testing that are required after the March 8, 2021 USEPA mandate on lead (Pb) in dust/wipe testing. Those changes, slowly implemented since early announcements in 2017 and a partial launch in 2019, require that reporting limits (derived from Method Detection Limits) be a fraction of the threshold value established at 10ug/ft² for clearance samples on floors and horizontal surfaces.

iATL worked with Perkin Elmer product scientists including Senior Research Chemist Brady Frill, on assuring that these instruments not only met, but exceeded the requirements. Dr. Frill was able to run a series of samples from Perkin Elmer's

Advanced Technology Laboratories in Shelton CT. The four trials of samples over several months, were comprised of reference material spiked with ever lower amounts of traceable metal powder reference material (many less than 1ppm) and real world samples from our iATL metals lab prepared by our Senior Chemist Chad Shaffer and his staff. The results included the use of special hollow cathode and electrodeless discharge lamps (EDL) that capture lead (Pb) energy peaks at 217nm, 283.3nm, 261.4nm, 292.2nm, and 205.3nm. The sensitive 217nm wavelength peak is especially key to the ability of the improved technology's ability to capture the Pb element.

Between routine manual and high capacity auto-samplers, these new acquisitions will serve our customers for years.

More Information:

[USEPA Lead Wipe Clearance Rule 2021](#)

[USEPA National Lead Lab Accreditation Program](#)

iATL's Lead (Pb) and Metals Laboratory holds USEPA recognition as Lab #NJ0554 as well as National Lead Laboratory Accreditation Program through AIHA LAP's Environmental Lead Lab Accreditation Program (100188), multiple state and local accreditations including NJDEP, PADEP, NYSDOH, etc.

Asbestos/Talc Issue:

At the lowest end of the geologic hardness scale, talc is a uniquely soft hydrous magnesium silicate used in various industrial and consumer products. Like anything from a geologic source, mineral deposits are never guaranteed to be pure. Not only is nature at play when the minerals grow – as localized variations in chemistry, temperature, and pressure are involved, but perhaps a million years after formation, those minerals are harvested from the earth using dynamite and large mining equipment... so, there is little control as to the homogeneity of the source. There are industrial grades of talc that have well known contaminants that can include asbestos mineral and other geo-sources that are well characterized and are known geologically to contain little to no asbestos “contamination”. Obviously, there is evidence that the mineral assemblages with asbestos can cause health problems and disease.

Wait, how long ago?

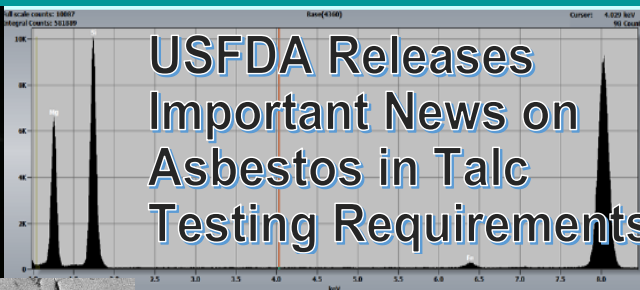
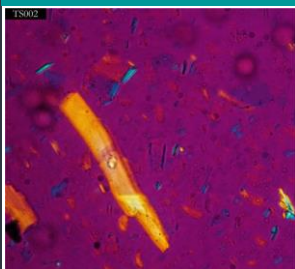
In 1976, the cosmetics industry established procedures to test cosmetic talc for amphibole asbestos minerals using the Cosmetic, Toilet, and Fragrance Association (CTFA) J4-1 method. The US Pharmaceutical industry used similar methods that included the screening techniques of XRD or IR and PLM only if the screening test was positive. Today, this is considered by experts and regulators to be wholly inadequate.

ASTM D2207 Consensus Standards Development

ASTM International has been developing analytical methods for laboratory investigations that involve asbestos in talc-containing products and source minerals for a decade. The latest USFDA announcement gives ASTM clear direction.

– The Editor

Ask your iATL customer service representative about talc testing and the ‘how, why, and what’ it means for interested customers.



USFDA Releases Important News on Asbestos in Talc Testing Requirements

Helpful Links:

[USFDA White Paper releases Jan 2022](#)

[From ASTM STP1632:](#)

Geology and Talc – Segrave

NOA and Talc – Segrave et al

Health Concerns Talc - Fitzgerald

Historical Context

Asbestos in talc issues were fermenting long before litigation battles and billion dollar legal judgements. This brief update does not account for any medical or health news and is limited only to the recent release of a White Paper (a technical opinion) by assembled experts from a USFDA-formed interagency working group of experts from eight federal agencies that have expertise in asbestos testing and/or asbestos related issues or that regulate asbestos or consumer products that contain talc as an ingredient. The group was charged with “developing a consensus document that would support the development of standardized testing methods to improve the sensitivity and consistency of analyses, and inter-laboratory concurrence when reporting asbestos and other amphibole mineral particles in talc that could potentially affect consumer product safety.”

JIFSAN 2018, USFDA 2020

Though many matters were well known, there was no clearing house for talc technical issues at hand. In 2018, an invitation only group of over eighty experts from the private and public domain met and had an organized dialogue that covered much of the issues at hand. iATL’s Laboratory Director

and ASTM D2207 Chair, Frank Ehrenfeld was asked to help moderate a session on analytical techniques for sample preparation and analysis of cosmetic and other consumer products. The meeting on the University of Maryland’s campus led to the formation of the interagency group and a further invitation extended to ASTM’s Ehrenfeld to present at the USFDA sponsored public meetings in February 2020. A wide range of related presentations were offered. Then Covid hit!

The interagency working group... “considers it important that written protocols specify appropriate instruments, methods, and reporting criteria. Such an approach for inclusive reporting will enhance transparency and help to provide a cumulative record of mineral particles, thereby facilitating more well-conceived health-based decisions about cosmetic product safety.”

Release of White Paper

The January 2022 release of the working group’s findings and outline of testing requirements for consumer products that contain talc is significant in that: (a) it gives standards organizations (e.g., ASTM) a detailed set of targets to include in a future suite of analytical methods specific for this need, (b) it outlines analytical criteria for identifying and counting elongated mineral particles including asbestos and talc, and (c) it lists expectations of preparation and performance.

According to Ehrenfeld, “There are a multitude of issues to be digested and discussed at upcoming ASTM meetings in April 2022. This includes internal ASTM staff and rostered expert members already involved with many of these concepts put forth by FDA. For my part, the logistics and consensus standards process dictated by ASTM cannot be cut short or deviated from – yet, now having a clear target is very helpful!”

In short, the document outlines the use of counting criteria, inclusiveness of elongated mineral particles to be analyzed and reported, how samples might be prepared and analyzed using PLM and TEM - with some provisions for XRD and SEM.

ASTM D2207 Involvement Forward

A recognized mix of technical experts from ASTM have been slowly advancing the analytical methods needed over the last decade. There are four items that are in various states of readiness including asbestos in talc mixtures by XRD, PLM, and TEM with an additional gravimetric reduction method that might serve as a starting point for advanced concentration and separation methods. Stay Tuned!



A.I. in Asbestos Labs...

"It Lives!!" - Dr. Victor Frankenstein

Perhaps a bit dramatic, yet the thrill of seeing some technical creation 'live' is exciting. Two international companies that have been working on counting fibers on filters using Phase Contrast Microscopy (PCM, with advanced image analysis and artificial intelligence (AI) components may have felt the same.

Both the French/English-based xRfiber and the Australian/US-based MARVIN (Frontier Microscopy) systems were introduced within the last five years. Both were received as an interesting concept but without serious merit as some flaws and weaknesses were identified in early

performance trials. Moreover, interested parties looking to purchase the units had to weigh any financial commitment against the regulatory requirements to employ NIOSH 7400, use traditional PCM, and receive training with NIOSH 582.

Trials and Tribulations

Peter Cooke, of MICA, international expert on NIOSH 7400 PCM training and analysis, was first approached by xRfiber to provide a performance evaluation. After some improvements (remember, the AI allows for the technology to 'learn' and evolve), xRfiber next turned to iATL for a series of performance trials over a two year period. The last iteration showed enough marked improvement that data was shared

with accrediting, regulatory, and standards organizations. Likewise, after a good Covid delay, MARVIN's unit was ready for similar evaluations. For their part, not only did Marvin entrust iATL's staff (Ben Reich Senior Microscopist) for testing, but also engaged retired NIOSH official Dr. Martin Harper to assist with 'next steps' for their unit.

ASTM's Committee on Asbestos Sampling and Analysis became involved as an institutional standards organization that could provide guidance to develop a method that would meet or exceed the NIOSH 7400 requirements (see also ASTM D7201) and that could provide the all-important performance-based interlab study needed for accreditation and regulatory recognition.

Recognition

While the final components of standard and interlaboratory study are in progress – hopes are that the technology from these two companies will be used in labs and in the field within the next year or two.

iATL Connections

ASTM STP 1632 includes a peer-reviewed paper discussing the technology behind these issues:

[Find and order it here.](#)

EYE ON IT NIOSH 7400 evolves in the 21st century

Collecting particles on filters and counting fibers on airborne samples predates the NIOSH 7400 method. This method is the OSHA recognized standard in the US (with almost identical versions in most of the world), and its universal utility and depth of historical data, related to exposure/risk-based epidemiology data sets, is beyond equal.

iATL Customer Resources

Because you asked...

Of course, there are more effective analytical methods to determine asbestos mineral structures in airborne samples. However, not everyone understands the relationship and intent of the complimentary method to PCM/NIOSH 7400 – the TEM/NIOSH 7402 method.

Contact CustomerService@iatl.com and ask for a technical summary of NIOSH 7402 and related analytical options.

This Month's Q&A

Q: What method do I use for asbestos in surface dust? What about carpet or in-line HVAC filters?

A: There are consensus standard and industry accepted established methods for determination of asbestos in surfaces. These TEM-based methods have been used countless times in investigations over the last 30 years. The standards require careful sample collection routines and an ability to interpret data for specific projects.

[Intention of ASTM D5755:](#)

This technique only collects samples of particles that are easily re-entrained back into the air with results in asbestos structure density and surface concentration units.

[Intention of ASTM D6480:](#)

This technique collects historical deposition of ALL particles and gives evidence of total asbestos on surfaces in density and concentration units.

[Intention of ASTM D7390:](#)

This is for extensive engineering studies of (a) ambient levels of asbestos in some environments to be compared to a (b) targeted site of suspected environmental asbestos contamination. The ASTM Dust Guide is the ultimate in providing comparative data of contamination.

[Intention of USEPA 600/J-93/167:](#)

This proprietary method initially developed by Dr. Jim Millette is sometimes called the "carpet" method. It is intended to collect multiple cross sections of substrate such as carpet, woven fabric (ex. furniture coverings), and inline HVAC filters. As an example - sub-samples, each 100cm² (10x10cm) of HVAC filter cross-sections are removed and submitted for testing. The results are indicative of airborne asbestos particles that have been captured by the filter. The results are in density units and concentration units of asbestos on the surfaces of HVAC filters in s/cm² and can be calculated to an estimated airborne value with flow rates, air volumes circulated in 24 hours etc. Regardless - collecting side-by-side air samples by TEM (ex. ASTM D6281) provides best data.

[iATL Asbestos Dust Guide:](#)

Ask about our brief guide on asbestos in surfaces. This easy to read information is the first step in understanding and providing sound data for investigations. CustomerService@iatl.com

Professional Development

Is it time to increase your understanding and awareness of some nuanced technical issues? email info@iatl.com.

2022 iATL Online Workshops

iATL Laboratory Director and noted speaker and presenter, Frank Ehrenfeld, will reprise many recent workshop-style presentations for our clients throughout 2022. Expect registration news in coming weeks for March, May, July, September, and November offerings. 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

Registration for March 22, 2022, Webinar available here.

Register

Analytical Methods and Technology for Asbestos Testing

NEXT LEVEL

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Next Level



The Latest

- **Shirley Clark, Customer Service and Sales Account Manager Retires.**

Thirty plus years with one company defies what qualifies as normal these days. But Shirley Clark, iATL Senior Account Manager, accomplished just that as she recently announced her retirement. Throughout her career, Shirley amassed a huge database of consultants and engineers that recognized her as point person at iATL for their projects. Following her hiring in 1988, a mere 2 years after iATL was formed, Shirley for the most part grew up with the company. Through the years, she answered phones and typed reports in her early years, and quickly earned the opportunity to contact industry consultants and engineers, representing the capabilities of iATL in a sales position. Her success contributed significantly to the company's growth, and we wish her fun and enjoyment in her retirement years!!

- **Ehrenfeld selected to present at ASTM Workshop in April 2022**

Representing iATL and in his capacity as the Chair for ASTM International's Committee D2207, Frank Ehrenfeld was selected to present at the Workshop on Ambient Air Fenceline Monitoring Using Advanced Monitoring Technologies State of the Art, Successes, Frustrations and Standardization Needs in Seattle April 28. The Laboratory Director has been asked to speak on "Real Time Asbestos Monitoring Technologies: In Situ Studies".

- **2022 Analytical Services Pricing Published**

2022 Customer Pricing has been forwarded to all clients. Cost of living increases and impact of global supply chain interruptions had to be incorporated in this year's price lists. Please contact us with questions.

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...

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

Upcoming Events

- AIHce Annual Conference and Exhibition
May 23-25, 2022 Nashville TN
- ASTM Intl Johnson/Rook Asbestos Conf.
July 25-29, 2022 Burlington VT
- Association of Enviro/Eng Geologists
Sept 13-17, 2022 Las Vegas NV
- ASTM Int'l Symposium: DLs for Air Quality
Oct 19-21, 2022 New Orleans LA

Next Issue for Next Level

- USEPA TSCA Sec 6 – What's Up
- Fire and Insurance Investigations
- Laboratory Training Programs
- WHO Asbestos News

Link to archived Next Level issues