

## L1 A Tale of Two CSIs: A Criminal Salad Impersonation and a Cookie Subterfuge Incident

Thursday, February 24

12:00 p.m. – 1:30 p.m.

Gerald DeMenna, PhD

Chem-Chek Labs

Cape May, NJ

**Learning Overview:** The analytical processes employed will enlighten the attendee to the power of spectroscopic analyses (Ultraviolet [UV]-visible and Infrared [IR]) of suspect samples in differentiating materials that appear to look and smell the same but are actually quite different. Using these spectroscopic techniques usually involves minimal sample preparation that maintains the integrity of the original sample, which increases the reliability of the data when presented in court. These techniques also allow accurate comparisons between an unknown sample and a known reference material, again maximizing the credibility of that data in a court trial. Attendees will better understand the principles of these spectroscopic techniques as critical molecular “fingerprinting” tools and how to best utilize them for forensic analyses.

**Impact Statement:** Expanding one’s exposure to the more generalized forms of chemical analysis is worthwhile in these days of specialization where the analyst may be an expert in one specified field of technology, but will ignore the benefits of complimentary analyses from other area of analytical technology. Spectroscopic analysis in the electromagnetic spectral region from shortwave UV to longwave IR is a very versatile area that can produce a wealth of data on the chemical and molecular composition of many materials if one is familiar with all aspects of these technologies, both the common and unique. This presentation should serve to open the attendees’ thought processes when presented with an analytical situation that can easily be addressed with these techniques as a starting point to develop a foundation upon which to possibly expand the evaluation of a suspect sample in a more fruitful direction to maximize results efficiently and effectively.

In the business of food production, there are incidents in which the wrong product is made either accidentally or intentionally. Accidents naturally happen, but if by intent, that is fraud with criminal intent. The stories in this presentation are true, and the names have been changed to protect the innocent.

At some time in the not-too-distant past, there were a series of mysterious illnesses and a few fatalities occurring in the Baltimore, MD, Little Italy area. The symptoms included severe nausea and vomiting, respiratory distress, and allergic-type reactions, but none of the medical exams of the living or postmortem exams revealed any common toxicological factor. The victims and their families, who were widely spread throughout the various Baltimore areas, eliminating an environmental cause of these afflictions, were thoroughly interviewed to try and identify some commonality to their daily lives. One aspect of their Italian heritage was the routine use of olive oil in most food preparations. By process of elimination, it was revealed that the “Krakatoa” brand Extra-Virgin Olive Oil (EV-OO) was used by all the victims. Since this suspect EV-OO looked and smelled like all the other brands of popular EV-OOs, an in-depth evaluation was needed to discover what might be in the Krakatoa brand to cause these afflictions. The information contained herein will give a description of genuine EV-OO production, and how a colorimetric evaluation of the Krakatoa brand revealed some interesting discrepancies, which uncovered a scheme by the producers of the olive oil to sell a cheap, low-quality grade of olive oil as the higher-priced extra-virgin grade.<sup>1</sup>

At another time in the very distant past (in the early 1900s), there was a snack food manufacturer in northern New Jersey that had the simple idea of putting sandwich crème in between two pieces of baked chocolate wafers. The Continental American Cookie Association (CACA) had already been producing a wide variety of biscuits and cookies by mass-production and was looking to set themselves apart from the competitors at the time. While CACA to this day still guards the exact recipe of that scrumptious crème filling in their “PSFP” cookies (hint: *2001: A Space Odyssey*), there have been several modifications in that recipe over the past 100+ years. The original filling was made with lard, a by-product of pig rendering, plus sugars and vanilla to produce a firm, crumbly filling with a specific “mouthfeel.” They replaced the lard with hydrogenated soybean oil; to reach the kosher/halal/vegetarian market, they then replaced that with natural palm and coconut oils to avoid the negative press of hydrogenation<sup>2</sup>. Someone on eBay was selling “Original PSFP Cookies with the Original Filling!”, but the buyer said they were not authentic. This part of the presentation shows the power of IR spectroscopy to identify the components in these various fillings.

### Reference(s):

1. Mirabella, Lorraine. “Proposed Olive Oil Testing Would Look for Unpure or Mislabeled Products.” *The Baltimore Sun*, May 10, 2016. <https://www.baltimoresun.com/business/bs-bz-olive-oil-fda-testing-20160509-story.html>.
2. Debczak, Michelle. *What Is an Oreo Cookie’s “Creme” Filling Really Made Of?* MentalFloss.com, March 12, 2019. <https://www.mentalfloss.com/article/576611/what-oreo-cookies-creme-filling-made>

## **L2    What's New From the American Society for Testing and Materials (ASTM) International's Committee E30 on Forensic Sciences: Big Changes Underway!**

**Friday, February 25**

**12:00 p.m. – 1:30 p.m.**

**Agnes Winokur, MS**

Drug Enforcement Agency  
Miami, FL

**Karen Reczek, MS**

National Institute of Standards and Technology  
Gaithersburg, MD

**Learning Overview:** Attendees will gain a better understanding of the progress of consensus standards development, including drafting, submission, committee and public comment periods, comment resolutions, and finalization of the standards. Attendees will also gain a stronger appreciation for the role and importance of public comments in the standards process. In addition, attendees will learn how they can provide input in the process of public comments, even if they are not part of a standard developing organization, a consensus body, or a standard developing committee.

**Impact Statement:** It is essential for forensic sciences professionals to be familiar with new and emerging standards in the various forensic disciplines. Familiarity with the standards will enable a forensic scientist to implement the standards in their respective laboratory setting and incorporate the standards into their quality assurance manuals. Ultimately, these consensus-based standards will assist the forensic sciences provider with accreditation efforts, development and validation of methods, and increase the level of quality in their work product. Awareness of ASTM E30 Forensic Sciences standards and its process will provide another means for forensic science professionals and stakeholders to become actively engaged in improving the practice of forensic science in the United States and internationally.

ASTM International is one of the oldest United States standards developing organizations. Although ASTM's Committee E30 on Forensic Sciences has been in existence since 1970, many forensic sciences professionals are not familiar with ASTM E30 standards, its process, or how to actively participate and provide input. Subsequently, stakeholders are not aware on how consensus-based standards have been influencing the practice of forensic sciences throughout the years.

In this session, presenters will provide an overview of ASTM International's E30 Forensic Sciences and its subcommittees, which include Criminalistics (e.g., fire debris, explosives, trace, seized drugs), Digital and Multimedia (e.g., video, imaging, face identification, storage mediums), Terminology, and the Interdisciplinary Subcommittee. In addition to the ASTM standards development process and the new American National Standards (ANS) process for E30, the presenters will highlight specific standards currently in development, soon to be published, and those being revised to address current forensic practices and needs.

Standards influence requirements for forensic sciences professionals within their respective laboratories and even accreditation requirements for forensic sciences providers. Many forensic scientists do not realize how standards affect them individually or the work processes that they use on a daily basis. Raising this awareness is critical in empowering the forensic community to provide information on their processes, techniques, and methods. This information can then be used to standardize processes and develop standards that improve the overall practice of forensic sciences. The role that public comment periods play in the development of consensus-based standards is essential to ensure the practicality and comprehensiveness of the standards. The opportunity to hear from interested parties to facilitate discussion improves the quality of the standards being developed. But how does the stakeholder community actively participate in these opportunities? Presenters will educate attendees as to how they can engage with E30, whether through full membership, serving on a task group, or commenting on standards open for ballot.