



Forensic Science

Inorganic Analysis

Introduction

- In the previous chapter, analytical techniques were described for characterizing a class of matter known as Organics.
- Although Organic substances do make up a substantial portion of the physical evidence submitted to crime laboratories, the element carbon does not appear among the earth's most abundant elements.
- ~3/4 of the earth's crust weight is composed of only two elements...Oxygen and Silicon.

Introduction Continued 😊

- 10 Elements make up approximately ~99% of the earth's crust.
- They happen to be...
- Oxygen
- Silicon
- Aluminum
- Iron
- Calcium
- Sodium
- Potassium
- Magnesium
- Titanium
- Hydrogen
- Other Elements.

Consider these facts...

- It is reasonable to expect that non-carbon containing substances-that is, inorganic- will be encountered as physical evidence.
- One only has to consider the prevalence of metallic materials, such as iron , steel , copper and aluminum, in our society to understand the possibility of finding tools, coins, weapons, and metal scrapings at a crime scene.

Other Important Issues

- The use of inorganic as...
- Pigments in paint
- Dyes
- Explosive Formulations
- Mercury
- Lead
- Arsenic

So, Why is inorganic analysis important in Forensics?

- We must first examine its application to basic objectives of the crime of the crime laboratory... The identification and comparison of Physical Evidence.
- The Forensic Scientist must perform tests that will ultimately determine the specific chemical identity of the suspects materials to the exclusion of all others.
- Only after the tests are completed and the results found to test previously recorded can a valid conclusion as to a chemical identity of the evidence be reached.

Evidence in the Assassination of President Kennedy.

- Who did it?
- Lee Harvey Oswald vs. The Warren Commission!
- The Warren Commission's Conclusions. L.H. Oswald...the lone assassin.
- In 1977, at the request of the U.S. House of Representatives Select Committee on Assassinations, the bullet taken from Connelly's stretcher along with bullet fragments recovered from the car and various wound areas were examined for trace element levels.

The Inorganic Results were...

- There is evidence of only 2 bullets- one of a composition of 815ppm Antimony and 9.3ppm of Silver, the other of a composition of 622 ppm Antimony and 8.1 ppm Silver.
- Both Bullets have a composition highly consistent with the guns bullet lead, although other sources cannot entirely be ruled out.
- The Bullet found in the Connelly's stretcher also damaged Connelly's wrist. The absence of bullet fragments from the back wounds of Kennedy and Connelly prevented any effort at linking these wounds to the stretchers bullet.

[Therefore]

- None of these conclusions can totally verify the Warren Commissions reconstruction of the assassinations, but the results are consistent with the commissions findings.
- Question Everything!...Fox Mulder.