



B2 A Rapid Analysis of Low Explosives With SEM/EDS—A Case Report

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After attending this presentation, attendees will understand rapid analysis of low explosives with SEM/EDS.

Scanning Electron Microscopy Energy Dispersive X-Ray Analysis (SEM/EDS) is a very useful method to analyze for most of inorganic materials like gunshot residues, paints, soil, glass etc. Also it is possible a rapid analyze of low explosives with SEM/EDS.

In the present study, we carried out rapid analysis of low explosives (potassium chlorate and sulphur) by the method mentioned above.

While four young men were at the seaside for fishing, they wanted to prepare a device of explosive-fishing by adding a powdered material to another that was in a bottle. At this time the bottle exploded with a huge noise and four young men were injured.

Crime scene investigators found two different powder materials and pieces of a broken glass bottle at the scene.

Although in this case, it was believed by crime scene investigators that these materials found at the scene, were calcium carbide, they were sent by the public prosecutor for analysis to our laboratory.

One of these materials was slightly moistened, white powder, and the other was dry, yellow powder. Approximately two grams of each powder was placed and heated in an 110° C oven for 1 h. Then materials removed from oven and were allowed to cool to room temperature. Each of these materials was placed on two different double-sided adhesive tape then attached to a stub, and coated with carbon. SEM/EDS analyses for these materials were carried out using a JEOL 5600LV scanning electron microscope equipped with a LINK-ISIS 300 X-ray analyzer.

The results obtained in this study indicate that elemental composition of the white powder consisted of potassium, chlorine, and oxygen (its compound was potassium chlorate), yellow powder was sulphur.

SEM/EDS, Low Explosives, Potassium Chlorate and Sulphur