

FORENSIC LITERATURE THESIS

LITERATURE THESIS

Title	: <i>Element analyses in plastics by (LA-)ICP-MS</i>
Keywords	: ICP-MS, chemical profiling, plastic analysis
Forensic Expertise Area	: Analytical chemistry
Department	: CBRN protection
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SHORT DESCRIPTION

A dispersion device is a prerequisite for a successful terrorist attack involving a chemical warfare agent (CWA). Determining the trace-elemental composition of specific parts of the device could potentially provide leads for the tactical investigation. Plastic materials are often found in improvised explosive devices or CWA dispersion devices. The analysis of plastic caps provided characterization and differentiation of flash bangers in pre- and post-explosive casework [1,2]. Although plastic materials contain specific elemental profiles that can facilitate classification and forensic comparison, accurate quantitation of trace elements is hampered by the lack of suitable standards. Such standards that do exist for instance for glass are much more difficult to produce for polymer matrices as inorganic elements are not homogeneously distributed in the plastic [3].

Inductively coupled plasma mass spectrometry (ICP-MS) is a preferred method for trace level analysis. Chemical profiling of plastics is relevant for various applications including toxicology, food safety and environmental studies [4–6]. The aim of the literature thesis is to find ICP-MS or LA-ICP-MS methods for accurate analysis of trace elements in plastic materials.

REFERENCES

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REQUIRED/RECOMMENDED EXPERTISE

- Basic understanding in analytical chemistry.

