

# Validation of an analytical method for the identification of SmartWater CSI Forensic Marking Technology

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## Abstract Details

### ***Validation of an analytical method for the identification of SmartWater CSI Forensic Marking Technology***

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#### Abstract

SmartWater is a chemical taggant used as a crime deterrent. The chemical taggant is a colorless liquid that fluoresces yellow under ultra-violet (UV) light and contains distinctive, identifiable and traceable elemental composition. For instance, upon a break and entry scenario, the burglar is sprayed with a solution that has an elemental signature custom-made to a specific location. The residues of this taggant persist on skin and other objects and can be easily recovered for further analysis. The product has been effectively used in Europe as a crime deterrent and has been recently introduced in South Florida. In 2014, Fourt Lauderdale Police Department reported the use of SmartWater products with a reduction in burglaries of 14% [1].

The International Forensic Research Institute (IFRI) at FIU validated the scientific foundation of the methods of recovery and analysis of these chemical tagging systems using LA-ICP-MS. Analytical figures of merit of the method such as precision, accuracy, limits of detection, linearity and selectivity are reported in this study. Moreover, blind samples were analyzed by LA-ICP-MS to compare the chemical signatures to the company's database and evaluate error rates and the accuracy of the method.

This study demonstrated that LA-ICP-MS could be used to effectively detect these traceable taggants to assist law

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enforcement agencies in the United States with cases involving transfer of these forensic coding systems.

1. Police chief credits SmartWater with role in burglary reduction, Sun Sentinel, March 24, 2014 by Don Crinklaw, <http://www.sun-sentinel.com/news/broward/fort-lauderdale/fl-esb-smartwater-0320-20140324,0,2793703>.