

RESEARCH PROJECT



Title:

Creation of an animal and vegetable oil database

Nature of problem this work is intended to address:

Analysis of vegetable oil residues (VOR) is a niche forensic discipline. Organic animal and vegetable oils are composed mostly of triglycerides. Triglycerides are made up of an esterified glycerol backbone attached to fatty acids. The fatty acid composition of these oils can be qualified by derivatising the oil and subjecting it to GC-MS analysis. The fatty acid contents of an oil can be used to identify residues of that oil after they have been recovered from the scene of a fire.

In particular, ratios between C18 fatty acid isomers are important in determining an oil's natural propensity toward self-heating. This can be a significant issue in cases where a fire was determined to have started due to self-heating of an oil. Due to the large number of animal and vegetable oils that are commercially available, a database of GC-MS chromatograms would be beneficial in identifying unknown oil residues.

Outline of goals and objectives:

- Establish a GC-MS database of commercially available animal and vegetable oils.

Special requirements:

Knowledge of working in a chemistry laboratory is essential. Familiarity with analysis techniques such as GC-MS would be beneficial.

GKA Investigations Group project supervisors:

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