Case Study 1: Food and Drink

Development of analytical techniques to provide quality assurance for foods

The Challenge

We were approached by a food company who needed a consulting laboratory with a comprehensive range of advanced analytical capabilities to carry out specification testing on their final products and their raw materials. The company has its own quality control laboratory which is equipped to deal with most quality control tests, however it routinely needs analysis using unusual specified wet chemistry techniques or using more advanced instrumentation (such as GC, GC-MS, HPLC, ICP, FTIR). We are experienced in adapting and interpreting methods to meet client's requirements and have the advanced analytical capability required and so we were able to develop analyses to satisfy our client's needs.

Analytical Approach

Typical analyses using wet chemistry techniques that were developed for this client have included:

- Sulphur dioxide/Sulphite using Monier Williams distillation and titration
- Heavy metals as lead using European Pharmacopoeia (EP) method
- Oxalate using a colorimetric technique (EP method)
- Halogenated compounds (EP method)
- Iodine value of edible oils
- Readily carbonisable substances (EP method)
- Peroxide value (EP method)

Typical instrumental analyses for this client have included:

- Heavy metals by ICP-MS
- Fatty acid composition using GC-MS
- Residual solvents by headspace GC-MS
- Particle size distribution using Malvern Laser Diffractometry
- Foreign body identification analysis using Fourier Transform Infrared Spectroscopy (FTIR)
- Organic acids using Reversed Phase HPLC

Our advanced instrumentation and our flexible response to the non-routine tests requested by the client meant that we were able to satisfy most of their requirements.

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Analytical Data

Figure 1 - FTIR Identity Analysis of Foreign Body in Final Product

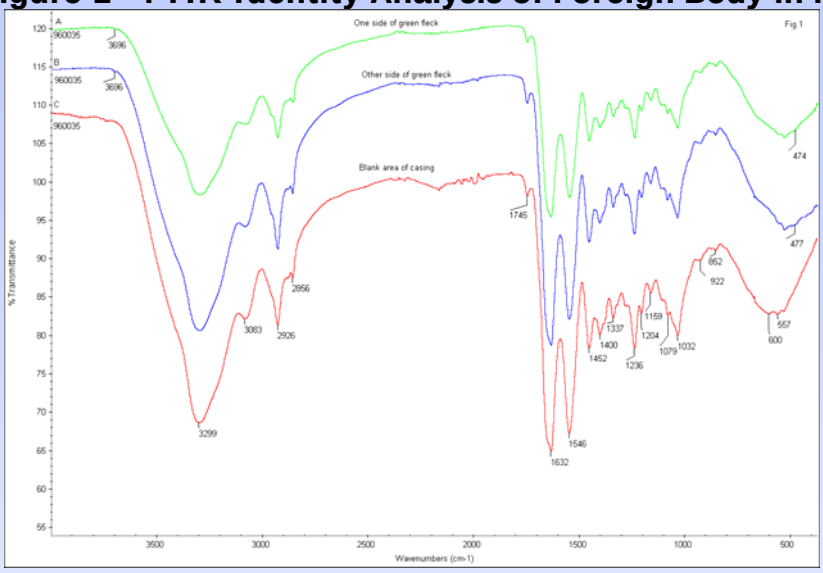
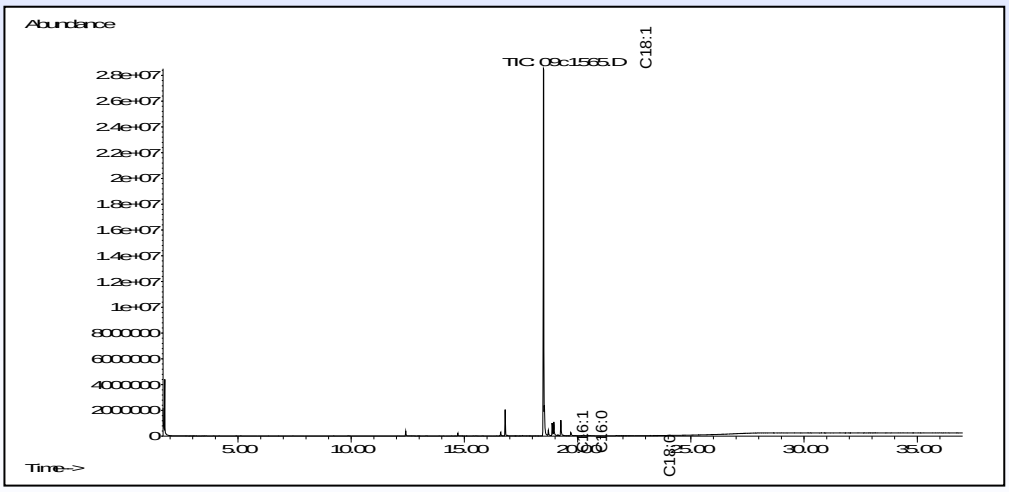


Figure 2 - GC-MS Analysis of Fatty Acid Composition of Vegetable Oil



The Outcome

We have developed a close working relationship with this client, helping them to meet their regulatory obligations under Good Manufacturing Practice (GMP) and helping them to meet their customers' requirements for product quality testing. This has enabled the client to satisfy their customers and maintain and grow their business.

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