

Guidance for Point of Contact Technologies

Maes o ddiddordeb ymchwil: [Innovative regulator](#)

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Executive summary

The last decade has witnessed significant advances in analytical technology, application and scientific best measurement practices for food testing, inclusive of food authenticity, quality and safety analysis. This evolution has also been mirrored in the capabilities and market availability of portable analytical instrumentation which can be deployed at the point of sample testing throughout the food supply chain, often using miniaturised equipment. This area of Point Of Contact (POC) testing is expanding at a rapid rate, and there is a lack of guidance on the application of POC technologies and interpretation of the resultant data in the foods area, providing a significant challenge in the use of results.

This report informs on the current state of the art and availability of POC instrumentation, technologies involved, current applications, commodity testing, gaps and limitations, and end-user requirements, with a specific focus on official controls. This information was collated based on a series of tasks inclusive of further examination of responses to a previous Defra project FA0178 questionnaire, a current literature review, key learnings from synergistic projects and initiatives in the UK and internationally, published guidance on portable analytical instrumentation, engagement with accreditation bodies, stakeholder focus groups and a new questionnaire.

The first phase of the project, which involved the horizon scanning, literature review and stakeholder engagement exercises, revealed that there was no harmonised definition of POC testing in the foods area, although this was generally understood to encompass portable analytical instrumentation which can be deployed at the point of sample testing throughout the food supply chain, often affording the potential to screen samples quickly and cost effectively.

The POC area encompassed technologies inclusive of rotational vibrational spectroscopy platforms (Near infrared (NIR), Fourier-transform infrared (FT-IR) and Raman), spectral imaging platforms (multi- and hyperspectral imaging), mass spectrometry, nuclear magnetic resonance (NMR), and biological analyte-based platforms (proteins and nucleic acid-based). In recent years, the areas of NIR, Raman and nucleic acid detection methods have shown increased interest. Topical commodity and food testing remains consistent with previous years, with areas inclusive of meat and fish speciation, herbs and spices adulteration, and testing for allergens continuing to remain at the forefront of analyses, but also being joined with quality and safety applications. Advantages and benefits of POC testing are generally well understood in terms of providing rapid, real-time results as part of screening approaches. Discussions focussing on the use of POC

testing for official controls emphasised the potential of POC devices to provide a useful and cost-effective screening tool. The importance of method validation to provide objective evidence of the fitness for purpose was reiterated.

The second phase of the project was to establish a set of recommendations for developing an infrastructure for guidance for POC testing in the food sector as part of official controls, informed by the results and conclusions associated with the upstream review. A detailed list of guidance and recommendations have been provided, which were further refined following feedback from a cohort of official control representatives, prior to being incorporated into this final report. Key aspects centred on the need to assess end-user requirements (the concept of operations) in addition to applying core method validation principles. Central recommendations also included the need for method validation to be performed on the specific combination of POC technology, instrument, application or commodity as per standard practice, to validate the method performance in the context of field-based setting at the point of application, to establish appropriate reference materials and databases, and to develop a centralised UK-based POC testing and advisory framework for provision of guidance and support as an aid to harmonisation. Future work proposals were made, inclusive of developing a candidate POC test case for method validation to demonstrate cost-saving benefits, as well as a recommendation to further engage with regional official control groups to further assess regional variations and end-user requirements.

“Food you can trust” is a central theme described in the [FSA Strategy 2022-2027](#). This central theme is supported by three pillars which encapsulate the FSA strategy, namely that food is safe, food is what it says it is, and food is healthier and more sustainable. This project advances current knowledge in the area by developing support mechanisms, focussing on method validation guidance associated with POC technologies, with a firm emphasis on how these can be applied for official controls. This will help inform potential end-users regarding the scope and utility of the POC instrumentation, providing additional confidence in results from this topical and growing sector, supporting its application as a further additional tool for authenticity, quality and safety testing in the food supply chain.