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Engineering & Scientific Consulting

Malcolm Driffield, Ph.D.

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Professional Profile

Dr. Driffield has over 25 years' experience in the field of analytical chemistry, providing advice and guidance on the analytical techniques used to investigate problems across a number of commodities and Industries including food, beverages, food packaging and food contact materials such as plastics, coatings and printing inks, environmental samples and fuels.

Dr Driffield works with clients in the UK, EU, US and Asia to solve scientific, technical and regulatory challenges, specializing in the area of food contact materials, and also working with novel foods, food additives and colour additives. One area of expertise that Dr Driffield particularly enjoys working on is non-intentionally added substances (NIAS) in food contact materials and he uses his many years laboratory experience in this area to assist clients with all aspects of NIAS determination, including design and interpretation of analytical NIAS testing, identification and quantification of NIAS from analytical data and tracing the origin of these substances. Dr. Driffield has extensively published and is often an invited speaker at international conferences and workshops.

Dr. Driffield has experience in undertaking witnessed analysis of samples involved in disputes and litigation, for example contaminated ship cargoes and bunker fuel samples, in particular exploratory testing for fuel characterization and contaminant identification using mass spectrometric techniques, as well as overseeing testing according to ISO 8217 and other appropriate standards.

Before joining Exponent, Dr Driffield worked for over 16 years at a UK Government laboratory, Fera Science Ltd (previously The Food and Environment Research Agency (Fera) and the Central Science Laboratory (CSL)) where he gained widespread experience in analytical methodologies used in the determination of chemical contaminants in foods and food contact materials. It was at Fera as a Research Fellow, where he built-up his extensive knowledge of non-targeted analysis techniques used for the determination of NIAS. As well as a strong technical knowledge in applying analytical techniques, he has considerable experience in the interpretation of the complex data sets produced, for Industrial and Government clients, as well as global regulatory bodies.

In his previous role as Team Manager and Science Lead - Packaging and MS Solutions at Fera, Dr. Driffield led a team working on all aspects of food contact materials testing including product development, extraction and migration studies, and analysis using a wide range of state-of-the-art analytical technologies, often providing analytical data and interpretation of the results for regulatory submissions. He organized and presented on training courses and attended meetings held by the European Reference Laboratory for Food Contact Materials, representing the UK National Reference Laboratory in this area.

Academic Credentials & Professional Honors

Ph.D., Chemistry, University of York, UK, 2003

M.Chem., Chemistry, University of York, UK, 1999

Member of UK Food Standards Agency (FSA) Food Contact Material Joint Expert Group, 2025-Present

Prior Experience

Team Manager and Science Lead - Packaging and MS Solutions, Fera Science Ltd., 2015-2018

Research Fellow - Non-Targeted Analysis, Food and Environment Research Agency (Fera), 2010-2015

Higher Analytical Chemist - Food Contact Materials, Central Science Laboratory (CSL), 2004-2010

Higher Analytical Chemist - Mycotoxins, Central Science Laboratory (CSL), 2002-2004

Publications

Selected Peer- Reviewed Publications

Driffield M, Garcia-Lopez M, Christy J, Lloyd AS, Tarbin J, Hough P, Bradley EL and Oldring P.K.T. (2018) The determination of monomers and oligomers from polyester-based can coatings into foodstuffs over extended storage periods. Food additives and Contaminants Part A, 35, 6, 1200-1213.

Bengtstrom L, Trier X, Jensen LK, Granby K, Taxvig C, Vinggaard AM, Driffield M and Petersen JH (2016) Non-targeted screening for contaminants in paper and board food contact materials using effect directed analysis and accurate mass spectrometry. Food Additives and Contaminants, 33, 6, 1-14.

Maia J, de Quirós AR, Sendón R, Cruz JM, Seiler AM, Franz R, Simoneau C, Castle L, Driffield M, Mercea P, Oldring P, Paseiro P (2016) The determination of key diffusion and partition parameters and their use in migration modelling of benzophenone from low density polyethylene (LDPE) into different foodstuffs. Food Additives and Contaminants, 33, 4, 715-724.

Driffield M, Bradley EL, Castle L, Lloyd AS, Parmar M, Speck DR, Roberts DPT, Stead S (2015) Use of ASAP-TOF-MS to screen for plasticisers in gaskets used in contact with foods. Rapid Communications in Mass Spectrometry, 29, 1603-1610.

Driffield M, Bradley EL, Leon I, Lister L, Speck DR, Castle L, Potter ELJ (2014) Analytical screening studies on irradiated food packaging. Food Additives and Contaminants, 31, 3, 556-565.

Seiler A, Bach A, Driffield M, Paseiro P, Mercea P, Tosa V, Franz R (2014) Correlation of foodstuff with ethanol-water mixtures with regard to solubility of migrants from food contact material. Food Additives and Contaminants, 31, 3, 498-511.

Bradley EL, Burden R, Bentayeb K, Driffield M, Harmer N, Mortimer DH, Speck DR, Ticha J, Castle L, (2013) Exposure to phthalic acid, phthalate diesters and phthalate monoesters from foodstuffs: UK total diet study results. Food Additives and Contaminants, 30, 4, 735-742.

Driffield M, Bradley EL, Harmer N, Castle L, Klump S (2010) The determination of polyadipates migrating from glass jar lid gaskets - Hydrolysis to adipic acid and measurement by LC-MS/MS. Food Additives and Contaminants, 27, 10, 1487-1495.

Coulier L, Bradley EL, Bas EC, Verhoeckx KCM, Eigenhuijsen J, Driffield M, Harmer N, Castle L (2010) The analysis of reaction products of food contaminants and ingredients: Bisphenol A diglycidyl ether

(BADGE) in canned foods (2010) Journal of Agricultural and Food Chemistry. 58, 4873-4882.

Book Chapters

Driffield M, Bradley EL, Castle L (2019) Chemicals from food contact materials, in Food safety assurance and veterinary public health (Wageningen Academic Publishers), Volume 7, Chemical hazards in foods of animal origin, edited by F.J.M. Smulders, I. Rietjens, M. Rose

Driffield M, Bradley EL, Castle L, Coulier L (2011) Identification of unknown migrants from food contact materials, in Mass Spectrometry in Food Safety, Methods and Protocols, edited by J. Zweigenbaum, 357-372.

Driffield M (2004) Food and nutritional analysis: Mycotoxins. Encyclopedia of Analytical Science, 2nd Edition, 261-271.

Selected Presentations

How to deal with NIAS in food contact materials at ChemAcademy, 7th International Conference on Food Contact Materials Regulation - Regulatory Requirements and Challenges, on-line conference, 10th-11th February 2025.

Toxicological studies for non-intentionally added substances (NIAS) at Plastics & Paper in Contact with Foodstuffs 2024, in Vienna, Austria, 10th-11th December 2024.

The use of non-targeted analysis in food contact material testing: A help or a hindrance? at Global Food Contact 2024, in Bethesda, USA, 23rd-24th May 2024.

Regulatory considerations for sustainability in food contact materials at Chem Academy, 6th International Conference on Food Contact Materials Regulation - Regulatory Requirements and Challenges, Köln, Germany, 5th-6th February 2024.

Bisphenol A (BPA) in food contact materials at Plastics & Paper in Contact with Foodstuffs 2023, in Amsterdam, The Netherlands, 12th-13th December 2023.

Non-intentionally added substances (NIAS): What are they and what do I need to do about them? at Food Contact Materials – Analytical and Regulatory Issues (AffidiaTALKS), on-line conference, 19th-20th October 2023.

Bio-based food contact materials – Global considerations at Global Food Contact 2023, in Prague, Czech Republic, 22nd-24th May 2023.

Non-intentionally added substances (NIAS): How to identify the unidentified at Food Contact Regulations Europe 2023, in Brussels, Belgium, 17th-18th April 2023.

Non-intentionally added substances (NIAS): Importance, approach, and recent advances at Chem Academy Food Contact Material Regulations Conference, in Berlin, Germany, 6th-7th February 2023.

Regulatory considerations in formulating sustainably at SCI Formulation Forum 4th Annual Event: Challenges and opportunities in formulating a sustainable future, in London, UK, 24th-25th January 2023

Printing ink regulation in Europe: The new German Ordinance and changes to Swiss rules at Plastics & Paper in Contact with Foodstuffs 2022, in Amsterdam, The Netherlands, 13th-14th December 2022.

PFAS in food: A persistently emerging issue at the European Crisis Management Summit 2022, in Hertfordshire, UK, 17th to 19th October 2022.

Advances in NIAS analysis at Food Contact Regulations Europe 2022, 29th-30th March 2022Bio-based food contact materials at Food Contact Regulations Europe 2022, 29th-30th March 2022

Technical requirements on testing for a holistic approach to FCM compliance at Global Food Contact 2021, Virtual pre-conference workshop organised by Smithers Pira, 8th June 2021.

Day two keynote: Hot topics for food contact materials assessment in 2021 at Food Contact Regulations Europe 2021, on-line conference, 23rd-24th February 2021.