

Exponent®
Engineering & Scientific Consulting

Malcolm Driffield, Ph.D.

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Professional Profile

Malcolm Driffield, Ph.D., is a senior managing scientist in Exponent's Chemical Regulation and Food Safety practice with over 25 years of experience in analytical chemistry, food contact materials, and chemical regulatory compliance. He leads the EU/UK Food Safety Team and advises food manufacturers, packaging producers, and regulatory affairs teams on food contact material safety, non-intentionally added substances (NIAS), and EU/UK packaging regulations, with particular experience in non-targeted analysis and regulatory submissions for new substances.

Areas of Expertise

- Food packaging and food contact materials
- Regulatory submissions and compliance
- Analytical chemistry and non-targeted analysis
- Non-intentionally added substances (NIAS)
- Packaging and Packaging Waster Regulation (PPWR)

Industries Served

- Chemical industry
- Packaging and food contact material industry
- Packaging manufacturers, converters, and packers
- Food manufacturers
- Brand owners and retailers
- Marine

Food Contact Materials

Dr. Driffield helps clients navigate the complex and rapidly evolving regulatory landscape governing food contact materials (FCMs): the plastics, coatings, printing inks, and other materials that come into direct contact with food and beverages. He advises manufacturers, brand owners, and legal and regulatory teams on compliance with legislation such as Commission Regulation (EC) No 1935/2004 on materials and articles intended to come into contact with food, Regulation (EU) No. 10/2011 on plastic food contact materials, UK FCM legislation, and applicable national measures across EU Member States. His work spans migration testing and interpretation of results, compliance documentation, and technical

assessments of whether a material or article meets applicable specific migration limits (SMLs), overall migration limits (OMLs), or other restrictions. Although based in the UK, he has also provided expert support on legislation in other jurisdictions including the U.S., Canada, Australia and New Zealand, South America, and China.

Dr. Driffield also advises clients on bio-based and recycled food contact materials, including the compliance challenges associated with recycled plastics and recycled paper and board, areas of growing commercial and regulatory importance as the industry transitions toward more sustainable packaging solutions.

Regulatory Submissions & Compliance

Dr. Driffield supports clients seeking regulatory approval for new substances intended for use in food contact materials, food additives, and colour additives. He prepares and reviews technical dossiers for submission to the European Food Safety Authority (EFSA), the UK Food Standards Agency (FSA), the U.S. Food and Drug Administration (FDA), and other global authorities, helping to ensure that submissions meet the scientific and data requirements set out in applicable guidance documents.

He also advises clients on complex compliance questions, helping companies understand how their products, formulations, or materials fit within current regulatory frameworks and identify gaps or risks before they become enforcement issues. His membership on the UK FSA Food Contact Material Joint Expert Group (2025-present) keeps him at the forefront of regulatory developments in this space.

Analytical Chemistry & Non-Targeted Analysis

Dr. Driffield brings more than 25 years of hands-on laboratory and interpretive expertise in analytical chemistry, with particular specialization in non-targeted analysis (NTA), the use of high-resolution mass spectrometry and related techniques to detect, identify, and quantify unknown or unexpected chemical substances in complex matrices. He applies these methods to food, food packaging, environmental samples, fuels, polymers, and pharmaceutical materials.

His analytical toolkit includes experience with liquid chromatography mass spectrometry (LC-MS), gas chromatography mass spectrometry (GC-MS), time-of-flight mass spectrometry (TOF-MS), atmospheric solids analysis probe (ASAP), and other techniques used to characterise samples. He has extensive experience designing analytical testing programs, interpreting complex datasets, and translating technical findings into clear, actionable guidance for industrial and regulatory clients.

This experience has allowed Dr Driffield to act as study monitor for complex analytical testing procedures and to participate in witnessed analysis for food and marine fuel arbitration cases.

Non-Intentionally Added Substances

Non-intentionally added substances (NIAS) — chemicals present in food contact materials that were not deliberately added but arise from reactions, degradation, or impurities during manufacturing — represent one of the most technically demanding areas of FCM compliance. Dr. Driffield is a recognized authority in this field, having built his NIAS expertise over more than 15 years at a UK government laboratory before joining Exponent.

He assists clients with all aspects of NIAS determination: designing fit-for-purpose analytical testing strategies, applying non-targeted screening methods to identify unknown substances, quantifying NIAS against relevant thresholds, assessing toxicological concern using threshold of toxicological concern (TTC) approaches, and tracing the origin of identified substances back to raw materials or process steps. His published research and frequent invited presentations at international FCM conferences reflect his standing as a leading practitioner in this area.

Packaging & Packaging Waste Regulation

Regulation (EU) 2025/40 — the so-called Packaging and Packaging Waste Regulation (PPWR) — represents one of the most significant regulatory developments affecting the packaging industry in recent years, introducing new requirements on recyclability, recycled content, and the presence of substances of concern in packaging such as per- and polyfluoroalkyl substances (PFAS). Dr. Driffield advises the chemical industry as well as packaging manufacturers, brand owners, and retailers on what PPWR means for their products and supply chains, helping clients assess compliance obligations, identify substances of concern, and develop strategies for meeting the regulation's requirements.

His work in this area connects directly to his FCM and NIAS expertise: understanding which substances are present in packaging materials, whether intentionally added or not, is foundational to demonstrating compliance with PPWR and related sustainability-driven regulatory requirements across the EU and UK.

Academic Credentials & Professional Honors

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

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

Prior Experience

Managing Scientist - Food and Food Contact Materials, Exponent, 2018-2026

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

Professional Affiliations

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

Publications

Selected Publications

Driffield M (2026) Sustainable food packaging: compliance of recycled plastic vs. recycled paper. From Soil to Table: The Encyclopedia of Food Sustainability. Proceedings of the Second Food Revolution Conference, 82-85.

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

Sustainable food packaging: Compliance of recycled plastic vs. recycled paper at the 2nd Food Revolution conference, From soil to table: The encyclopedia of food sustainability, in Venice, Italy, 11th to 13th May 2026.

NIAS in food contact materials at ChemAcademy 8th International Conference on Food Contact Material Regulation in Berlin, Germany, 9th to 10th February 2026.

Regulatory challenges for sustainable food packaging at Proactive Food Safety Europe, in Manchester UK, 22nd January 2026.

Assessing non-intentionally added substances (NIAS) in the new regulatory context at Chemical Watch, Sustainable Food Contact Materials Europe 2025, 19th to 20th June 2025.

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

Project Experience

Dossier submission

Led the successful regulatory approval of a novel plastic additive for food-contact applications across EFSA, FDA, and Health Canada, enabling market access in key global jurisdictions. Partnered with the client to develop a robust testing strategy, including migration studies and NIAS characterisation, interpreted complex analytical data, and prepared comprehensive regulatory dossiers tailored to each authority. Served as the primary technical liaison with regulators, addressing questions and providing scientific justification throughout the review process, ultimately securing positive evaluations and approvals from all three agencies.

NIAS Characterisation and Safety Assessment

Proposed identities for previously unidentified chromatographic peaks in bio-based packaging materials through detailed mass spectral interpretation, enabling identification of potential NIAS and facilitating risk assessment and regulatory compliance decision-making.

PPWR Interpretation

Guided a client through the implementation of the EU Packaging and Packaging Waste Regulation (PPWR) by assessing a complex portfolio of packaging products and determining their regulatory roles and obligations across the supply chain. Translated regulatory requirements into practical compliance

actions, enabling the client to understand and meet its PPWR responsibilities. Developed key compliance documentation, including a Declaration of Conformity (DoC) and supplier information-request templates, helping the client obtain the technical data necessary to conduct robust compliance assessments and support market access.

Witnessed Analysis

Served as an independent technical expert in a high-value maritime dispute involving the failure of a commercial vessel that caused significant cargo delays and financial losses. Oversaw and witnessed the analysis of bunker fuel to ensure adherence to agreed protocols, preserve the integrity of the evidence, and maintain a robust chain of custody. Successfully navigated complex interactions and negotiations among multiple opposing parties and their representatives, helping to ensure that the analytical results were technically sound, impartial, and able to withstand subsequent legal and technical scrutiny