

**DR MARTIN JONAS**

Dipl.-Phys MPhil PhD (Cantab) MInstP CPhys FIFST

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Martin Jonas is a physicist and food scientist with a First Class *Diplom* degree from Cologne University and an MPhil and PhD from Cambridge University, having carried out academic research in the Departments of Physics and Plant Sciences. He is a Chartered Physicist and a Fellow of the Institute of Food Sciences and Technology. Having published prolifically during his time in academia, he has specialised full-time as a forensic cargo scientist investigating the cause and effect of cargo-related marine casualties and claims since joining Jarrett Kirman & Partners in 1998. He became Partner in Brookes Bell in 2003 and Director of Science UK in 2019, heading the UK-based team of cargo scientists.

His scientific and surveying expertise concerns the ocean carriage and storage of a wide variety of bulk, packaged or containerised commodities; grain cargoes, whole oilseeds, rice, seed cake/meal and other agriproducts, raw and refined sugar, fertilisers, liquid cargoes such as edible oils, ores and other minerals, chemicals, fruit and vegetables, etc. In addition to his general casework, he has dealt extensively with problems arising from microbiological self-heating of grain and from the potential liquefaction of mineral ore concentrates and other mineral bulk cargoes such as nickel ore and iron ore fines.

He has attended on board many ships to carry out forensic investigations into the cause and extent of cargo deterioration and spoilage, liquefaction, contamination, water damage, insect infestation/fumigation, heating and fire and other marine claims and also provides scientific advice based on documentary evidence. A major part of his work concerns advice on hazardous cargoes, including liquefaction and fire/explosion risks, and the IMO regulations governing their carriage in the IMSBC and IMDG Codes. He has been advising the International Group of P&I Clubs and BIMCO on these topics.

Dr Jonas has acted as scientific expert witness in numerous LMAA, FOSFA, RSA and GAFTA arbitrations and in the Commercial Court in the UK and other jurisdictions.

Academic Qualifications

Diplom degree ("sehr gut" grade, equivalent of First Class Hons.) in Physics (course incorporating chemistry and mathematics), University of Cologne.

MPhil in Physics, Cambridge University.

PhD in Physics, Cambridge University.

Professional Memberships

Chartered Physicist (CPhys), Member of the Institute of Physics (MInstP), Fellow of the Institute of Food Sciences and Technology (FIFST).

Previous Employment History

Post-doctoral research at the Cavendish Laboratory, Department of Physics and department of Plant Sciences, University of Cambridge.

Doctoral research at the Department of Physics and Department of Plant Sciences, University of Cambridge.

Research Assistant at the German National Agency for the Safety of Nuclear Reactors (GRS), working on mathematical modelling of fracture mechanics of engineering steel.

Scientific and Consultancy Experience

- Damage to the following commodities, among others:
- Grain (maize/corn, wheat, barley, etc.)
- Minerals (liable to liquefy): copper concentrate, zinc concentrate, lead concentrate, chrome concentrate, fluorspar, iron ore fines, nickel ore and similar mining products
- Minerals (dry/not liable to liquefy): alumina, mineral sands, etc.
- Coal
- Raw and refined sugar
- Seed Cake (palm kernel expellers, soya bean meal, and other expelled/extracted cargoes)
- Whole oilseeds (soya beans, sunflower seeds, rapeseed, etc.)
- Fertilisers (urea, ammonium nitrate, NPK, TSP, DAP, etc.)
- Bagged cargoes (rice, cocoa, coffee, refined sugar, etc.)
- Edible oils (crude and refined palm oil, soya bean oil, etc.)
- Refrigerated cargoes (fruit and vegetables such as bananas, potatoes, kiwis, etc.)
- Frozen cargoes (fish, meat, etc.)
- Safe carriage and storage of the above commodities
- Sampling procedures: statistical evaluation, recommendations, practical and theoretical limitations
- Laboratory analysis procedures: advice on methods, liaison with laboratories, interpretation of results
- Advice on IMSBC Code regulations for the carriage of bulk cargoes and IMDG Code regulations for the carriage of packaged dangerous goods

- IMO certification requirements for IMSBC Code Hazard Group A cargoes (cargoes that may liquefy): sampling procedures, determinations of flow moisture point/transportable moisture limit, etc.
- Radiation dosimetry/nuclear physics and carriage of IMDG Class 7 radioactive cargoes
- Cargo fires, self-heating and spontaneous combustion
- Infestation and fumigation of foodstuffs (effectiveness and hazards of fumigation, properties of fumigants, IMO regulations, etc.)
- Plant diseases and storage disorders in refrigerated fruit and vegetables
- Microbiological deterioration (moulds, fungi, yeasts, etc.) of foodstuffs through self-heating, water ingress, external heating, etc.
- Physics of condensation, ventilation, heat transfer, moisture migration, and their effect on the ocean carriage of hygroscopic cargoes (e.g. grain, oilseeds, rice, coffee).

Publications

Dr Jonas has published extensively in scientific journals, with five first-author or single-author papers in peer-reviewed journals as well as further second-author and non-peer-reviewed publications. He has also published many loss prevention articles for major P&I Clubs and other industry bodies on the carriage of bulk and containerised cargoes, including several major articles on liquefaction of mineral ores.

Dr Jonas is the co-author, with Charles Bliault, of a textbook on the carriage of bulk cargoes ("Bulk Cargoes: A Guide To Good Practice", Loss Prevention Guide, North Of England P&I Association, 2016, 280pp).