Sheard Scientific - CV of Daniel Sheard

Marine & General Scientific & Technical Consultant

Dr J Daniel Sheard MA MSc PhD (Cantab) CPhys FInstP FCIArb FIFST AFNI FIMarEST

Consulting Scientist and Arbitrator. Partner

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Daniel Sheard is an independent consulting scientist. He has a first class degree in Natural Sciences from Christ's College, Cambridge. His PhD was granted for studies into physics and mathematics applied to ocean acoustics. He has a further degree in microbiology from Birkbeck College, London.

Daniel joined scientific consultancy Jarrett Kirman & Willems in 1996. JKW merged with another consultancy, Brookes Bell, in 1998 and Dr Sheard subsequently became a partner. In 2021 he left and set up Sheard Scientific as an independent consultant.

His area of scientific expertise relates to the storage and carriage of a wide range of commodities, and damage or deterioration of those. These include grain cargoes, oilseeds, derived products such as common animal feedstuffs, fertilisers in bulk and bags, liquid cargoes such as animal and vegetable oils, molasses and liquid chemicals. He can advise regarding refrigerated fruit and vegetables and frozen cargoes such as meat. Daniel has regularly been consulted on shipboard commodity fires involving coal, chemicals, wood pellets and direct reduced iron (DRI), both in terms of emergency actions and subsequently investigating causation. He has investigated infestation of commodities such as rice and animal feedstuffs.

Dr Sheard has attended on board numerous ships whilst carrying out investigations and has also provided opinions based on contemporaneous documentary evidence. In the course of his work, he has prepared reports for court or arbitration proceedings, and has given evidence on many occasions in a number of jurisdictions.

Dr Sheard has been involved in investigating a number of widespread "theme" incidents. For example, in 1997/1998 there was a problem involving soya bean meal exported from India. From 2005 onwards Dr Sheard has been involved in dealing with and investigating problems caused by solid bulk cargo liquefaction of nickel ore and subsequently iron ore fines; he attended at the loading of a large number of vessels to ensure ship safety.

Daniel has specific areas of interest involving the use of statistics in investigating cargo claims, and in aspects of sampling to ensure representativity. He also has expertise and knowledge relevant to testing to identify the presence of genetically modified entities/organisms.

He has written and contributed to a number of loss prevention articles published by various P&I Clubs and is co-author of the North guide "Cargo Ventilation – A Guide to Good Practice" (revised 2nd Edition published 2020). He has chaired the Lloyds Maritime Academy seminars on Liquefaction of Bulk Cargoes.

Since 2024, Dr Sheard has also acted as an arbitrator. He is a Supporting Member of the LMAA. In 2024 he was awarded the Diploma in Maritime Arbitration by the Chartered Institute of Arbitrators and is a Fellow of that Institute. He is a GAFTA-approved arbitrator.

Academic Qualifications

1990. BA (first class) Natural Sciences, Christ's College, Cambridge, studying physics, chemistry, cellular biology and mathematics. Awarded the Hartree and Clerk Maxwell prize for first place in physics final examinations.

1994. MA Cambridge

1994. PhD in the physics of sound transmission in arctic waters at Scott Polar Research Institute/Department of Applied Mathematics and Theoretical Physics, Cambridge.

2001. MSc Microbiology, Birkbeck College, London. Awarded distinction.

Professional Associations

Fellow of the Institute of Physics and a Chartered Physicist.

Fellow of the Chartered Institute of Arbitrators.

Fellow of the Institute of Food Science and Technology.

Fellow of the Institute of Marine Engineering, Science and Technology

Associate Fellow of the Nautical Institute

Supporting Member of the London Maritime Arbitrators' Association

Employment

2021	Partner, Sheard Scientific.
1998-2021	Associate, Partner, Principal Scientist at Brookes Bell Jarrett Kirman and Brookes Bell.
1996-1998	Scientist and Associate at Jarrett Kirman & Willems.
1994-1996	Master (Mathematics) at Eton College, Windsor.
1993-1994	Lector and Director of Studies, Christ's College Cambridge.
1990-1994	Research Student at Scott Polar Research Institute and Department of Applied Mathematics and Theoretical Physics, Cambridge.

Scientific and Consultancy Expertise

Safe carriage of and cause and consequence of damage to the following commodities.

- Bulk grain and oilseeds – maize/corn, wheat, sunflower seeds, soya beans
- Derived agricultural commodities such as soya bean meal, sunflower seed pellets, DDGS, corn gluten feed, cottonseed meal.
- Bagged products – rice, cocoa, fishmeal
- Sugar – refined sugar in bags and bulk raw sugar
- Edible oils in bulk (vegetable oils and animal oils). Contamination and damage
- Coal in bulk (safe carriage, fires and cargo damage)
- Wood pellets in bulk (fires, gas evolution and cargo damage)
- Coke (metallurgical coke and coking coal)
- Fertilisers in bulk and in bags. Damage and thermal decomposition
- Sulphur in bulk – safe carriage and damage to
- Chemicals in packaged form – safe carriage, self-heating, contamination and fire
- Refrigerated produce – fruit and vegetables
- Frozen goods – fish and meat
- Direct reduced iron (DRI) – safe carriage and handling of incidents
- Bulk cargo liquefaction (Group A cargoes) – mineral concentrates, iron ore fines, nickel ore
- Infestation and safe fumigation of cargoes
- Warehouse storage of commodities
- Sampling – statistical significance, sampling procedures
- Detection of genetically modified organisms (GMO) – sampling and testing procedures
- Cargo fires – self-heating, spontaneous combustion, fumigant fires and explosions

Publications

Sheard, JD & Uscinski, BJ. An Analytical Technique for Solving an Arctic Acoustic Model. European Conference on Underwater Acoustics 1992

Sheard, JD & Spivack, M. Wave scattering in a Rough Elastic Layer Adjoining a Fluid Half-Space. Journal of the Acoustical Society of America, 97 (1), pp 72-83.

Anderson, D, Sheard, JD & North of England P&I Association, Cargo Ventilation – A Guide to Good Practice. 1st Edition 2006, 2nd Edition 2020.

Dr Sheard has written widely in trade journals and for P&I Loss Prevention articles.