

# CURRICULUM VITAE Dr Pamela E. Simpson

Full Name: Pamela Elaine Simpson (nee Heaton)

Position: Managing Director

Profession: Microbiological Consultant and Expert Witness

Qualifications: PhD Biological Sciences studying microbial control using slow-release biocide/paint technologies - Birmingham University, 1989

BSc (Hons) Biological Sciences - Leeds University, 1986

Fellow, Royal Society of Biology, 1990 to date

Senior Member of the Institute of Corrosion

Fellow of the Water Management Society

HABC Level 3 Award in Legionella Control for Responsible Persons (QCF)

C&G WMS Practical Risk Assessment (Hot & Cold water systems)

C&G WMS Management and Control of Closed Systems

Highfield Examining Body Approved Trainer for L2 Legionella Awareness in water systems and L3 Responsible Person Awareness Training.

BSRIA: Steering Group Member BSRIA BG50/2013: "*Water Treatment for Closed Heating and Cooling Systems.*"

Steering Group Member, BSRIA BG29/2021: "*Pre-commissioning cleaning of pipework systems.*"

Author, BSRIA BG50/2021 "*Water Treatment for Closed Heating and Cooling Systems*"

BSRIA trainer for BG29/2021 "*Pre-commissioning cleaning of pipework systems.*"

Nationality: British

Year of Birth: 1965

Professional Bodies: The Water Management Society (Fellow)

Royal Society of Biology (Fellow)

Chemical and Industrial Consultants Association (CICA)

Council Member, Water Management Society (2022 to date)

Chair, Waterline Committee, Water Management Society (Nov 2022 to date)

Sponsor & Council Member, Closed Systems Control Association (CSCA) (2017 to date)

Chair, Water Treatment Group, CED of Institute of Corrosion (2013-2018)

Council Member, International Biodeterioration & Biodegradation Society (2015-2018)

Awards: Corporate Winner 2015: Best Microbial Control Consultant

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### **Key Experience**

Pamela Simpson is a Chartered Fellow of the Royal Society of Biology with more than 30 years' experience in microbial control in water systems and biocide applications. Pamela provides expert witness support in particular for closed heating and cooling systems, hot and cold-water systems with specific focus on microbial influenced corrosion. Prior to founding Whitewater Technologies Ltd, she worked for two major international chemical companies, where her main role was solving customers' microbiological problems by the scientific application of a wide range of speciality biocides. Her PhD was sponsored by International Paints and the compounds and techniques studied have now been developed into innovative products to replace environmentally harmful biocides. Pamela has a developed broad knowledge of the application of microbial control techniques in:

- Hot and cold-water systems
- Closed Heating and Chilled systems
- Product preservation and antimicrobial surface protection
- Process water control, reuse and recycling
- Effluent minimisation and clean-up

She has experience of a range of industry sectors including oil; paper; food; paint; textiles; leather; mineral extraction and processing; adhesives; coatings and water treatment. Over the last few years she has been involved in biocide regulations in a range of application areas and continues to assist companies in their applications under the BPD.

### **Professional History**

#### **1998-present Managing Director, Whitewater Technologies Limited**

As Managing Director and Principal Consultant, Pamela provides expert witness support, technical advice, on-site surveys, management of laboratory support, and access to a wide range of microbicides to solve problems, specifically on microbial influenced corrosion. She has provided cost effective solutions for clients in relation to process water treatment, plant hygiene, microbially influenced corrosion and product preservation. She is also able to act as consultant and legislation advisor to Industries seeking registration of new products which comply with the Biocides Products Directive.

Recent projects have included:

- Expert witness on microbiological contamination and biofilm formation within heating and cooling closed systems, in particular during pre-commissioning stages and domestic supply pipework of new builds. This has included the impact of microorganisms on system corrosion. Advice includes the preparation of an expert response report for use at arbitration. Attendance as an expert witness for microbiology and water quality at arbitration.
- Expert witness on the cause of microbially influenced corrosion within heating and cooling closed water systems pipework in a new build office block. Advice on how to treat the system to remove microbial biofilm and then assist with system witnessing to ensure the microbial contamination had been removed to allow for fit outs to be attached to the main water system.
- Expert witness on the source and cause of microbiological contamination and biofilm formation within hot and cold domestic water systems of a new build within a hospital facility. Of particular relevance was the regulations HTM04-01 for augmented care units.
- Expert adviser on microbiological contamination and algal formation within a recirculating water system of public fountains.
- Expert witness on microbially influenced corrosion in cold water pipework on a luxury motor yacht. Preparation of ongoing actions to prevent this occurring again.
- Expert witness work on microbiological influenced corrosion in cold water pipework on contamination and biofilm formation within a closed system, in particular during pre-commissioning stages and domestic supply pipework of new builds. This has included the impact of microorganisms on system corrosion. Advice includes the preparation of an expert response report for use at arbitration. Attendance as an expert witness for microbiology and water quality at arbitration.
- Expert witness on the source and cause of microbiological contamination and biofilm formation within a hired hot tub which caused Pseudomonas infections and illness.
- Expert adviser on microbiological contamination and biofilm formation within a closed system and domestic supply pipework of a new build within a hospital complex. This has included the impact of microorganisms on system corrosion. Advice includes identifying the source of microorganisms, how to remove these and also how to prevent ongoing microbial contamination during commissioning of the system in accordance with BSRIA guidelines.
- Biocide Regulatory Consultant, including training seminars on biocides both at National Level and also for BPD Globally to ensure compliance under product types 2, 8 and 9 and treated articles.
- Regulatory consultant to include data compilation and submission for companies seeking insecticide and repellent registrations.
- Expert Adviser and assessor for microbial biofilms and associated corrosion in closed loop systems and domestic water supplies in a new build critical care hospital unit.
- Consultant and writer for a biocidal wash company to assist with the overall improvement of the website scientific data.
- Expert adviser and assessor for Industrial Microbial contamination including Legionella to prevent exposure and possible outbreaks of hazardous pathogens.
- Expert adviser for Solicitors representing a building firm who have renovated a property but residents now claim ill health due to contaminated water supplies and suspected microbial contamination.
- Expert adviser for a large building company on microbial induced corrosion on the pipe-work throughout a dwelling thought to be associated with corrosion inducing bacteria.
- Expert adviser on microbiological contamination and biofilm formation within the washwater systems of an insulation manufacturing company. This has included the impact of microorganisms on system corrosion. Advice includes the types of biocides required to reduce microbial problems and to prevent Legionella outbreaks.
- Expert adviser on microbiological contamination and biofilm formation within the pre-treatment and E-coat systems within the automotive Industry.
- Expert adviser for the effect of Microbial Induced Corrosion on fire sprinkler pipe-work systems through a London Office Complex.
- Consultant to a Copolymer Biocide Company that involves writing Company literature and technical support at Customers. Assisting with the product launch into the medical, leisure and food Industry.
- Coordinator and consultant to Insecticide product manufacturers to assist with Biocide Products Directive interpretation and product applications.
- Expert adviser for the effects of microbial induced corrosion on surfaces of pipes throughout a hospital water supply.
- Expert adviser for the effects of microbial induced corrosion on the pipe-work throughout a Scottish Manor House.

- Expert adviser and data interpretation for microbial content within bottled water for media use.
- Expert adviser for the effect of Microbial Induced Corrosion on pipe-work systems through a National Library.
- Product development for silver technology within a range of applications to prevent MRSA.
- Expert witness for the effect of Microbial Induced Corrosion on a Processing plant and the role played by the failure to apply biocide to the system.
- Assisted with end user interviews for use of biocides in marine antifouling paints and the plastics markets for the updating of global syndicated reports series, titled Specialty Biocides for Kline Group.
- Market review and regulatory advice for a range of biocide actives designated for the industrial surface coatings market.
- Assist with microbiological analysis and data interpretation for analysis carried out on domestic pipe-work to establish the presence of biofilms and associated corrosion issues.
- Technical consultancy and biocide development for the reduction of microbial biofilms within a re-circulating water spray booth application in the automotive industry.
- Technical brochure and bulletin writing and editing for a leading Biocide manufacturer.
- Technical advice on the use of surface-active ingredients in ceramic glazes, including development of microbiological testing regimes appropriate for simulating end-use applications
- Solving microbiological problems within the textile industry where borehole water microbiological populations are being destructive to processing
- Assessment and promotion of a new environmentally friendly, fully biodegradable flame retardant for use in a wide range of application areas
- Completion of registration applications to the Health & Safety Executive for new product launches. These included Pesticide registrations and clarification of Biocide presence on the proposed Annex list
- Textile effluent treatment to reduce colour and suspended solids using a Patented clarifying system.
- Review of biocide registrations for select markets and microbiological experimentation for identifying appropriate biocides for the preservation of educational paints
- Practical advice for the improvements in effluent treatment at adhesive and ceramic manufacturing plants
- Technical advice and treatment regime for the removal of algal blooms from industrial water systems used to wash aggregate materials
- Technical advice on the removal of heavy metals from industrial effluents
- Technical advice on the differentiation of farm and brewery effluents entering a common water course
- Market surveys for the use of biocides in sealants, adhesives and paint preservation
- Technical advice on microbial problems associated with container sterilisation at a recycling unit
- Technical guidance and treatment of effluent in a paper coating plant to improve water quality and to reduce odours associated with microbiological flora in separated sludge during water clarification processes
- Textile preservation for the prevention of mould and bacterial growth
- Evaluation of microbial problems associated with effluent in a carpet manufacturing plant
- Improvement of plant hygiene and product preservation for an adhesive manufacturer

**1994-1998                      Chemviron Speciality Chemicals Ltd**

1995 - 1998              European Manager, Speciality Biocides

As **European Manager**, Pamela was responsible for all of the Industrial Biocides application areas and covered technical, regulatory and sales issues across Europe. She liaised with the US parent company to ensure product development was maintained for changing markets in Europe.

Major projects included: solving plant hygiene problems for multinational starch and adhesive manufacturer; resolving microbial spoilage of food packaging materials following high temperature sterilisation; design and implementation of safer preservation techniques for the paint industry; and developing “next generation” formulations aimed at reducing exposure hazards in biocide handling.

Pamela was also involved in the implementation of core business strategies to increase market share. She was responsible for actively seeking, employing and training Agents and Distributors from across Europe to assist with market penetration.

1994 - 1995      Technical Manager, Speciality Biocides

As **Technical Manager**, Pamela was responsible for the co-ordination of all technical issues within the speciality biocides business encompassing paper manufacture, industrial water treatment, paint, textiles and dyes. She undertook microbiological assessments of all English China Clay (ECC) sites across Europe; implemented new biocide regimes to improve slurry preservation – including re-engineering of process plant to maximise biocide dispersion; and technical troubleshooting of ECC customers' experiencing microbial contamination. As part of her role, she was responsible for all of the technical writing and marketing literature required for customer product support. She was also involved in the registrations of all products being supplied to industrial applications. Field support was given to all aspects of the business.

**1990 - 1994:      Albright and Wilson, Project Leader, Biocides.**

Pamela was involved in all aspects of project development for a new Speciality Biocides business for products entering the water treatment, paper, paint, oilfield, leather and timber industries. This role involved technical publicity writing in addition to research and, later involved extensive technical support and training of all staff and Agents on a world-wide basis. With the development of new active biocides, it was Pamela's role to screen all of these for microbiological activity. For actives launched, it was her role to carry out a full environmental fate study in water treatment applications under GLP conditions. This involved careful planning to ensure that all aspects of trial design, experimentation, documentation of results and presentation of findings, were all accurately recorded for submission to the US EPA registration Committee.

**1986 - 1989:      PhD, University of Birmingham (sponsored by International Paints)**

A three-year study into controlled release mechanisms of a novel biocide and paint formulation for hot humid environments. The project identified a unique formulation in which a self-replenishing microcrystalline biocide bloom formed on the paint surface to prevent microbial growth. This technology has since become commercially available and has also been extended into marine antifouling applications.

**Scientific Publications:**

Parsloe C & Simpson PE (Autumn 2023). The Challenge of Reduced Temperatures in Heating Systems. *The Journal of the Water Management Society (Waterline)*. Autumn (2023).

Simpson PE, Crick S & Jones C (2021). The Benefits of a Third Generation Tetrakis(hydroxymethyl) phosphonium sulphate (THPS) Biocide to Combat Biofilms and Associated Microbial Influenced Corrosion (MIC) in the Industrial Water Treatment Industry – Case Study. *The Journal of the Water Management Society (Waterline)*. Winter (2020-2021).

Simpson PE & Jones R (2020). Effect of Sample pH on the Identification of an NRB in Closed Hot and Cold-Water Systems. *The Journal of the Water Management Society (Waterline)*. Winter (2019-2020).

Simpson PE, Jones R (2019). Effect of Sample pH on the Identification of an NRB in Closed Hot and Cold-Water Systems. In: *The Journal of the Water Management Society (Waterline)*. Winter (2019-20).

Simpson PE (2016). Hazards Associated with Water Quality in Closed Pipe Systems. *The Expert Witness*. Summer 2016 Vol 1 (16).

Parsloe C & Simpson PE (2016). Hazards Associated with Water Quality in Closed Systems. *The Journal of the Water Management Society (Waterline)*. Spring (2016)

Simpson PE, Parsloe C (2015). Are Closed Systems a Closed book? *Journal of the Healthcare Engineering and Estate Management* 69 (10), 72-74.

Simpson PE (2002). Biocides in the Pulp and Paper Industry: An overview. In: *Industrial Biocides, Selection and Application*. Ed: D.R. Karsa & D. Ashworth 2002, R.S.C.

Simpson PE (2000). Biocide versus Micro-organism: A comparison of risks. In: *Biodeterioration and Biodegradation, special publication (2000.)*

Callow ME, Heaton PE, Butler GM (1993). Control of mould growth by antifungal paints. In: *Biodeterioration and Biodegradation 9. The 9<sup>th</sup> International and Biodegradation Symposium 1995*, 567-572. Institute of Chemical Engineers, publ.

Heaton PE (1993). A new biocide for the industrial water treatment and oilfield applications. In *Biodeterioration and Biodegradation 9. The 9<sup>th</sup> International and Biodegradation Symposium 1995*, 128-132. Institute of Chemical Engineers, publ.

Heaton, PE, Callow, ME, Butler GM, (1992). Life strategies of wall disfiguring moulds in relation to temperature fluctuations on the wall of a maltings kiln. *International Biodeterioration and Biodegradation* 29, 135-149.

Heaton, PE, Butler, GM, Milne A, Callow, ME. (1992). Control of mould growth by antifungal paints. *International Biodeterioration* 27, 163-173.

Heaton, PE, Butler, GM, Milne, A, Callow ME. (1990). Studies on biocide release and performance of novel antifungal paints. *Biofouling* 3(1), 35-43.

Heaton, PE, Butler, GM, Callow ME (1990). The floristic composition of moulds growing on walls in food and drink processing factories. *International Biodeterioration* 26, 1-9.

Heaton, PE, Butler, GM and Callow ME (1989). Mould development on walls of a Maltings Establishment. In: *Airborne Deteriogens and Pathogens, Proceedings of the Spring Meeting of the Biodeterioration Society*. Flannigan B (ed).