Dr. WEN LI
BEng, MSc, PhD

Senior Scientist

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Wen Li obtained her MSc and PhD in Chemistry at The University of Manchester in UK, and a BEng degree in Material Science and Engineering at Tongji University in Shanghai. Prior to joining Brookes Bell, Wen worked at Puraffinity Ltd, a London-based bioengineering start-up for wastewater treatment. Multidisciplinary researcher experience enables her to develop wide skills in organic chemistry, analysis chemistry, advanced material characterisation, and novel composite materials development. She joined Brookes Bell as a cargo scientist in December 2018.

Wen has attended on vessels and at commodity facilities to investigate cargo deterioration, design sampling protocols, oversee sampling to International Guidelines and to design, oversee and interpret analytical procedures for a variety of commodities.

Wen's MSc research concerned development of photocleavable lipids and studying the products formed after irradiation while her PhD research topic involved application of dynamic combinatorial chemistry (DCC) concepts to lipid self-assembly and lipid interactions with graphene surfaces. Her research enabled her to develop skills in a variety of analytical chemistry techniques, including NMR, FTIR, LC-MC, GC-MS, SEM, TEM, differential scanning calorimetry (DSC) and dynamic light scattering (DLS).

At Puraffinity Ltd, her combined scientific research and engineering background enabled her to develop synthesis of innovative products, characterise them (e.g. with SEM, TEM, TGA) and reliably scale up their production from lab (mg) to industrial (kg) scale – a challenging milestone with variable, bio-based raw materials. This resulted in a patent application for a product showing market leading performance to remove micropollutants (e.g., PFASs) from wastewater. She also supported the project with analytical chemistry skills (e.g., LCMS, GCMS) and developed a novel method for analysis of used firefighting foam (AFFF) process water.

She has wide interests in engineering, scientific and innovative environmental-friendly projects.

Academic Qualifications

PhD in Chemistry, The University of Manchester, UK.
MSc in Chemistry, The University of Manchester, UK.
BEng in Material Science and Engineering, Tongji University, China.

Previous Employment History

Puraffinity Ltd. Process Development Manager

- Responsible for the product production process and scale-up of production.
- SOP update and management
- Resource planning, supporting the ongoing budgeting process
- Planning, scheduling and executing agreed development plans to scale-up lead product candidates
- Representing the company at road shows, exhibitions and conferences
- Customer communication to understand customer needs regarding deliverables & technical expectations
- Supporting with appropriate IP Rights protection strategies (patent, trade secret, trademarks, copyright, etc.) around products, processes, commercial insights, brand and other areas of commercial priority

The University of Manchester Laboratory Teaching Assistant

Surveying and Consultancy Experience

- More than 60 cases of soybean cargo in bulk, including issues of self-heating, water ingress, metal/fuel oil/other foreign material contamination, and mitigation methods
- Quality issue (e.g., self-heating, wet damage, germination, mycotoxins) to grains and oilseed cargoes (e.g., maize, yellow peas, wheat, barley, sorghum, sunflower pellets, bagged rice, etc)
- Insect invasion of soybean, rice, salt, wheat cargoes in bulk, including re-fumigation operation
- Quality issue of liquid chemicals (e.g., Benzene, Styrene Monomer, Ethylene Glycol, 1-hexene)
- Liquid chemicals quality control during salvage STS operation of tankers
- Advise on sampling and analysis protocols for damaged cargoes
- Witnessing lab tests of fuel and liquid chemical samples
- Quality issue of vegetable oils
- Quality issue (e.g., discolouration, contamination, wet, etc.) of fertilizer cargo
- Quality issue of granulated blast furnace slag in bulk
- Quality issue of soda ash
- Water ingress and liquefaction issues of Group A cargo (e.g., ball clay, iron ore)
- Heavy oil contamination (direct and indirect) in frozen seafood
- Damage to frozen fruit
- Fire investigation for containerised goods (e.g., carbonised rice husk, general cargo)
- Coating inspection
- Bio-fouling inspection
- Presenting in events and workshops related to cargo
- Attended hearings as an expert at Guangzhou, Xiamen, Tianjin, Beihai, Qingdao, and Ningbo Maritime courts in China.

Publications

- Li, W, Mcmanus, D, Liu, H, Casiraghi, C and Webb, S 2017, 'Aqueous dispersions of nanostructures formed through the self-assembly of iminolipids with exchangeable hydrophobic termini' Physical Chemistry Chemical Physics.

- UK, Patent No. 1805058.3, 28 March 2018. (Pending, Title: Chemical Cellulose Product)