Formumetrics

Formulations, measurements and solutions for industry

Formumetrics Ltd. is an experienced colloid science consultancy group that provides solutions to formulation and processing problems for companies worldwide. Our clients vary in size from large corporations to individuals developing their own business. We serve a wide range of industries and our technical expertise spans multiple technologies; from pharmaceuticals, foodstuffs and agrochemicals to printing inks, coatings and oil recovery.

Get in touch

www.formumetrics.com

+44 (0)117 370 7760

contact@formumetrics.com

What we do

- We offer contract research and consultancy services
- We provide high-calibre scientific skills and expertise
- We deliver solutions to our clients' formulation problems

Our extensive range of technical services includes:

- Sample characterisation and simple measurements
- Reverse engineering of products and processes
- Development of new formulations
- In-depth problem solving and research for innovation
- Patent and literature studies and expert witness
- Training and development solutions

We can…

Solve your problems

Improve your products

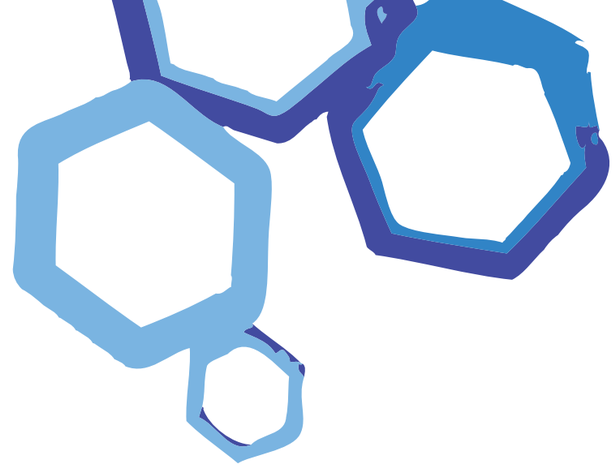
Add to your knowledge-base

Why choose Formumetrics?

- Formumetrics' team of highly trained colloid chemistry specialists offers a unique combination of problem solving capabilities and technical expertise garnered from both academia and industry.
- Our team of experts is fully committed to supplying an efficient service to achieve the highest possible quality standards.
- We have an excellent track record in knowledge transfer from the laboratory to the market-place and the consultancy we provide is always scientifically justified, based on many years' experience.
- We pride ourselves on being flexible and easy to work with. It is one of our core beliefs that our working relationship with our client should be both professional and rewarding and, most importantly, based on trust.

Our services

Contract research is Formumetrics' primary activity. Below are some examples of the research and consultancy services we provide.



Sample characterisation and simple measurements

We carry out analytical measurements to characterise and understand product formulations and their chemical constituents. These measurements can pinpoint any issues that have arisen or be used to provide independent expert testing of products or equipment.

Problem solving

If a client requires in-depth examination of a problem product or process, we will work alongside them to determine the cause of the problem. Typical problems we can resolve include:

- Stability or shelf life issues
- Inconsistencies between product batches
- Difficulties in embedding a new active compound into a product

Whatever the nature of the problem we will devise a programme of work designed to solve it.

Longer-term research

Research-based studies that we undertake include:

- **Background research** – to investigate an existing or inherited product or process to generate a level of understanding that can be transferred back to the customer.
- **Feasibility studies** – to determine whether an idea or concept is scientifically feasible based on prior art and recent innovations.
- **Proof of concept or principle studies** – experimental studies to prove that the production of a material or process is achievable.
- **Proof of product studies** – the generation of a real material, with many of the required product attributes, from the concept of a material profile.
- **Marketing demonstrator** – to produce prototypes for marketing purposes that are physical examples of a product in order to demonstrate the possibility of what can be achieved.

Research for Innovation

We can undertake specific projects or participate in focused innovation days. Innovation days can be designed around brainstorming new ideas or concepts or to tackle existing in-house research challenges. We will explore with you and offer expert advice on suggested ideas to help develop a range of possible concepts addressing the challenge.

Development of new formulations

New and innovative formulations are the key to success. We apply colloid science to improve existing products or to develop new products. The Formumetrics team can work alongside your in-house specialists to develop formulations or carry out development combined with research to enhance your internal capability.

Training and Development Solutions

Formumetrics' experts can provide training in colloid, surface and interface science across a wide variety of subject areas and levels of complexity. Our programmes range from introductory level to more in-depth, lecture-based courses and practical, laboratory-based instruction.

We also offer individual or company-wide subscription to a comprehensive online e-learning colloid science package, Impact F. For more information on what Impact F can do for your organisation, visit: www.colloidtraining.com

Other support

We can also provide specialist technical audits, literature research projects and patent searches.

If you have a programme of work that you would like to discuss with us then please get in touch to set up a free confidential meeting.

Techniques and equipment

We offer a range of scientific techniques and specialist equipment to overcome challenges faced by industry. We can tailor a combination of the following measurements to carefully design a programme of work, which will best meet our customers' needs.

Rheological measurements

Rheological experiments allow the microstructure of a material to be probed. Experiments can be conducted to simulate production and application processes.
Techniques include: viscosity profiles; creep recovery; oscillatory rheology; measurements conducted at high temperature or high pressure; simple U-tube viscometry.

Particle size and size distribution

The choice of technique employed for measuring particle size and size-distribution is highly dependent on the nature of the system under investigation.
Techniques include: Photon Correlation Spectroscopy (PCS) with variable/multi-angle; Static Light Scattering; Laser Diffraction; Focused Beam Reflectance Method; Disk Centrifugation; Electron Microscopy and EDX.

Structural properties

In addition to the size and size distribution of a sample, there are various other properties of interest that have a significant influence on the potential end use.
Techniques include: surface area by multipoint BET; micropore analysis; optical microscopy with crossed polars and/or hot stage; confocal and atomic force microscopy; X-ray scattering (including small angle); Pulse Field Gradient Nuclear Magnetic Resonance; Magnetic Resonance Imaging.

Electrochemical properties of surfaces

The surface charge of components within a formulation can play a major role in the overall behaviour of the system.
Techniques include: Laser Doppler Electrophoresis; streaming potential determination and particle surface charge by conductimetric/potentiometric titrations; dynamic mobility and zeta potential in concentrated aqueous and non-aqueous dispersions using acoustophoresis.

Interfacial measurements

The behaviour at the interface of two phases can determine the stability of the system produced and the wetting, adsorption, absorption, spreading and spraying properties that the system will possess.
Techniques include: Ring and plate tensiometry for surface tension, interfacial tension and Washburn measurements, and automatic titration for rapid critical micelle concentration determination; drop shape analysing for contact angle; bubble pressure tensiometry.

Formulation

Formumetrics has extensive background knowledge in the preparation of many types of colloidal systems including: well-characterised, low polydispersity polymer lattices, silica particles and metal sols; novel dispersions such as microgels and particles with magnetic or specified electrochemical properties; surfactant and polymer systems for the production of stable emulsions, foams or thin films. Using our Formulaction Turbiscan, we can quantify the stability of systems, for both analysis and quality control purposes.

Other capabilities

Via our external partner network, Formumetrics also has access to the following:
Gas Chromatography Mass Spectroscopy (GCMS); High Performance Liquid Chromatography (HPLC); Differential Scanning Calorimetry (DSC); Thermogravimetric Analysis (TGA); Small Angle Neutron Scattering (SANS); X-ray crystallography; mass spectroscopy and analytical NMR. Other analytical techniques may also be available. Please contact us to enquire.

Training

Formumetrics provides training across a wide variety of subjects and levels of complexity. We have a 'tried-and-tested' portfolio of courses that can be delivered to individuals or whole departments within a company. Our training is designed to increase in-house colloid science and formulation capabilities, leading to increased efficiency and productivity.

Target audience

We combine effective teaching capability with in-depth scientific skills to create tailored packages that address specific training needs. Our courses can be directed to all levels of staff, from interns and technicians to laboratory scientists and managers. We can also provide training suitable for administrative staff working within a scientific environment. Generally the training will include one or more of the following; traditional taught courses, laboratory-based courses and online learning.

Examples of our courses and events

- Working with colloids – an introductory level lecture-based course
- Creams, Gels and Thickeners
- Dispersion stability
- Introduction to Rheology
- Practical Rheology – a laboratory-based "hands on" course
- Formulating for Chemists – distance learning modules combined with a one-day laboratory based module

Impact F – online colloid training

If ongoing training and development is required, Impact F offers comprehensive web-based colloid science training comprising interactive in-depth learning modules for individual or company-wide continuing professional development.

Features of Impact F include:

- Over 1500 web pages of online training
- Engaging content, including interactive questions, experiments and simulations
- Structured, yet flexible training that is also available for use as a reference resource
- Expert authors
- Individual modules available
- Flexible purchase options – available as an individual license for as little as 6 months or as a multiple site license on a permanent basis

Impact F modules include:

- Rheology
- Particle size characterisation
- Imaging and scattering techniques
- Use of polymers in formulations
- Triggered, targeted and controlled release
- Surfactants, emulsions and liquid interfaces
- Formulations for coatings
- Combating formulation instability

Feedback from subscribers to Impact F

"The course is extremely applicable to the work we do on a day-to-day basis."

"Course material was useful, in-depth and easy to follow."

"I would recommend that this be used over a wide range of fields."

"Really good material, and very practical in its focus."

For more information about Impact F or any of the events and courses mentioned, or to discuss specific training needs, please get in touch with us.

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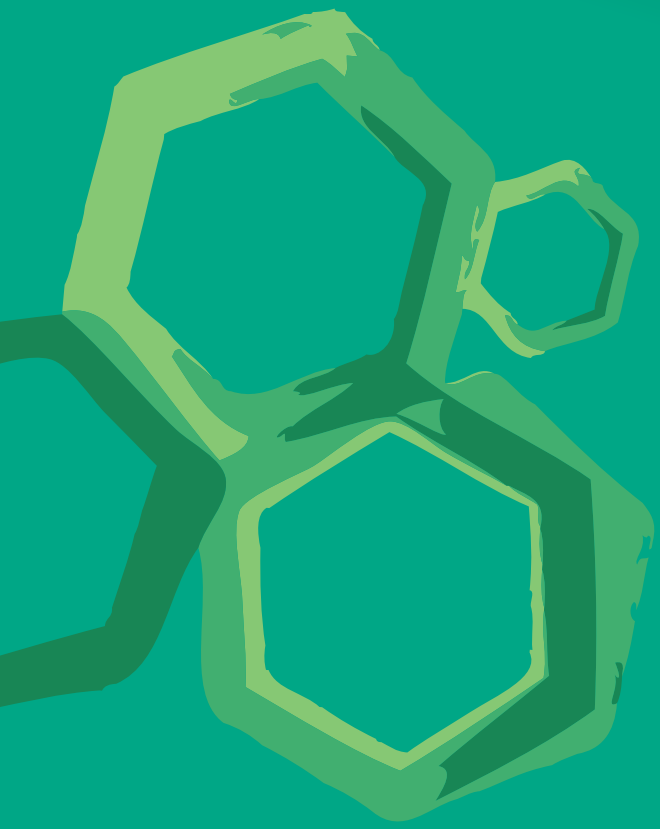

Formumetrics Ltd
S-Park One
Dirac Crescent
Emersons Green
Bristol BS16 7FR

+44 (0)117 370 7760
contact@formumetrics.com

www.formumetrics.com

Formumetrics Ltd. is registered
in England and Wales
Company no: 07555957