



BHR Group

EXPERTS IN FLUID ENGINEERING

Process Technology

Service Overview

A guide to our services for the process industries worldwide





Services for the Process Industry

Through its core expertise in fluid engineering and over 50 years experience in delivering benefits to its customers across the globe, BHR Group addresses the key issues affecting today's process manufacturing industry.



BHR Group Core Expertise

Mixing

- *Single phase*
- *Liquid liquid*
- *Gas liquid*
- *Solid liquid*
- *Multiphase*

Mathematical modelling

Physical modelling

Interaction of chemistry & mixing

Nanoparticle dispersion

Emulsification

Process intensification

Complex rheologies

Material characterisation

Crystallisation

Heat transfer

Piping system design

Sealing technology

Mechanical design

Customer Benefits

Reduced Time to Market

- Faster process design
- Improved process routes for novel products
- Reliable scale-up
- Shorter commissioning times

Improved Product Quality

- Improve batch to batch repeatability
- Maintain required impurity profile
- Improved process control
- Improve batch homogeneity

Flexible Production

- Effective design and rating of multi-product plant
- Manage variable batch sizes
- Move to continuous production

Improve Containment

- Avoid leakage of materials

Meet Validation Requirements

- Consistent product quality
- Equipment validation

Meet Environmental Constraints

- Improve yield
- Improve product recovery
- Reduce energy use
- Reduce solvent use



Services for Manufacturers

BHR Group adopts a 'best approach' methodology to address its clients' business requirements, from simple desk studies up to complex physical or mathematical studies, always focused on providing innovative solutions which are both robust and cost effective.

Process Consultancy

- Expert consultancy by world-renowned specialists
- Process and plant audits
- Process analysis
- Unique, validated design and scale up correlations
- Benchmarking of equipment

Physical Modelling

- Range of test vessels up to 15,000 litres
- Wide range of impellers available
- Bespoke models
- Validated performance measurement techniques
- Selection of test materials
- Rheometric testing

Mathematical Simulation

- Computational Fluid Dynamics (CFD)
- Modelling of complex physics and chemistry
- Crystallisation modelling
- Finite Element Analysis (FEA)
- Multiscale modelling

Process Research & Development

- Cost-sharing collaborative R&D to address common problems
- Confidential R&D
- Access to UK government and EU R&D funding

Process Intensification

- Design of PI processes
- Specification of PI equipment

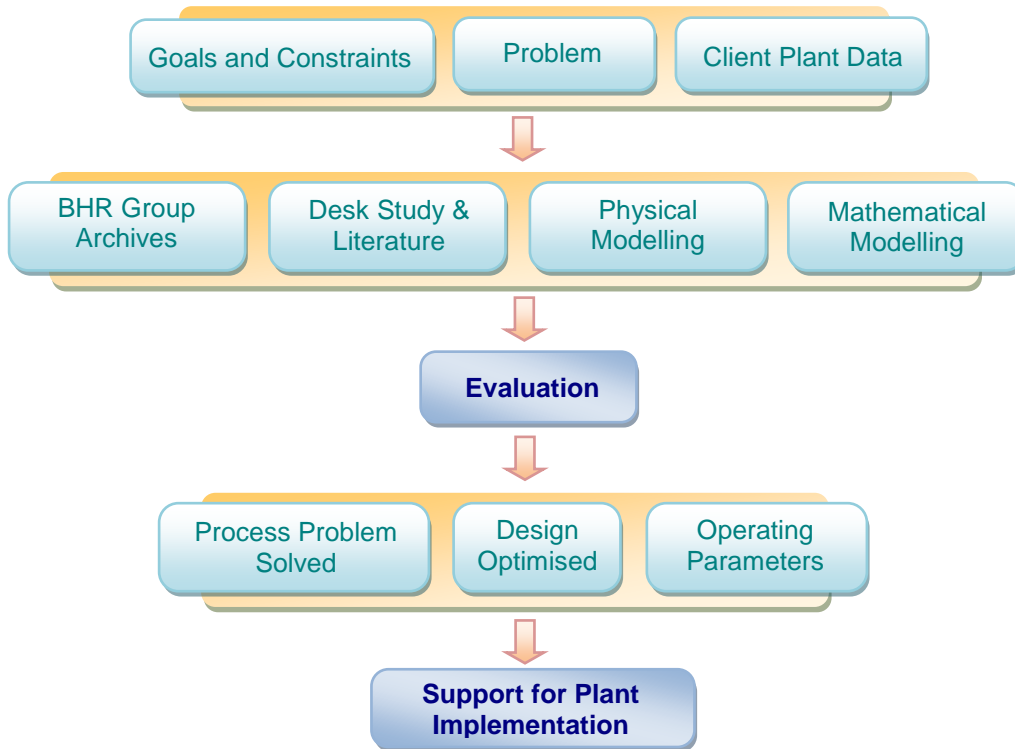
Training – Open or Bespoke Courses

- Mixing
- Nanoparticle Dispersion in Liquids
- Process Intensification
- Slurry Handling and Rheology





Our Approach



Our Clients

AstraZeneca	Merck
Akzo Nobel Chemicals	Pepsi
B P	Pfizer
Chemineer	Philadelphia Mixing Solutions
Dow	Procter and Gamble
Dow Corning	Rathi Vessels
Du Pont	Sellafield
Eli Lilly	Shell
Exxon	Solvay
Genzyme	Statiflo
GSK	Sulzer
Huntsman	Unilever
Infineum	US Dept of Energy
Joshua Greaves	VT Nuclear

Industries

Agrochemical
Bulk Chemicals
Equipment Manufacturers
Fine Chemicals
Food and Drink
Ink and Pigment
Mining & Mineral
Nuclear
Oil and Gas
Paint
Petrochemical
Pharmaceutical
Water and Wastewater

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