



# Merlin

powder characterisation

## Compression science on demand



Compression  
science

Manufacturability  
prediction

Adhesion  
measurement

API  
characterisation



Temperature  
sensitivity  
assessment

Bespoke  
testing



## Have you considered the manufacturability of your product?

Merlin Powder Characterisation has a unique service offering compression science on demand, giving access to cutting edge materials science and compression knowledge on a sample by sample basis.

Using our independent, expert, sub-contract service will enable you to optimise the compressibility of your product to meet your specific manufacturing requirements.

With a proven track record supporting global customers in industries including pharmaceutical, chemical and food, Merlin is the best independent facility of its kind in the world.



### **API characterisation**

Merlin offers a suite of tests, including Yield Pressure Determination (Heckel), to identify the key performance characteristics of your API before you start formulation.

Early identification of challenging manufacturing properties such as elasticity, poor strength and sticking will enable you to make informed choices and speed up successful formulation development.

### **Sticking**

Tablet punch sticking is a costly problem in production. Using an adhesion punch specifically designed for this application, Merlin has developed a world leading test to accurately quantify punch adhesion, enabling scientists to understand the causes of sticking.

The tests can be used to quantify the risk of sticking of new formulations or to trouble shoot solutions for existing products. The service includes an option to evaluate the most effective punch coatings to prevent sticking.

---

### **Temperature sensitivity**

As a production press runs, the temperature of the press increases through friction. Merlin has a temperature controlled die that can simulate the real production press operating temperatures (-10°C up to 70°C) to assess the impact of temperature on the behaviour of the formulation during compaction and ejection.

### **Roller compaction simulation**

Merlin can help you design your optimum roller compaction product. We can simulate the roller densification process to generate data on small amounts of powder. This is especially useful if material is in short supply or there are time constraints. We can measure key density and compression factors to guide your development process.

### **Formulation scale-up assessment**

Merlin can help identify potential manufacturing compression issues at the product formulation stage while there is still time to make changes, making costly scale-up disasters a thing of the past.

De-risk your chances of scale-up issues by compressing the powder at production speeds using production press profiles. You can assess the suitability of your product with as little as 20g of development formulation, compared with manufacturing much larger quantities of expensive material required to run a press only to find that it does not make a good tablet.

### **Bespoke testing**

For those tricky compression problems, contact Merlin Powder Characterisation. We will work with you to deliver a customised programme of testing, designed to answer your questions and solve your problems using the latest technology and expertise in compaction science.

### **Outsourcing**

Already have your own in-house capability but struggling with resource? Merlin can help, with the flexibility and capability to adapt methods to match your preferred protocols.

---

### **Equipment**

- Phoenix Hydraulic Compaction Simulator with full range of accessories.
- Schulze Shear Cell for powder flow and wall friction testing.
- Turbula blender and small scale formulation capabilities
- Helium Pycnometry for true density measurement
- Tapped Density – For Carr's Index
- IR moisture balance and humidity chambers
- Friability tester
- Disintegration tester



Compaction Simulator  
designed and manufactured  
by Phoenix Materials  
Testing Ltd. A full range of  
accessories is available.





## Cutting edge material science techniques to predict manufacturability

### **Merlin Powder Characterisation Ltd.**

Unit 8, The Wallows Industrial Estate  
Fens Pool Avenue  
Brierley Hill  
West Midlands  
DY5 1QA

Tel: 0843 309 1880  
+44 (0)1509 216741  
Email: [info@merlin-pc.com](mailto:info@merlin-pc.com)  
Web: [www.merlin-pc.com](http://www.merlin-pc.com)

**RO** RUBERY OWEN

Part of Rubery Owen

**Merlin**  
powder characterisation