



METHOD TO ESTIMATE RECONSTITUTION OF FOOD POWDER IN LIQUID



INTRODUCTION

The dissolution ability of a dry powder in a liquid depends on many parameters including wettability, sinkability, dissolution, or dispersibility. These parameters affect the customer perception of the overall product quality.

A large range of food powders exist, such as nutritional powder, dehydrated milk, baby milk, chocolate milk, beverages...

In this application note, we propose a methodology to assess the dry powder quality for reconstitution in liquid.

METHOD

The efficiency of 3 different food powders is assessed with a quick and simple protocol: a glass cell is filled with 15 mL of distilled water and 2 g of powder is deposited on the water. No stirring is applied on the product.

Food powder 1	Horlicks (GSK)
Food powder 2	Milo (Nestlé)
Food powder 3	Bourn Vita (Cadbury)

Turbiscan® measurement starts just after powder layer is deposited. The measurement is performed at 25°C. The following graph displays a typical Turbiscan profile obtained.

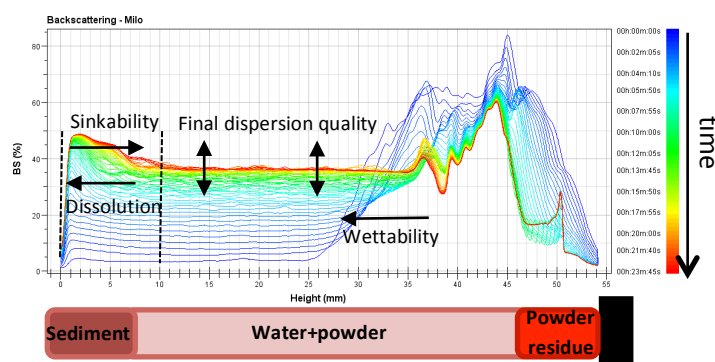


Figure 1: Evolution of the transmission signal for food powder 2 and schematic of the glass cell after 30 minutes

This graph shows information regarding the **wettability** of the powder, the **sinkability**, the **dissolution power** and the final **dispersion quality**.

RESULTS

Wettability

The wettability influences the speed of penetration of the powder layer in the water volume. The wettability level is directly linked to the backscattering peak thickness speed formation under the powder.

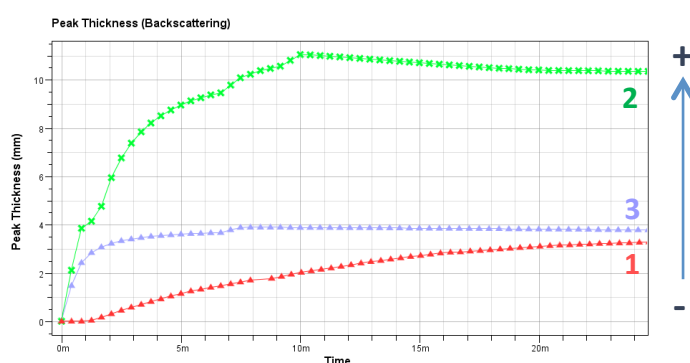
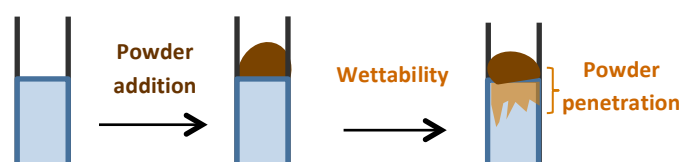


Figure 2: Peak thickness for powders 1, 2 and 3

Sample	Slope of peak thickness (mm/h)	Wettability
Food powder 1	16	-
Food powder 3	88	+
Food powder 2	99	+

These results show that speed of peak formation (directly linked to wettability) increases from sample 1 to 3 and is the best for sample 2.

Sinkability

The sinkability corresponds to the ability to overcome the surface tension of water and sink into water after passing through the surface and so forming a sediment layer. Sinkability is directly linked to the peak formation speed at the bottom of the cell.