



Fig 1. Evolution of shear stress with applied normal stress after pre-shear at 9 kPa with FT4 rheometer; (a) without humid control (b) with 50 % of humid control. Error bars represent standard errors; some were not visible as their size was inferior to the marker size.

In general, higher the curve presents the low flowability therefore agglomerated lactose showed low flowability in both case (with and without humid control) while control and hydrophobic (hydrophilic) glass beads for the case of without (with humid control) showed better flowability. The flow classification of powders for the case of without humid control are as; hydrophobic glass bead = control glass bead > hydrophilic glass bead > lactose coated glass bead > agglomerated lactose; also for the case of 50 % of humid control the classification is as hydrophilic glass bead = control glass bead > hydrophobic glass bead > lactose coated glass bead > agglomerated lactose. Generally, humid control did not influenced the flowability of powders; based on FT4 measurements. In addition, the flowing factors which have been collected from shear cell test are presented in table 1, all powders showed low cohesion values meaning that they have of good flowability.

Table 1. The cohesion and ffc values of powders have been collected by shear cell test with FT4

A	Cohesion (kPa)	ffc (-)	B	Cohesion (kPa)	ffc (-)
Control glass beads	0.24	20.84	Control glass beads	0,20	19,76
Hydrophilic glass beads	0.24	20.41	Hydrophilic glass beads	0,27	17.51
Hydrophobic glass beads	0.26	18.21	Hydrophobic glass beads	0,20	19,74
Lactose-coated glass beads	0.31	13.62	Lactose-coated glass beads	0,31	13,44
Agglomerated Lactose	0.38	9.88	Agglomerated Lactose	0,42	10.01