

Centrifugation Chart

Sample protocols for benchtop (7.3cm rotation radius) centrifuge, all ~5min.

BEAD TYPE	DIAMETER RANGE	RELATIVE CENTRIFUGAL FORCE RANGE (×G)	SPEED RANGE (RPM)
polymer	> 0.5µm	6500-14000	8925-13100
	> 1.0µm	3000-5500	6060-8210
	> 5µm	1300-3000	3990-6060
silica	> 0.5µm	3000-5500	6060-8210
	> 1.0µm	1300-3000	3990-6060
	> 5.0µm	750-1300	3030-3990
protein/Ab-coated	> 0.5µm	8000-11000	9900-11610
	> 1.0µm	5500-8000	8210-9900
	> 5.0µm	2000-5500	4950-8210

Troubleshooting tips.

1. If smearing on the wall of the tube occurs, we would suggest spinning your beads with greater force and or a longer time. Smearing can also be a sign of stickiness / hydrophobic behavior, and if not resolved by more rigorous centrifugation, we suggest the addition of a bit surfactant in the wash buffer (e.g. 0.001 - 0.1% Tween® or Triton®-X 100) to the suspension to aid in particle wetting so that they enter the aqueous phase more readily.
2. Larger particles (e.g. 10µm) can sometimes be challenging to spin down due to the forces of bouyancy and friction. Hydrophobicity can also cause particles to resist sedimentation. To counter this, we suggest adding a bit of surfactant to the suspension (and mixing well prior to centrifugation) to aid in particle wetting, in addition to increasing time/force.