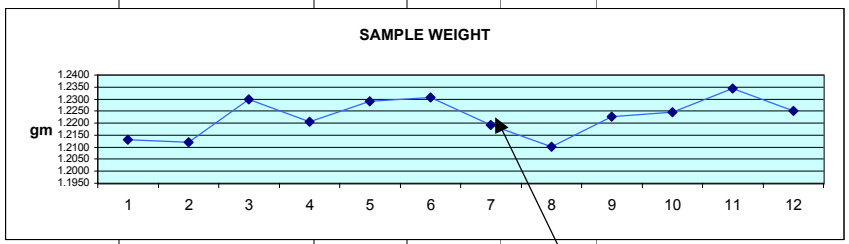


| | | | | | | |
|---------------------|---|--|------------------------------|--------------|-------|---------|
| Customer | BROOKS-PSI AUTOMATION | | | | | |
| Material | Fine Sand | | Est. Bulk Density (gm/cu.cm) | | Date | 4/14/03 |
| Desired Sample size | NA | | 1.7 gm/cc | | rh | 75% |
| Desired accuracy | 1.5% Repeatability of samples at various settings | | | Pipette Size | 0.250 | |

| Micrometer setting | Sample weight gm |
|--------------------|------------------|
| 1.00 | 1.2132 |
| | 1.2121 |
| | 1.2300 |
| | 1.2206 |
| | 1.2290 |
| | 1.2307 |
| | 1.2192 |
| | 1.2101 |
| | 1.2226 |
| | 1.2246 |
| | 1.2345 |
| | 1.2250 |
| | 1.2226 Av |
| | 1.2226 Mean |
| | 0.0079 Std Dev |

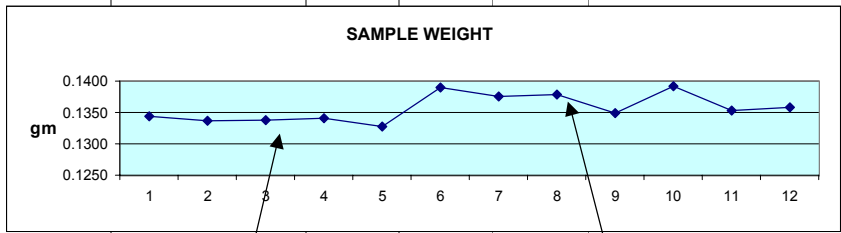
Control unit settings
 Vacuum (1in hg) 5
 Air (psi) 4



Note 3
 Replenished supply boat. Tap Density variation. Difficult to aspirate a uniform sample.

| Micrometer setting | Sample weight gm |
|--------------------|------------------|
| 0.10 | 0.1344 |
| | 0.1337 |
| | 0.1338 |
| | 0.1341 |
| | 0.1328 |
| | 0.1390 |
| | 0.1376 |
| | 0.1379 |
| | 0.1349 |
| | 0.1392 |
| | 0.1353 |
| | 0.1358 |
| | 0.1357 Av |
| | 0.1357 Mean |
| | 0.0022 Std Dev |

Control unit settings
 Vacuum (1in hg) 5
 Air (psi) 4



Deeper end of sample boat. More uniform Tap density.

Shallow end of sample boat. Higher tap density due to pipette packing

- Notes:
- Limited amount of customer supplied material (15 ml) caused a change in sample tap density as the material in the supply vessel was depleted. Samples began to pack as bottom of the vessel was approached with the pipette tip.
 - Would expect more uniform sample sizes if a larger amount of material is in the supply vessel.
 - Suggest sharp edge or wire to level tip end for small samples, especially at the smaller samples.
 - Larger samples were more uniform using the scraper plate.