6/23 and 6/25

FOOD

Sample 9

20 PSI back pressure, 350 Vpp Amplitude at 28.3 kHz

A little too runny, produced an alright print.

Sample 16

Varied back-pressure between 60 and 70 PSI, good flow rate, better particle size consistency than previous samples. It stays together well, but is not very sticky so small, internal geometries are not printable.

CLAY:

For 200um layers, 240 Vpp at 28.23KHz, 4000 feedrate gives good results; going to adjust the z-offset a little smaller and reduce voltage by maybe 5-10V.

Next test w/ 235 Vpp amplitude.

235 was good, and there's good interlayer adhesion; however, over-extrusion is now so sensitive (with a small layer height) our control method isn't able to produce good looking prints. By Trevor's recomendation, we'll move back to 300 um layer height to return to good looking dogbones, then later revisit this.

Also, flow rate still varies a little bit with temperature and between touching the nozzle and between nozzles, so fiddling with the amplitude by hand (+/-30V of amplitude) can produce markedly better results.

PROTOTYPE NOZZLES:

WEAR A FACE SHIELD WHEN WORKING WITH UN-TESTED PNEUMATICS

Translucent material

Thinned sculpey by taking a golf-ball sized chunk, adding 10 drops of thinner in a divot in the center and working it in by hand. This is to ensure we don't explode the nozzle.

Translucent material quickly degraged with higher temperature, but printed about 5mm in 2 seconds before complete degradation. Movement of the material in the nozzle was visible from specific angles. The syringe held at 100 PSI with no visible damage, swelling, leaking.

Nylon Material

Probably the most durable option, but the syringe tip is closed. I tried cleaning it out with a 440um drill bit, no success. The syringe held at 100 PSI with no visible damage, swelling, leaking.

Urethane Methacrylate

Great surface finish, and due to this we though it would be most likely- it also had nearly perfect geometry. It shattered at about 40 Vpp.