

Pug Particles

The majority of commercially available clay bodies are dry blended, wetted and then run through a de-airing pug mill. Pug mills do a great job of compressing and plasticizing freshly mixed clay, drastically cutting down on the labor required to ready clay for use. If you are lucky enough to have a pug mill in your studio you know they are wonderful time and energy savers for reclaiming scrap clay, too. All that said, there are certain precautions to take with pugged clay to avoid technical difficulties down the line.

It's helpful to understand how pug mills do what they do. After a clay body is wet mixed it is then fed into the hopper of a pug mill. The pug mill contains one or two spiral augers that push the clay through the vacuum chamber where it is compressed and de-aired. It then continues on to the nozzle where it comes out in either a square or round shape. Clay has memory and the spirals that are created by the auger leave a lasting impression which needs to be mitigated at some point.

For throwers, this occurs during wedging and throwing. Both actions disrupt the particle orientation left by the auger of the pug mill. In fact, rolling coils, pinching and general manipulation helps to avoid problems with the pattern left by the auger. For most folks it's not an issue and they never even worry that the pattern is there.

However, there is an exception to everything. Most of us do not wedge or pre-work clay for making slabs. The clay is already de-aired and you want it flat, so why not just cut it off the block and send it through the roller? Indeed, no problem. Well, it's not if you cut down the long rectangular side of the pug, perpendicular to the augers pattern. The problem is with cutting straight across off the top of the pug, particularly with fine-grained clays. Cutting across the top, especially if the clay isn't further rolled out or manipulated, will result in S-cracks or spiral cracks during drying almost 100% of the time. This is due to both the pattern from the auger and the stress induced as the clay shrinks and dries. It makes sense but it's often too late to correct once the pieces start cracking. So if you are planning a hand print project or quick and easy tile project, take the extra time to cut the clay long ways and roll it out to the desired thickness. Then cut the tile from there. The clay slabs will be more uniform and compressed from the roller. This method of prepping the clay will drastically cut down on cracks from clay memory.

Knowledge of how clay is made and its affects on particle orientation can have a big impact on the success of the final product. If you have questions about any of this or a particular project, please contact me, Jennifer, at techsupport@highwaterclays.com or 828-252-6033.