

Leone Ermer
3D Fabrication
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Sunken Mug

From the very start my tool was relatively flawed. Before my print had even finished, research into 3D printing and food safety had made my tool nearly impractical. Although it would seem at first glance that ABS (Acrylonitrile-Butadiene-Styrene) would be the cause of my print's food safety flaws, ABS plastics are currently found in many tattoo inks, toys, and kitchen appliances. I found through research online as well as my first test of my product, that ABS is non-leaching and can withstand high temperatures. For my first test, I poured boiling water into my ABS mug. The mug was entirely watertight and provided impressive insulation for the hot water. After pouring the water in the mug, I poured the water into a glass and found a substantial amount of black flecks and hunks of plastic floating around. After this test I poured coffee into the mug to test its ability to be cleaned. During the coffee test I continued to see black flecks floating in my mug. After pouring out the coffee I found that the coffee got caught in the ridges of the print as well as the leftover supports in the base of the mug. The problem of cleaning was the largest one that I foresaw with my research. The ridges in 3D prints no matter how small cause food particles to get trapped, making 3D prints unsafe for food. A possible fix for this could be the use of acetone to remove those ridges. While



cleaning the mug I discovered that fibers from my yellow sponge also got caught on the leftover supports. By using my mug I have concluded that the best use for an ABS mug is as a spiffy pencil holder.

