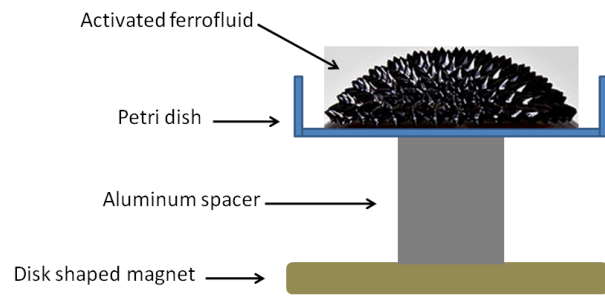


Team Assignment 2

Our group found some intriguing pictures and videos of ferromagnetic fluid (commonly called ferrofluid) online, and for the second project we decided to buy a couple ounces to try to make some equally interesting flows. There wasn't a specific type of flow or design that we had in mind, but we knew that a nearby magnet would form crests or towers in the fluid and we were sure we could produce some great designs if we tried.

The setup was fairly simple. The main point was to keep the fluid out of direct contact with any magnets, because the only way to clean it off is with a stronger magnet or a paper towel, which we found the hard way. A fairly strong magnet with 40 to 50 lbs of pull was set on the ground, a 4 cm block of aluminum on top of that, and a Petri dish containing a shallow pool of the ferrofluid on top of that. From here we were free to take as many pictures as needed, because the fluid held a constant shape as long as the magnet was kept the same distance away from it at all times. This particular picture was taken of a Petri dish that was about 10 cm in diameter, filled with less than 0.25 cm of fluid. The fluid gathered in the middle because of the magnetic field of the magnet, so the final diameter of the cluster of ferrofluid was 6 cm. Because this was a completely static "flow," the Reynolds number is zero and the time resolution was almost perfect.

Ferrofluid is actually an oil type liquid with magnetite particles suspended throughout in a colloid mixture [1].



References

1. "Ferrofluid." Wikipedia: The free encyclopedia. 2010. Wikimedia Foundation, Inc. Apr. 2 2010.
<<http://en.wikipedia.org/wiki/Ferrofluid>>