

Ilse Meiler

*Splat! An Investigation into the Splatter Patterns of Newtonian and Non-Newtonian Fluids*

Splatter patterns help solve crimes on a regular basis and they can show how and in what order crimes were committed. Splatter patterns can be affected by the viscosity of the liquid (Newtonian/Non-Newtonian). A test was conducted to see the effect of surface angle on the splatter patterns of Newtonian and Non-Newtonian fluids. Non-Newtonian and Newtonian liquids were tested to see the effect of surface angle on their splatter patterns then the splatter pattern of the Non-Newtonian fluid will be closer to a perfect circle because if in a 90 degree angle from the surface it will drop down perfectly straight and the Newtonian fluid is less viscous therefore more likely to distribute less evenly.

Two beakers were filled with 60ml of either paint or water. These were filled into syringes and dropped onto paper one drop at a time. After ten trials of each, the surface angle was changed by 10° until it reached 80°. Then the measurements of both the major and minor axis of every pattern were taken.

Comparing all of the splatter patterns a trend became evident that the eccentricity increased with surface angle. However the results became widespread particularly in the 70° & 80° angles. The data was more consistent in the lower angles. There was also almost no difference between the two fluids.

Based on the data, there was little change between the two fluids. The higher the surface angle the more elliptical the splatter pattern became. Therefore, the hypothesis was partially supported.