**Experimental Procedure**

**Purpose of Experiment**: To test the effectiveness of the washing process in agitating clothing

**Independent Variable:** Number of compression cycles in washing

**Dependent Variable:** Material recovered from shirt after wash process

**Materials:**

* “Dirt Material” contaminant to be added and then recovered from shirt
* 100% Cotton White T-Shirts with consistent size (one per trial)
* Washing Machine Prototype
* Source of clean water (500 mL of water used per trial)

**Constants:**

* Water characteristics such as temperature and composition (all water is coming from the same source and tested immediately)
* Time in contact with water (5 minutes)
* Amount of water used (600 mL of water)
* Shirt characteristics (Kirkland Crew Neck 100% Cotton Size Medium)
* Ink applied location on shirt (3 in from collar, and 3 in from from the bottom of both sleeves where sewn to shirt)
* Ink type applied to shirt (Crayola Ultra-Clean Washable Markers)
* Amount of ink applied to shirt (.75 in diameter circle about center point)
* Wash process characteristics (Compression time, Same chamber will be used)

**Determining a Baseline for Contaminant Recovery:**

**Procedure for Adding Contaminant to Shirt:**

**Experiment Procedure:**

1. For each shirt, select the type and amount of contaminant, and then add to the shirt
2. Select a shirt prepared for the test. Add an amount of contaminant to the shirt according to the test.
3. Ensure the linear actuator is fully contracted, and remove the gasket and cover from the wash chamber.
4. Insert shirt being tested and replace gasket and cover. Ensure the cover is on tight in order to produce a watertight seal.
5. Add water to the wash chamber and perform the necessary compressions and decompressions of the shirt for the tria.
6. Once all compressions and decompressions are complete, wait until the test time has concluded, and then drain water from the washing machine. It is important that water is not removed by compressing the clothing as that may agitate the clothing more than is desired for the experiment.
7. Ensure the linear actuator is fully contracted, and remove the gasket and cover from the wash chamber.
8. Wash out the washing machine to prevent cross-contamination. Repeat steps 2 through 8.