

# SOP: Thinky AR-100

**Purpose:** Mix base and curing agent parts of polydimethylsiloxane (PDMS)

**Location:** BHE B8 (main area)

**Required PPE:** Flame-resistant lab coat; nitrile gloves (change if PDMS gets on them); safety goggles; long pants; closed toe shoes

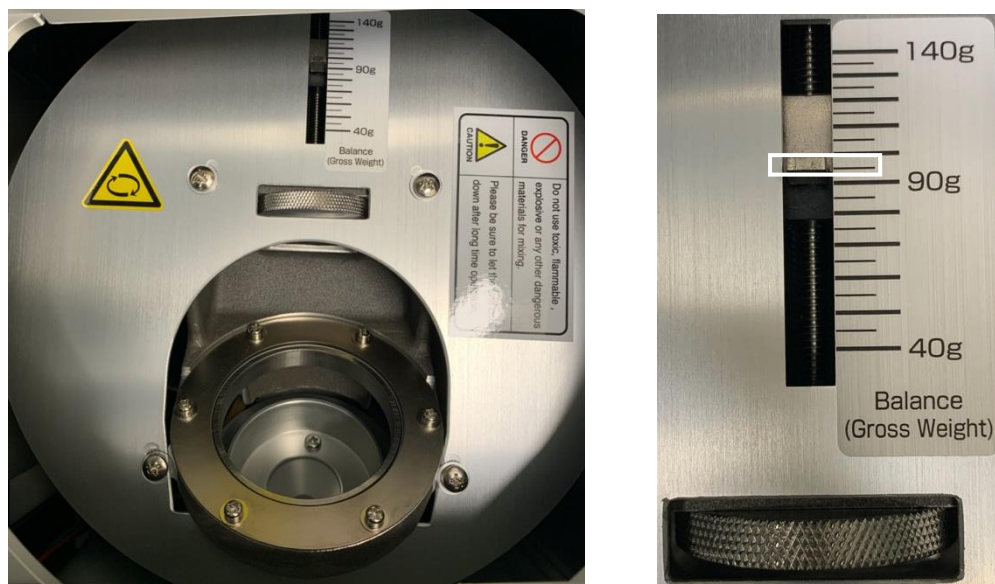
**Protocol for Use:**

1. Click the power button on the back that is positioned bottom-right to turn on the instrument. After booting up, the lights for “set up” and “memory” will fluoresce green and the “mixing time/speed” will have a time indicated in red (**Figure 1**).



**Figure 1.** The display on the Thinky AR-100 when the system initializes. Note that the actual time may show differently, and the memory may not always be on slot “1”.

2. After weighing out the appropriate ratio of PDMS base and curing agent in a plastic Thinky cup, place the PDMS-filled cup into a Thinky adapter and re-weigh to get total weight.
3. Pull on the Thinky AR-100 lid to open the inside where there is a circular hole and a weight balance (**Figure 3**). Place the Thinky adapter into the circular hole (fairly snug fit) and turn the dial to adjust the weight.
  - a. Note: the weight must be the total weight (PDMS-filled Thinky plastic cup and adapter).
  - b. The bold tick marks correspond to intervals of 10 g and lighter tick marks correspond to intervals of 5g. Also, look at the middle of the metal piece to get an accurate reading. For example, in **Figure 2**, the weight is set to 95 g (white box).



**Figure 2.** *Left:* inside of the Thinky AR-100. *Right:* the balance component of the Thinky AR-100. The middle of the metal piece must be set at the tick mark for the appropriate weight (white box).

4. The default PDMS spinning procedure is 2 min of mixing and 2 min of defoaming (indicated by 2.00) (notation: min.sec) and will be stored under the first slot of “memory”. Double-check by pushing the “set up” button to alternate between mixing and defoaming time. Once everything is set, close the lid and click the “start/stop” button to start the procedure.
  - a. Note: please do not pull on the lid while the Thinky AR-100 is spinning. This will damage the instrument. If the procedure needs to be halted, press the “start/stop” button and the emergency stop function will be activated.
5. After 2 min of mixing and 2 min of degassing elapsed (4min total), the Thinky AR-100 will generate a sound indicating completion. Slowly pull the lid open and carefully remove the PDMS-filled Thinky cup and the adapter.
6. Once the PDMS has been used, only throw away the plastic Thinky cup as it’s disposable. Place the Thinky adapter next to the Thinky AR-100, turn off the Thinky AR-100 (button in the back), and clean-up the area
  - a. Do NOT throw away the Thinky adapter.
  - b. Please use a Kimwipe sprayed with 70% ethanol to clean any spills or PDMS stains. PDMS is very sticky and is difficult to remove when solidified, so clean in a timely manner.

**Maintenance Schedule:**

With each use: clean any spilled liquid with a Kimwipe sprayed with 70% ethanol. Note that PDMS is extremely sticky so any mess must be cleaned up immediately.

**Contact Information:**

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