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## **TIPS ON THE CARE AND USE OF ALUMINUM BASE GROOVED LONG PIN REPLICATORS**

### **Disinfecting:**

The Replicators can be sterilized by hot air oven, autoclaving, treating in 10% bleach or alcohol flaming.

The pins can be cleaned between source plates by dipping briefly in a 10% bleach solution, followed by a series of two sterile dH<sub>2</sub>O baths (all in tip lid boxes), then in a 99% isopropanol bath in a non flammable [VP 420 glass reservoir](#). The pins can be air dried, dried using a hair drier or by flaming the isopropanol. Between baths, flick off the liquid in the grooves into a sink. This flicking step is very important to reduce carry over. It is important that the pins be dry before going into the next source plate.

If you flame, do not flick the isopropanol before igniting and be prepared for a "whoosh" upon ignition. Keep the isopropanol reservoir at least 3 feet from the flame. We strongly advise you to use a non-flammable alcohol reservoir such as the VP 420 Pyrex® alcohol reservoir to avoid laboratory fires.

If you don't flame, flick the isopropanol into a sink and let it evaporate. The evaporation can be speeded up with a hair dryer. It is important that the pins be dry before going into the next source plate.

### **Care:**

Before each day's use we recommend that the grooved pins be cleaned with [VP 110 Pin Cleaning Solution](#), which is designed to clean stainless steel and condition the pins. If the pins should be coated with organic material, they can be mechanically cleaned with the [VP 425 brush](#) and Ivory dish detergent. If you have access to an ultrasonic bath we recommend using MICRO 90®, from Cole Parmer®, at a 1/100 dilution in the ultrasonic bath. If you use an ultrasonic bath, hold the Replicator in the bath without letting the pins touch the bottom of the reservoir (the vibrating bottom surface of the sonicator's reservoir may damage the pin tips). The Cole Parmer Catalog #P-08857-02 ultrasonic cleaner is ideal for cleaning the Replicators. It is not necessary to clean the replicators in an Ultrasonic Cleaner if you clean the pins with bleach and brush with detergent after each day's use.

### **Use:**

1. Hold a 96 or 384 Grooved Pin Replicator at a 90° angle to the source plate.

2. Raise and lower pins 3 times through the meniscus to load the grooves. The speed at which the pins are removed from the wells will affect the size of the hanging drops on the tips and the liquid on the sides of the pin. Removing the pins quickly from the source plate produces large, hanging drops on the tips of the pins and more liquid on the sides. We recommend removing the pins at a slow even speed each time (~.5 cm/sec). This action produces very uniform liquid transfers from plate to plate and reduces the amount of liquid hanging on the tip and sides of the pins.
3. The liquid is delivered to another microplate containing liquid by dipping and raising the pins 3 times through the recipient plate's meniscus.

Test your Replicator using dye (5% red food coloring) in 10 mM Tris, pH 8.0 with 0.005% Sarcosyl or Tween 20 as wetting agents in water.

**Note:** If you are having problems with varying volumes of liquid on the tips, clean the pins with the [VP 110 Pin Cleaning Solution](#). Cleaning with the V&P Pin Cleaning Solution will reduce the surface tension on the pin and this will solve 99% of your pin loading problems. Also, you can add 0.005% Sarcosyl, Tween 20, protein or carrier DNA to lower the liquid surface tension.

**Warning:**

**Do not soak in bleach solutions for long periods of time as this can corrode the stainless steel pins.**

**Do not soak in deionized water as this can corrode the stainless steel pins.**

**Do not heat the pins directly in the Bunsen Burner flame.**

*If a replicator should be accidentally dropped and the pins be bent, they can be straightened. Sight down the pin rows and place the barrel of a retracted ball point pen over the bent pin and gently push until the pin lines up with both pin rows and pin columns.*

**\*\* Flaming just entails igniting the alcohol on the pin and NOT heating the pins directly in a Bunsen burner which can damage the corrosion resistant properties of the stainless steel pins.**