V&P SCIENTIFIC, INC.
Innovators in Liquid Handling, Arraying and Mixing

TECHNICAL NOTE 72

TIPS ON THE CARE AND USE OF COMPACT DISC MICROARRAYER (VP 490 AND VP 478ACD)

Disinfecting:

The entire VP 490 Manual Compact Disc Indexing Unit and VP 478ACD Compact Disc Arrayer can be disinfected by carefully wiping with 5% bleach, distilled water, then alcohol. Always remove any bleach residue from the unit after disinfecting.

For cleaning the Replicator pins in between each transfer from the source plate, we recommend using the VP 475 Glass Slide Arrayer Wash and Blot Station. The four wash reservoirs and blot stations of the VP 475 will accommodate one 5% bleach (or 0.1% SDS) bath, two distilled water baths and an alcohol bath.

If you use bleach, you must remove it from the pins before placing them into a source plate. We recommend at least two additional distilled water dips to dilute out the bleach. It is important that the pins be dry before going into the source plate. For this reason, we recommend using a final alcohol dip and air dry the pins.

It is important that the liquid in the baths not get into the holes on the bottom float plate, as that will interfere with the pins floating freely. We recommend only filling the baths with just enough liquid to cover the “high water mark” of the liquid in the microplates. Because the pins can be bent easily, it is best not to touch the pins on the bottom of wells or baths. Both the VP 472ACD Microplate Indexing System and the VP 475 Wash and Blot Station are designed to prevent accidental damage to the pins.

Hydrogen peroxide may also be used to disinfect the pins as long as it is rinsed off with distilled water. The percentage of hydrogen peroxide necessary will vary between applications.

Care:

Before each day’s use we recommend that the pins be cleaned with VP 110 Pin Cleaning Solution, which is designed to clean stainless steel and condition the pins (see TECHNICAL NOTE 40-Pin Cleaning Instructions). If the pins should become 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 to one-half the exposed length of the pin 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.

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The Guide Pins on the Indexing Unit and Base Unit should be treated with a light coating of silicone grease occasionally.

NOTE FOR SET UP AND ARRAYING: Please see Figures 1 and 2 for illustrations of the various subcomponents.

Set Up:

Remove the Replicator (VP 478ACD) from the Indexing Unit (VP 490).
Remove the Indexing Pins from the Indexing Unit.
Disassemble the Indexing Unit by removing the Indexing Deck from the Base Unit.
Remove CD Hold-Down Knob from center of disc area.
Remove protective cover from double-sticky tape in disc area
Place a Compact Disc (CD) into Base Unit
Replace CD Hold-Down Knob to center of CD
Replace the Indexing Deck onto the Base Unit.

Align the slots on the underside of Indexing Deck over the four pins in the Base Unit.

Return Indexing Pins to starting position:

Slide the top deck of the Indexing Unit into the left and nearest position.
Horizontal Indexing Holes (Eight Holes): Place the Horizontal Indexing Pin into the first (left) indexing hole.
Vertical Indexing Holes (Eight Holes): Place the Vertical Indexing Pin into the first (near) indexing hole.

If using the VP 472ACD - 384 Well Microplate Indexing Unit, place the VP 472ACD over the source plate, with the large guide pins to the left and the small guide pins to the right. Slide the top plate of the VP 472ACD to the far left side of the unit. Refer to Technical Note 74 for further instructions on use of the VP 472ACD.

Arraying:

Hold the Replicator in the proper orientation to the Indexing unit:

Look at the Guide Holes on the bottom side of the Replicator. Hold the Replicator with the large Guide Hole on the left and the small Guide Hole on the right.

Place the pins of the Replicator into the appropriate wells of a microplate.
<u>Slowly</u> raise the pins out of the liquid.

The speed at which the pins are raised out of the liquid is important. Removing the pins very fast out of the liquid will result in larger hanging drops on the tips of the pins, which could result in overlapping spots. We recommend raising the pins out of the liquid at a moderate, consistent speed every time.

Align the Guide Holes on the Replicator to the Guide Pins over Array Bay on the Indexing Unit.
Lower the Arrayer onto the Guide Pins until it is resting on the spring loaded stand-off pins of the Replicator.
Press firmly and quickly down on the top of the Replicator with both hands.

The motion should be a rapid, crisp motion to deposit the liquid onto the slides.

Remove the Replicator from the Indexing Unit

Before transferring samples from the next set of wells, dip the pins through the series of water and alcohol baths as described above (or bleach/SDS, water, alcohol, if desired).
Move the Horizontal Indexing Pin one position to the right.
Repeat the steps above for dipping into the microplate, arraying on the CD, and cleaning the pins in between transfers.
After moving the Horizontal Indexing Pin through the first four holes, move the Vertical Indexing Pin to its second position (moving away from you).
Move the Horizontal Indexing Pin back to its original starting position on the far left.
For each of the first four holes in the Vertical Indexing Set, move the Horizontal Indexing Pin through the first four holes in the Horizontal Indexing Set.
NOTE: Only the first four holes in both the Horizontal and Vertical Indexing Holes are used with the VP 478ACD 24-pin Replicator. The remaining holes are utilized when the VP 478CD 6-pin Replicator is being used

Rotating CD For Next Array:
After finishing a full array (up to 384 spots):
Gently pull the Release Lever on the left side of the Base Unit to release CD platform.
Turn the CD platform 45° to next position, until Release Lever snaps back to starting position.
Repeat Arraying steps (above) for second array.
Repeat rotating and arraying steps until all eight arrays are completed.

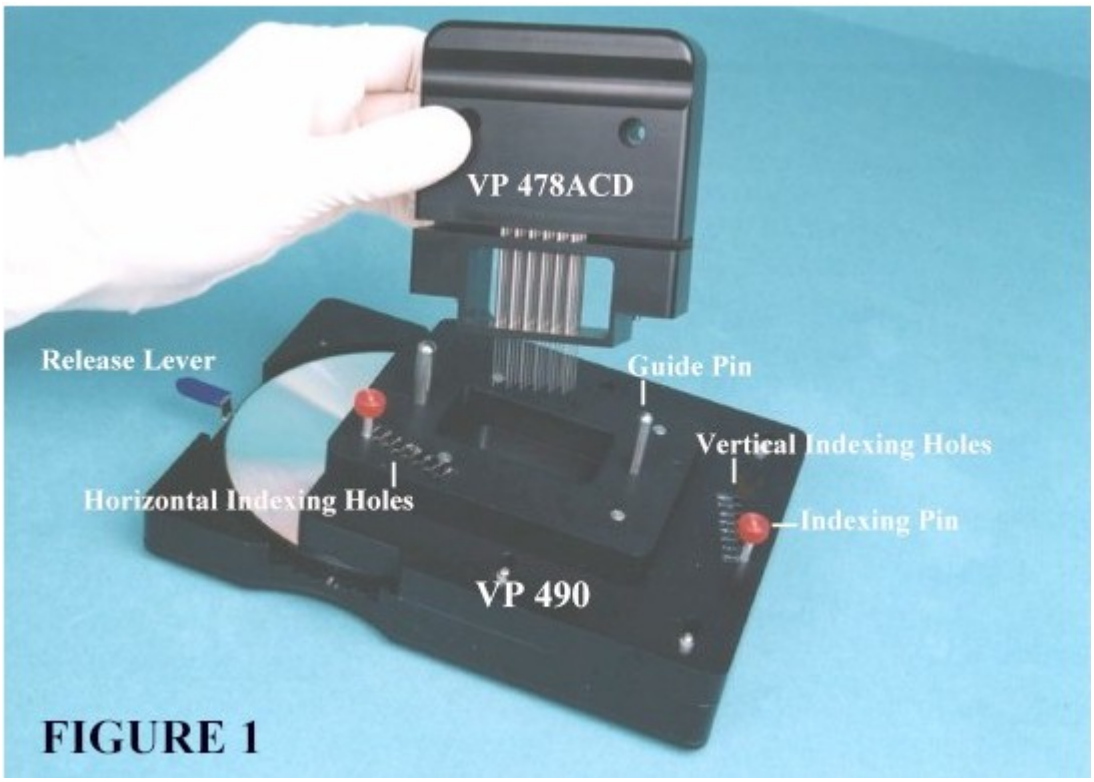

FIGURE 1

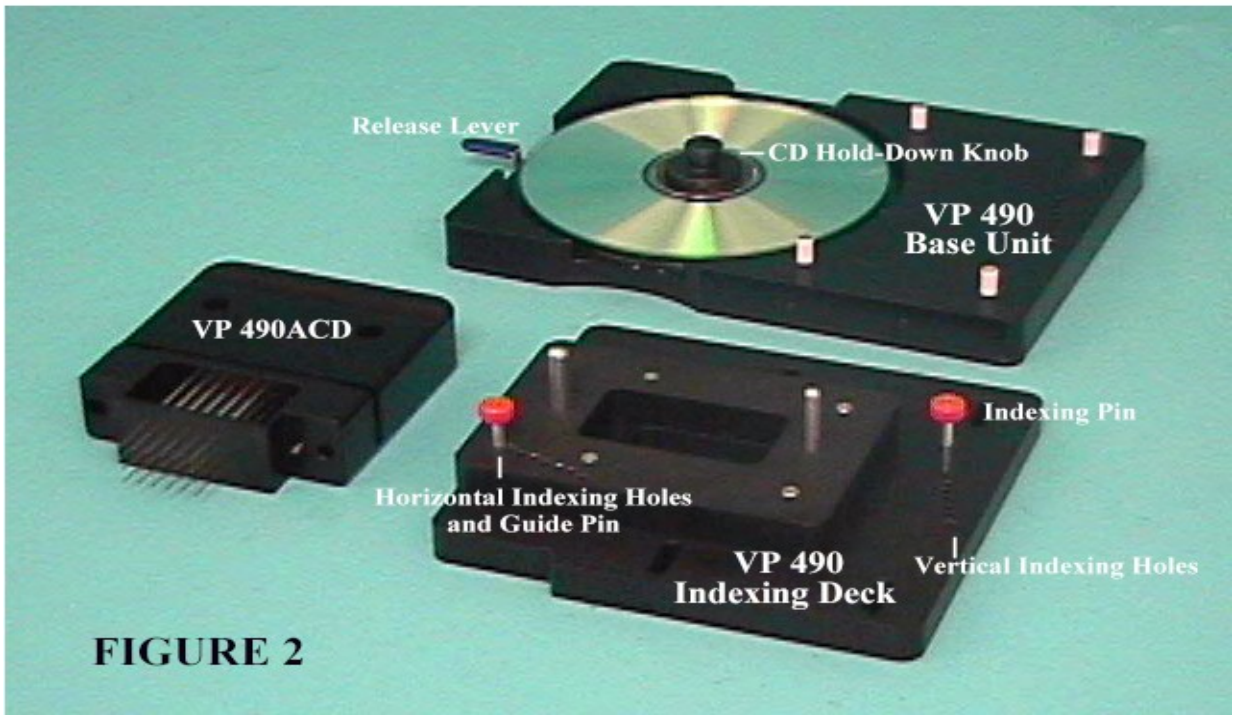

FIGURE 2