

The background features a large, light gray hexagon. Inside it is a smaller, light green hexagon. In the center of the green hexagon is a circular warning sign. The sign has a green border and a green background with a white exclamation mark. The text "Depositing Sample using the Smearing Deposition Technique" is overlaid on the center of the image.

Depositing Sample using the Smearing Deposition Technique

Created by: Annette Colón-Mercado, Edwin Caballero-Agosto

Manager: Samuel Hernandez-Rivera

SOP-01	Annette Colón-Mercado Edwin Caballero-Agosto		University of Puerto Rico at Mayagüez
Effectivity: April/23/2022	Depositing Sample using the Smearing Deposition Technique		Revised by:
Revised:			Approved by:

This SOP uses the following:

Personal Protective

Equipment:

- Safety Glasses
- Gloves

Chemicals:

- Isopropyl alcohol

Equipment/Materials:

- Kim Wipes
- Micropipette 2 – 20 μL
- Substrate
- Beaker
- Watch glass
- Crystallizing dish
- Ultrasonic cleaner
- Spatula
- Volumetric flask
- Graduated cylinder

PREPARING SAMPLE

1. Determine analyte (solute).

Analyte = _____

2. **Determine** the analyte mass to deposit on substrate.

Deposited mass on substrate (DM) = _____

3. **Determine** aliquot volume of solution to deposit on substrate.

Aliquot volume to deposit on substrate (AV) = _____

4. **Calculate** solution concentration using the values on step 1 and 2. **Convert** to desired concentration units.

$$\text{Concentration} = \frac{DM}{AV} =$$

5. **Determine** solvent. Needs to be volatile and non-reactive with analyte (unless intentional).

Solvent = _____

6. **Determine** volume for the solution.

Solution volume (SV) = _____

7. **Calculate** amount of analyte needed to prepare solution. Convert to desired mass unit.

$$\text{Analyte amount} = SV \cdot \text{Concentration} =$$

8. **Prepare** solution by adding analyte and solvent gradually while mixing.

DEPOSITING SOLUTION ON SUBSTRATE

1. **Place** substrate on clean surface.
2. **Set** aliquot volume (AV) on micropipette.



3. **Place** desired micropipette tip.



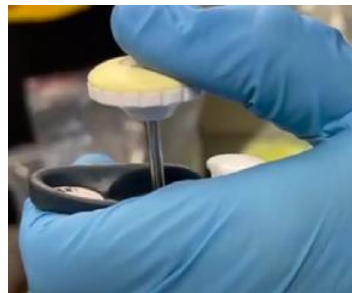
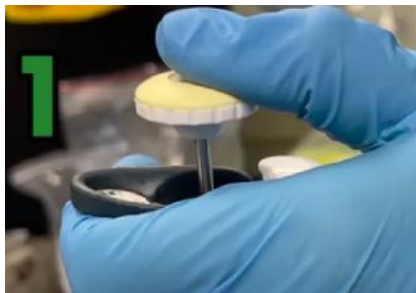
4. **Press** top button on micropipette two times and hold.



5. **Place** micropipette tip on solution.



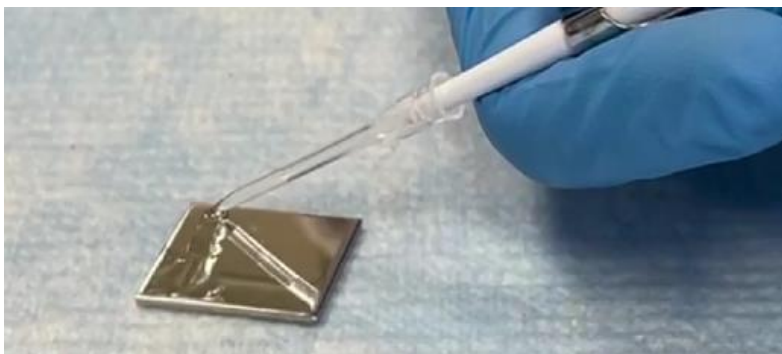
6. **Reverse** step 4.



7. **Place** micropipette tip at a 45° angle on the upper lefthand side of the substrate.



8. **Release** solution slowly moving to the upper righthand side of the substrate.



9. **Release** solution slowly moving downward on the righthand side of the substrate.



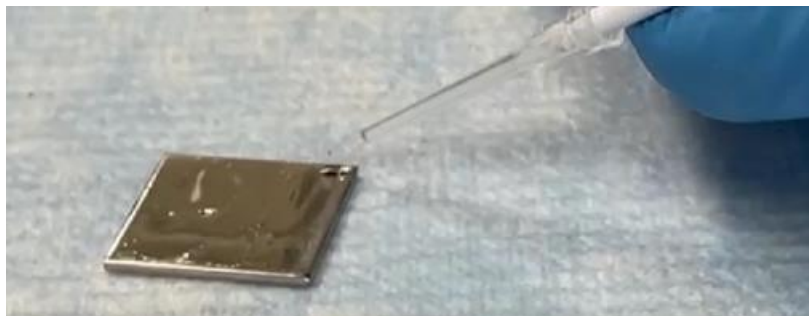
10. **Release** solution slowly moving to the upper lefthand side of the substrate.



11. **Release** solution slowly moving downward on the lefthand side of the substrate.



12. Repeat steps 7 to 11 until all the substrate has been covered and all the aliquot volume is used.



13. Hold micropipette tip.



14. Press micropipette lower micropipette button to release the micropipette tip.



15. Place micropipette tip on a crystalline dish for unwanted material.



16. **Manage** unwanted materials following the established laboratory procedures.

17. **Store** substrate on a closed container to avoid contamination.

Advisor Signature

Co-Advisor Signature
