

Nozzle Repair Protocol



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Materials:

- DAP - All purpose adhesive Sealant
100% silicone, (Clear/transparent), Aquarium safe
- O-ring for non integrated nozzles (BD Biosciences Cat # 333084)
- Contrad / Ethanol 70% / dH₂O
- P-200 Pipet tip ext. $\varnothing = 0.7\text{mm}$ (Rainer Tips LTS 200 μL SR-L200F, Cat # 17005859)
- Forceps
- Wood applicators
- Dissecting Microscope
- Sonicator
- Laminar Airflow Hood
- Kimwipes

Day 1:

1. Clean the malfunctioning Nozzle with Contrad: immerse in 10% to 50% Contrad. Sonicate for 5 min
 - a. You can place Nozzle with or without O-Ring attached
 - b. Debris, glue and O-Ring will detach during sonication. If not repeat as needed.
2. Decant Contrad and,
3. Rinse with dH₂O or MilliQ water. Sonicate for 1 to 5 min
4. Decant dH₂O and then soak Nozzle in Ethanol 70% for 1 min
5. Remove Nozzle from liquid, and dry by gently blotting on Kimwipes
6. Allow to dry overnight in a Laminar Airflow hood

Day 2:

7. Inspect Nozzle, and check that is clean and dry before proceeding
 - a. If necessary wait longer to dry completely, or use compressed air
 - b. If some debris are still visible repeat cleaning procedure (steps 1 to 6)
8. Use a razor blade to cut around the O-Ring and use the forcep to remove it from the package
9. Save and use the O-Ring package as a clean and smooth surface for the next step and place a dab of DAP - All purpose adhesive sealant on it
10. Using the razor blade spread a thin layer of the sealant
11. Next use a P-200 tip to pick-up the O-Ring, target the center of the O-Ring
12. Then dip O-Ring on the thin layer of sealant
13. Viewing under a Dissecting microscope, hold the P-200/O-ring in one hand and the forcep in the other
14. Position the O-Ring on top the Nozzle orifice and use the forcep to drop O-Ring down, adjust as needed to keep it centered
15. Then use the back of a wood applicator stick to push the O-Ring down in the respective groove on the Nozzle
16. Confirm placement of O-Ring and observe for irregularities, e.g. nicked or off-center O-Ring, obstructed Nozzle hole with sealant. In any of these cases repeat the whole protocol from step 1.
17. Place repaired Nozzle in the respective box and transfer to a Laminar Airflow Hood and turn OFF the air flow / blower to dry slowly making it more resistant for future usage.