

Instructions for taking Low Volatility Residue (LVR) Wipe Samples

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1 Scope

The following procedure is for taking FTIR wipe samples for surfaces and holes of parts to be used in the LIGO UHV system. FTIR testing is subsequently performed in accordance with specification LIGO-[E0900480](#). Note that surface sampling methods other than wiping are permitted by LIGO-[E0900480](#).

2 Abbreviations and Acronyms

FTIR Fourier Transform Infrared Transmission
 UHV Ultra-High Vacuum

3 Materials/Tools Required

An FTIR sampling kit consisting of:
 Small vials of solvent (usually Freon-TF) with solvent soaked fiber-free lens tissue (which has been cleaned by chemical extraction)

4 Procedure

- Wear Nitrile (Preferred) or latex gloves and work in a ventilated area.
- Open the cap of the bottle containing the moist wipe and place it where it cannot be contaminated. Using the forceps remove the wipe sample from the bottle. Move the wiper across the surface in a raster pattern slow enough so that the solvent dries at the same rate as the motion. The wiper should be moist but not dripping with solvent. A minimum surface area of 4" x 4" is required. The maximum sampled surface area is ~600 in² (e.g. 15" x 40"). Use 2 or 3 passes over the surface area. Dip the wipe back into the solvent in the bottle as needed to keep it moist. (Having a ruler is helpful. The more accurate the area, the more accurate the test results.)
- Sample holes separately from surface areas. A minimum of 5 holes is required for sampling. A maximum of 50 holes may be sampled. Use 2 or 3 passes into each hole. Dip the wipe back into the solvent in the bottle as needed to keep it moist.
- Place the wipe back into the bottle from which it was removed and close the cap tightly.
- Mark the bottle with the sample location. Indicate the area of the sample you took, or the number of holes sampled. If the area is restricted to less than 4" x 4", then the analytical method is more complex and this should be noted.
- Using the rinse bottle, rinse the forceps prior to taking your next sample.

Important: Do not handle the wipes with your hands. Do not touch the forceps ends with your bare hands or gloves. Be sure that when you lay down the tweezers that you do not contaminate them from another source. It is a good idea to have some Ultra-High Vacuum (UHV) grade aluminum foil (not food grade foil) available on which you can place your tweezers and sample bottle cap.