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The Agilent HES source requires regular cleaning to ensure optimal performance. This is necessary when there's a loss in analyte response, poor calibrant ion peak shapes during tuning, or increasing repeller or electron multiplier voltages. Tools needed include gloves, beakers, an ultrasonic bath sonicator, alumina powder, clean cloths, cotton swabs, de-ionized water, reagent grade methanol, reagent grade acetone, and reagent grade hexane. To start the cleaning process, remove the source from the analyzer and disassemble it, collecting the parts that need to be cleaned. A slurry of alumina MICROGRIT and de-ionized water is created, and this mixture is used to abrasively clean the parts, removing any discoloration. The parts are then rinsed thoroughly with de-ionized water until the solution becomes clear. After initial cleaning, the parts are ultrasonically cleaned in a sequence of solvents, including de-ionized water, methanol, acetone, and hexane. It's essential to replace the solvents if they become cloudy during sonication. Once the cleaning is complete, reassemble the source and inspect other parts for any damage or issues. Finally, reinstall the source into the analyzer and pump down the system to prevent water condensation on the source. Before confirming the GC/MSD is leak tight, wait at least an hour after pumping down and then perform a manual tune with the working method and tune file. A system bake out may also be necessary for optimal performance. This process applies to Agilent 5977A/B GC/MSD models equipped with EI, EI Extractor, or CI sources. Proper cleaning, assembly, and installation are crucial for robust and reliable operation.Performing thorough cleaning of sensitive parts is crucial for optimal performance of the GC/MSD analyzer. Typically, only certain components require meticulous maintenance, but severe contamination necessitates replacement. Figure 1 illustrates EI source parts that should be thoroughly cleaned. Similarly, Figure 2 depicts EI Extractor source parts that need attention. Likewise, Figure 3 shows CI source parts that must undergo thorough cleansing. To initiate the cleaning process, create a slurry or paste by mixing de-ionized water with alumina MICROGRIT on a lint-free cloth. Utilize this mixture to gently scrub away discoloration from sensitive components. Please see Figure 4 for detailed image of the abrasive cleaning technique. Due to the delicate nature of these parts, minor scratches will not compromise performance and therefore polishing is not required. Thoroughly rinse away any abrasive residue with de-ionized water until the solution becomes clear. Refer to Figure 5 for optimal cleaning results. If the solvent used during cleaning becomes cloudy at any point, replace it with a new batch and repeat the process if necessary. Employ multiple washes as needed. To ensure maximum cleanliness, ultrasonically clean parts in sequence: de-ionized water, reagent-grade methanol, reagent-grade acetone, and reagent-grade hexane. If any solvent becomes cloudy during sonication, replace it immediately and continue with the cleaning process. After completion, remove the components from the final solvent and reinstall them. Systematic verification is crucial to ensure that all parts have been thoroughly cleaned and are free from damage. Inspect other areas of the source for signs of cracks in the insulator or broken filament wires. Also, verify that these filaments have an even thickness and shape. Once confirmed, reassemble the source into the analyzer and pump down the system to minimize water condensation on the components. The source will be heated under vacuum, allowing any excess solvent to evaporate. Allow at least one hour for the system to stabilize before performing a manual tune to confirm that it is leak-free. If the system passes this test, proceed with loading the working method and tuning file.