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| Traveler Title | C75 cavity pair desorption leak test | | | |
| Traveler Abstract | This traveler captures data from the desorption leak test of C75 cavity pair | | | |
| Traveler ID | C75-CPR-ASSY-DESTST | | | |
| Traveler Revision | R1 | | | |
| Traveler Author | G. Ciovati | | | |
| Traveler Date | 14-Jul-20 | | | |
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| NCR Dispositioners | gciovati, macha, davis, forehand | | | |
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| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Project Manager |  |

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| References | List and Hyperlink all documents related to this traveler. This includes, but is not limited to: safety (THAs, SOPs, etc), drawings, procedures, and facility related documents. | | | |
| [C75DesorptionLeakTestRev4.xlsx](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-207664/C75DesorptionLeakTestRev4.xlsx)  Leak rate calculator spreadsheet |  |  |  |  |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |

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| Step No. | Instructions | Data Input |
| 1 | **Prepare the cavity pair for desorption leak test:**  After the RF-test boil off the liquid helium out of the dewar. Time the boil off so when the dewar is empty an operator will be present to monitor the desorption leak test.  Close the tophat circuit isolation valve. Close the turbo pump isolation valve. Open the cavity pair isolation valve (pair is exposed to the RGA without pumping away Helium).  Setup the RGA so the multiplier is on and scan is set for analog scan using the following Mass Spec Parameters:   * Start Mass = 1 AMU: Stop Mass = 15 AMU * Scaling Factor = 1 * Scan Speed = 3 * Points Per AMU = 25   After proper warmup time click the SCAN button and choose STOP AT END.  After scan stops click the Utilities menu and choose ENABLE BACKGROUND SCAN and click SCAN DATA-BACKGROUND. This will cause the scan to reset without seeing peaks at any mass. The Y-axis should be set to a logarithmic scale.  Set the dewar heater to approximately 45W – 60W to allow for slow enough dewar warmup speed and pay attention to mass 4 on the scan. The He peak will rise to X level without seeing any Hydrogen (Mass 2). As soon as the Hydrogen peak is visible it will influence the He peak as well: record the He level at this time.  If the Hydrogen peak does not become visible by the time the dewar temperature indicates 15K, record the maximum He peak observed. | [[DesorptionTech]] <<SRFCVP>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 2 | Calculate the helium leak using the spreadsheet [C75DesorptionLeakTestRev4.xlsx](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-207664/C75DesorptionLeakTestRev4.xlsx)  .  (Delta Helium Partial Pressure)((Correction Helium Density\*(Sqrt 295K/Desorption Temp)\*Volume(L)) / Time in seconds  Constants:  (CHD) Correction Helium Density = 3.03  (SDT) Sqrt (295 K / Desorption Temp of 15 K) = 4.434712  (VOL) Volume (L) = 30.4  A = CHD \* SDT \* VOL = 408.49  User Inputs:  He Partial Pressure (Torr)  Hours Cold (the time when the bottom of the cavity pair reached 15 K during cool down is recorded in traveler C75-CPR-ASSY-WDLC)  Calculated Values:  Time in Seconds = Hours Cold \* 60 \* 60  He Leak Torr = ( He Partial \* A ) / Time in Seconds  He Leak Std = ( He Leak Torr / 760 ) \* 1000 | [[PartialPrHelium]] <<SCINOT>>  [[HoursCold]] <<FLOAT>>  [[HeLeakStd]] <<SCINOT>> atm\*cc/s  [[LeakTestComment]] <<COMMENT>> |
| 3 | The leak rate specification is **< 2e-10 atm\*cc/s**  Select whether or not the cavity pair passes the desorption leak test. If not, submit and NCR | [[PassDesorptionLeakTst]] <<YESNO>> |