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| Traveler Title | Cavity Horizontal Electropolish |
| Traveler Abstract | This document captures data from performing a Horizontal electropolish on a C100 cavitySAFETY: Individual must keep safety as the first priority in the process; before beginning any job, the user must assure they have the correct PPE for the individual job. Maintaining the level of safety and secure nature of the work area is paramount. Assure personal safety by using caution in movement and taking necessary steps to avoid unnecessary personnel in the immediate area. |
| Traveler ID | SRFRD-CHEM-CAV-HEP |
| Traveler Revision  | R1 |
| Traveler Author | T. HARRIS |
| Traveler Date | 2-Jul-25 |
| NCR Informative Emails | PAIGEW,FIEDLER |
| NCR Dispositioners | FOREHAND,KDAVIS,TMHARRIS |
| D3 Emails | PAIGEW,FIEDLER,FOREHAND,KDAVIS,TMHARRIS |
| Approval Names | T. HARRIS | G. CIOVATI | K. DAVIS | R. GENG |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Production Rep | Project Rep |

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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. |
| Master Cavity USC Procedure ([SRF-MSPR-CHEM-CAV-USC](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261722/SRF-MSPR-CHEM-CAV-USC-R1.pdf)) | [HEP Nb Concentration Calculator & History](https://jlabdoc.jlab.org/docushare/dsweb/View/Collection-29772)Spreadsheet containing running tally and history of Nb concentration in the HEP tool electrolyte | [SPEC HEP OperatingManual8148\_2020.pdf](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-219641/HEP_OperatingManual8148_2020.pdf) | [RAM Handling and Waste Guidelines](https://jlabdoc.jlab.org/docushare/dsweb/View/Collection-54593/Document-257328) |  |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |

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| Step No. | Instructions | Data Input |
| **SAFETY:** Individual must keep safety as the first priority in the process; before beginning any job, the user must assure they have the correct PPE for the individual job. Maintaining the level of safety and secure nature of the work area is paramount. Assure personal safety by using caution in movement and taking necessary steps to avoid unnecessary personnel in the immediate area. |
| 1 | Record Project ID and any project specific instructions | [[PROJSN]] <<PROJSN>>[[PROJNAME]] <<TEXT>> [[ProjInstructions]] <<COMMENT>>[[ProjFiles]] <<FILEUPLOAD>> |
| 2 | Record cavity ID or serial number | [[CAVSN]] <<CAVSN>> |
| 3 | Record operator(s), process date and time. | [[HEPOperator]] <<SRFCVP>>[[Technician]] <<SRFCVP>>[[DateAndTime]] <<TIMESTAMP>> |
| 4 | Record niobium target removal for this EP.Was target removal achieved?Record niobium actual removal for this EP if different from target removal. | [[NbTargetRemoval]] <<FLOAT>> microns[[RemovalAchieved]] <<YESNO>>[[NbActualRemoval]] <<FLOAT>>microns |
| 5 | Record concentration of Nb in electrolyte (g/l) from the previous EP run. This information can be found [here](https://jlabdoc.jlab.org/docushare/dsweb/View/Collection-29772).Record acid usage and age. |  [[NbInSolutionPreviously]] <<FLOAT>> grams/liter[[NbRemovalComment]] <<COMMENT>>[[AcidUse]] <<FLOAT>> use[[AcidAge]] <<FLOAT>> days old |
| 6 | Record step(s) immediately prior to EP. | [[VTATest]] <<CHECKBOX>>[[Degreased]] <<CHECKBOX>>[[BCP]] <<CHECKBOX>>[[HPR]] <<CHECKBOX>>[[CBP]] <<CHECKBOX>>[[N2DOPED]] <<CHECKBOX>>[[HEATTREAT]] <<CHECKBOX>>[[OTHER]] <<CHECKBOX>>[[HistoryComment]] <<COMMENT>> |
| 7 | Record the recipe used for this HEP: Provide any comments on the recipe or changes made during the process.  | [[Recipe]] {{WarmA,ColdA,WarmB,ColdB,Other}} <<RADIO>>[[RecipeComment]] <<COMMENT>> |
| 8 | Pre-EP Time and Rotation Speed | [[PreEPTime]] <<FLOAT>> min[[PreEPRotationSpeed]] <<FLOAT>> RPM |
| EP Process avg um/C, Rotation Speed, Voltage, Acid Flow | [[EPProcess]] <<FLOAT>> AvgMicron/C[[RotationSpeed]] <<FLOAT>> RPM[[Voltage]] <<FLOAT>> V[[AcidFlow]] <<FLOAT>> gpm |
| Post-EP Time, Rotation Speed, and Acid Drain Time | [[PostEPTime]] <<FLOAT>> min[[PostEPRotationSpeed]] <<FLOAT>> RPM[[AcidDrainTime]] <<FLOAT>> sec |
| Pre Rinse Time and Source Temperature | [[PreRinseTime]] <<FLOAT>> min[[PreRinseTemp]] {{Ambient,Hot}} <<RADIO>> |
| Rinse 1 Cycles and Source TemperatureRinse 2 Cycles and Source TemperatureRinse 3 Cycles and Source TemperatureRinse Cycle Fill Time and UPW Drain Time | [[Rinse1Cycles]] <<INTEGER>>[[Rinse1Temp]] {{Ambient,Hot}} <<RADIO>>[[Rinse2Cycles]] <<INTEGER>>[[Rinse2Temp]] {{Ambient,Hot}} <<RADIO>>[[Rinse3Cycles]] <<INTEGER>>[[Rinse3Temp]] {{Ambient,Hot}} <<RADIO>>[[RinseCycleFillTime]] <<FLOAT>> min[[UPWDrainTime]] <<FLOAT>> sec |
| Post-Rinse Time, Source Temperature, Resistivity, and Drain Delay | [[PostRinseTime]] <<FLOAT>> min[[PostRinseTemp]] {{Ambient,Hot}} <<RADIO>>[[Resistivity]] <<FLOAT>> Ohm/cm[[DrainDelay]] <<FLOAT>> min |
| 9 | Record acid chill water and sump temperature set points at the beginning of the EP: Provide comments if necessary.  | [[ACWSetPoint]] <<FLOAT>> F[[SumpSetPoint]] <<FLOAT>> C[[SetPointComments]] <<COMMENT>> |
| 10 | Record cathode size and masking:(The large cathode is 1.3125 in and the small is 1in in diameter.) If masking is applied, add information about the length and type of masking in the comment box. | [[CathodeType]] {{Large,Small,OTHER}} <<RADIO>>[[CathodeMasking]] {{Masked,Unmasked}} <<RADIO>>[[CathodeComment]] <<COMMENT>> |
| 11 | Record Thermocouple Placement on cavity: Upload a photo of the EP setup. | [[TC1]] <<COMMENT>>[[TC2]] <<COMMENT>>[[TC3]] <<COMMENT>>[[TC4]] <<COMMENT>>[[TC5]] <<COMMENT>>[[TC6]] <<COMMENT>>[[TC7]] <<COMMENT>>[[AttachSetupPhoto]] <<FILEUPLOAD>> |
| 12 | Perform horizontal electro-polish.  |  |
| Record details of any leaks identified when cavity was full and rotating: | [[LeakTestPassed]] <<YESNO>>[[LeakComment]] <<COMMENT>> |
| Was external cavity cooling used?If yes, record cavity cooling water flow rate: | [[ExternalCavCooling]] <<YESNO>>[[CCflow]] <<FLOAT>> gpm[[CoolingComment]] <<COMMENT>> |
| Record the average cavity equator temperatue | [[AVGEQUATORTEMP]] <<INTEGER>>C |
| Record the average process current  | [[PROCESSCURRENT]] <<INTEGER>> |
| Record total accumulated EP polish time: | [[PolishTime]] <<INTEGER>>min |
| 13 | Record any additional processing comments: | [[ProcessComments]] <<COMMENT>> |
| 14 | Insert link to cavity folder in Docushare will all the process data files | [[DocushareLink]] <<TEXT>> |