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| Traveler Title | P1 Cavity Horizontal Electropolish |
| Traveler Abstract | This document captures data from performing a Horizontal electropolish **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. |
| Traveler ID | P1-CHEM-CAV-HEP |
| Traveler Revision  | R2 |
| Traveler Author | Ashley Mitchell |
| Traveler Date | 2-Oct-20 |
| NCR Informative Emails | areilly, |
| NCR Dispositioners | ashleya,kdavis |
| D3 Emails | areilly,kdavis,wildeson,ashleya |
| Approval Names | A.Mitchell | A. Wildeson | K.Davis |  |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Reviewer |  |

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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. |
| [STP Cavity degrease procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-132365/CP-STP-CAV-CHEM-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) |  |  |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |
| R2 | Edit to capture more information  |

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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. |
| A | Record cavity serial number | [[CAVSN]] <<CAVSN>> |
| 1 | Record operator(s), process date and time.If for any reason process of this cavity is stopped due to a question or problem select the Help Request toggle. This will trigger a red status on the traveler dashboard showing a work stoppage. When the problem is resolved, unselect the toggle to continue process. Create D3 to document activities requiring Help Request. | [[HEPOperator]] <<SRFCVP>>[[Technician]] <<SRFCVP>>[[DateAndTime]] <<TIMESTAMP>>[[HelpRequest]] <<YESNO>> |
| 2 | Record niobium target removal for this EP.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:  | [[NbTargetRemoval]] <<FLOAT>> microns[[NbInSolutionPreviously]] <<FLOAT>> grams/liter[[NbRemovalComment]] <<COMMENT>>[[AcidUse]] <<FLOAT>> use[[AcidAge]] <<FLOAT>> days old |
| 3 | Record step(s) immediately prior to EP. | [[Degreased]] <<CHECKBOX>>[[BCP]] <<CHECKBOX>>[[HPR]] <<CHECKBOX>>[[CBP]] <<CHECKBOX>>[[N2DOPED]] <<CHECKBOX>>[[HEATTREAT]] <<CHECKBOX>>[[OTHER]] <<CHECKBOX>>[[HistoryComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 4 | Record the recipe used for this HEP: Provide any comments on the recipe or changes made during the process.  | [[RecipeComment]] <<COMMENT>> |
| 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 |

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| Step No. | Instructions | Data Input |
| 5 | Record acid chill water and sump temperature set point: | [[ACWSetPoint]] <<FLOAT>> F[[SumpSetPoint]] <<FLOAT>> C |
| 6 | Record cathode type: | [[CathodeType]] {{Large1.3125in,Small1in,OTHER}} <<RADIO>>[[CathodeMasking]] {{Masked,Unmasked}} <<RADIO>>[[CathodeComment]] <<COMMENT>> |
| 7 | Record Thermocouple Placement on cavity:  | [[TC1]] <<COMMENT>>[[TC2]] <<COMMENT>>[[TC3]] <<COMMENT>>[[TC4]] <<COMMENT>>[[TC5]] <<COMMENT>>[[TC6]] <<COMMENT>>[[TC7]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 8 | 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 desired cavity cooling water flow rate: | [[ExternalCavCooling]] <<YESNO>>[[DesiredCCflow]] <<FLOAT>> gpm[[CoolingComment]] <<COMMENT>> |
| Record accumulated total EP polish time: | [[PolishTime]] <<INTEGER>>min |
| 9 | Record any additional processing comments: | [[ProcessComments]] <<COMMENT>> |
| 10 | Upload process documents and files. | [[AttachDataFile]] <<FILEUPLOAD>> |