|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Traveler Title | STP Cavity Horizontal Electropolish | | | |
| Traveler Abstract | This document captures data from performing a orizontal electropolish | | | |
| Traveler ID | STP-CAV-CHEM-HEP | | | |
| Traveler Revision | R4 | | | |
| Traveler Author | Ashley Mitchell | | | |
| Traveler Date | 2-SEPT-2020 | | | |
| NCR Emails | kdavis,ashleya | | | |
| Approval Names | A. Mitchell | K. Davis | A Reilly |  |
| Approval Signatures |  |  |  |  |
| Approval Date |  |  |  |  |
| Approval Title | Author | Reviewer | SRFOPS Manager |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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) |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Revision Note |  |
| R1 | Initial release of this Traveler. |
| R2 | First round of changes |
| R3 | Upgraded for STP Usage |
| R4 | Updated for new HEP installed in 2020 |

STP- Standard Traveler/Procedure:

This Standard Procedure is intended to be generalized such that it could apply to most cavity types at JLAB. The PI is encouraged to provide Project Specific Instructions to supplement this Procedure, which are to be attached to the applicable Traveler.

If at any time the Project Specific Instructions change or modify the content of this Procedure, then a new Procedure will be required, to be approved through the normal processes at SRF and JLAB

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.

|  |  |  |
| --- | --- | --- |
| **Step No.** | **Instructions** | **Data Input** |
| A | Record Project ID and any project specific instructions | [[PROJSN]] <<PROJSN>>  [[PROJNAME]] <<TEXT>>  [[ProjInstructions]] <<FILEUPLOAD>> |
| B | Record cavity or part serial number | [[CAVSN]] <<CAVSN>>  [[CAVNAME]] <<TEXT>>  [[SN]] <<SN>> |
| 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>> |
| 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 Temperature  Rinse 2 Cycles and Source Temperature  Rinse 3 Cycles and Source Temperature  Rinse 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 |
| 5 | Record acid chill water and sump temperature set point: | [[ACWSetPoint]] <<FLOAT>>F  [[SumpSetPoint]] <<FLOAT>>C |
| 6 | Record cathode type: | [[CathodeType]] {{Large1.3125”,Small1”, 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>> |
| 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? | [[ExternalCavCooling]] <<YESNO>>  [[CoolingComment]] <<COMMENT>> |
| Record accumulated total polish time: | [[PolishTime]] <<INTEGER>>min |
| 9 | Record any additional processing comments: | [[ProcessComments]] <<COMMENT>> |
| 10 | Upload process documents and files. | [[AttachDataFile]] <<FILEUPLOAD>> |