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| **Cavity Ultrasonic Cleaning** |
| **Document Number:** | SRF-MSPR-CHEM-CAV-USC | **Effective Date:** | DD Mmm YYYY |
| **Revision Number:** | R1 | **Periodic Review Date:** | DD Mmm YYYY |
| **Document Owner:** | <First Last Name> | **Department Owner:** | SRF Operations |

# Purpose

The purpose of this document is to describe the steps necessary to ultrasonically

clean a cavity using the 200-gallon ultrasonic cleaner.

# Scope

This procedure applies to <enter text>.

This procedure does not apply to <enter text>.

# Terms and Definitions

The following terms have specific meanings within this procedure.

|  |  |
| --- | --- |
| **Term** | **Definition** |
| <Term 1> | <Definition> |
| <Term 2> | <Definition> |
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# Roles and Responsibilities

The following roles have responsibilities described in this document.

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| **Role** | **Responsibility** |
| <Job Title> | <Very short summary of activities this job title performs in this procedure.> |
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# 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.

# Procedure

Note: Clean nitrile gloves are required to be worn by the operator when working with the cavity.

## Fill the 200 gallon US cleaner:

* Prior to filling the tank, verify that the tank is clean and free of contaminants from previous use. Clean the tank if necessary.
* Fill the tank with UPW.
* When the tank is full, turn on the heaters. Set the heater controller to 125 F. Verify that the heaters are on (tank water temperature will increase within one minute after heaters have been turned on).

## Assess “as received” condition of the cavity:

User to visually inspect for pre-existing damage (chips/scratches/gouges) and log findings in the appropriate traveler.

* Remove all flange covers and set aside for later use.
* List cavity number in log book.
* If any discrepancies are found: indicate which flange face has the damage (HOM beam line, field probe, HOM, HOM field probe, FPC, and FPC beam line). Consult supervisor to determine if part should be re-worked before continuing.
* Replace cavity flange covers.

## Transfer cavity from cart to large US cleaner:

* Position cavity/cart adjacent to the US tank.
* Remove protective flange cover and attach cavity lifting tooling to the FPC beam line flange. Ensure not to scratch flange sealing surfaces.
* Move crane into position over cavity and lower crane hook to within 10 inches of cavity and remove remaining cavity flange covers. Note: Exercise care when raising or lowering the cavity as to not damage the cavity flanges.
* Attach the crane hook to the cavity lifting tooling. Gradually raise the crane hook and guide the cavity as the FPC end is lifted off the cart
* Move the cart out of the way once the cavity is hanging free.
* Remove all cavity flange covers.
* Raise the cavity to a level high enough that the lower beam line flange will clear the ultrasonic tank.
* Move the crane bridge and trolley with cavity to the ultrasonic tank and center it.
* Lower the cavity into the tank so the top flange is 1-2 inches below the water surface. Do not allow the cavity to contact the sides of the tank.

## Start the US cleaning process:

Note: The cavity shall be ultrasonically cleaned for 60 minutes at 125 F.

* Carefully pour 1 liter of Liqui-nox directly into the FPC beam line flange.
* Turn on the ultrasonic power supply and set the control timer to 60 minutes and press the timer start button.
* Verify that the temperature control point is set to 125 F and that the ultrasonics are on.

## Rinse the cavity:

* After sixty minutes of cleaning turn off the ultrasonics and heater.
* Drain the 200 gallon tank. While the tank is draining, rinse the cavity (inside and out) with UPW. Be sure to thoroughly rinse the interior of both HOM cans as well. Do not allow soapy water to dry on cavity surfaces. Rinse the cavity for 10 minutes.
* Raise the cavity to a level high enough that the lower beam line flange will clear the ultrasonic tank.
* Position cart next to cavity and lower the cavity onto cart and release stainless wire lift strap. **Note: Exercise care when raising or lowering cavity as to not damage the cavity flanges.**
* Remove cavity lifting tooling from the cavity.

## Prepare cavity for next process:

* If the cavity was degreased in preparation for EP or heat treatment, transfer cavity to the cavity drying rack and allow the cavity to dry. When cavity is dry, bag the cavity prior to heat treatment.
* If the cavity was degreased in preparation for HPR, cover cavity flanges with new clean room wipes and clean plastic covers. Install cavity into degreased cage and transport cavity/cage to the cleanroom pass-thru.

# References

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| **Document No.** | **Title** |
| SRF-01-ML-001 | SRF Quality Manual |
| <SRF-FM-###> | <Document Title> |
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# Release and Revision History

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| --- | --- | --- |
| **Rev #** | **Major Changes** | **Effective Date:** |
| 1 | Initial version | DD Mmm YYY |
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# Approvals

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| --- | --- | --- | --- |
| **Approved by:** | **Name:** | **Signature:** | **Date:** |
| Document Owner | Ashley Anderson |  | DD Mmm YYY |
| Subject Matter Expert | Jim Folkie |  | DD Mmm YYY |
| Work Center Lead  | Kirk Davis |  | DD Mmm YYY |
| Project Leader  | <First Last Name> |  | DD Mmm YYY |