

LI60 - E930005-02-B

CBI Facsimile Cover Sheet

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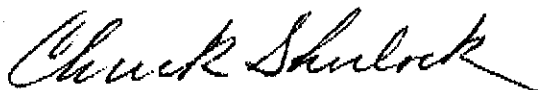
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cover page: Five (5)**

Comments:

Larry, here is revision number 2 of the coupon cleaning procedure CLCOUP. I have incorporated your additional comments which you conveyed to me this morning. Hopely this revision will be satisfactory. Rick anticipates blacklighting and solvent cleaning the coupons as necessary tomorrow morning in preparation for welding.

I will be out of the office until Monday, so if you have any additional comments, please call Ken Flessas.

Regards,



Chuck Sherlock
Houston Corporate Welding

cc: Marty Tellalian - CBITS Plainfield
Ken Flessas - CBILCH Houston



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REV. NO. 2
CONTRACT 930212

TITLE CLEANING OF WELDED AND PLAIN COUPONS
FOR OUTGASSING TESTS
CALTECH

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APPROVED						BY	DATE
	Engr	Corp Weld	Corp QA	Const	Mfg		
						PREPARED	CNS 12-7-93
						REVISED	CNS 12-15-93
						AUTHORIZED	
						REFERENCED	
						STANDARD	REV. NO.

1.0 SCOPE:

This procedure covers both the initial solvent cleaning of the plate material after it is ready for welding and the final Oakite 33 cleaning of the 0.115" x 1" x 18" coupons for the outgassing tests.

2.0 PERSONNEL:

Experienced personnel shall perform and supervise all cleaning performed in accordance with this procedure.

3.0 REFERENCES:

3.1 California Institute of Technology Technical Specification Number 1100004 for Beam Tube Modules and Number 1100007 for Type 304L Stainless Steel Vacuum Products.

3.2 ASTM Designation A 380 Standard Practice for Cleaning and Descaling Stainless Steel Parts, Equipment and Systems (as a guide).

3.3 Packaging per Caltech instructions.

4.0 EQUIPMENT AND MATERIALS:

4.1 Stainless steel power brushes used only for stainless steel.

4.2 Industrial grade 99% mol isopropyl alcohol

4.3 Lint free cloths or paper towels.

4.4 100 Watt blacklight with 3650 Angstrom unit wavelength.

4.5 Blacklight meter capable of measuring at least 300 $\mu\text{w}/\text{cm}^2$.

4.6 Four (4) five (5) gallon containers of de-ionized water. |



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- 4.7 Oakite 33 mixed with the de-ionized water in a proportion of 2% by volume.
- 4.8 Oakite Enprox 714 for neutralizing the used Oakite 33 cleaning solution.
- 4.9 Steam cleaner (Jenny) with a heater coil and a dead man type hand held sprayer.
- 4.10 Metal or glass tube thermometer with a range in excess of 160°F.
- 4.11 Recovery system for catching and retaining the used cleaning and rinse solutions.
- 4.12 Neoprene or other chemical resistant gloves and apron or coveralls, face shields or goggles with side shields and foot coverings as needed.
- 4.13 Two (2) chemical resistant plastic 1 1/2 to 3 gallon pump type sprayers and one five (5) or ten (10) gallon chemical resistant plastic bucket.

5.0 PROCEDURE:

Steps 5.1 through 5.5 is to be used only for test coupons. This is due to the possible hydrocarbon contamination that may be present as a result of the coupon shearing operation.

- 5.1 Turn on and warm up the blacklight for a minimum of five (5) minutes.
- 5.2 The examiner shall be in the darkened area for at least five (5) minutes to allow time for eye adaptation to the darkness prior to viewing the surface. If the examiner wears glasses or lenses, they shall not be photosensitive.
- 5.3 Confirm the maximum distance at which the blacklight produces 800 $\mu\text{w}/\text{cm}^2$ on the examination surface using the blacklight meter.
- 5.4 In a darkened area, blacklight inspect the plate material that has been power brushed for welding back one inch (1") from each weld preparation edge. During the inspection, hold the blacklight no further from the examination surface than the distance established in step 5.3.



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- 5.5 Remove any hydrocarbon contamination from the power brushed plate material by flushing with isopropyl alcohol and wiping with lint free clothes or paper towels. Repeat this operation as necessary until no visible traces of hydrocarbon remain on the surface when viewed under the blacklight.
- 5.6 After all welding and shearing of coupons is complete, view all coupons, both welded and plain, in a darkened area with the blacklight. Repeat step 5.5 as necessary.
- 5.7 Arrange the coupons together in a rack in a cleaning area that can be drained to a catch basin where the used Oakite 33 cleaning solution can be retained. If the rack is a metal other than stainless steel, place polyethylene over the metal on which the coupons are to rest. The cleaning area shall be covered and be protected from the wind so as to prevent contamination during and after cleaning.
- 5.8 Insert the screened suction line of the steam cleaner into a container of de-ionized water. Turn on the cleaner heating coils.
- 5.9 Spray the de-ionized water from the spray nozzle directly back into the container from which it is being pumped while it is heating. Heat two containers of de-ionized water. When the temperature of the de-ionized water in both containers reaches a temperature between 140° and 160°F as confirmed with the thermometer, with the steam cleaner sprayer thoroughly rinse the exposed surfaces of all coupons using from one container of de-ionized water. While wearing neoprene rubber or chemical resistant gloves, turn over the coupons so that the opposite surface of the coupons is exposed. Then thoroughly spray those surfaces. Allow the used de-ionized water to run off into the sanitary sewer drain.
- 5.10 Pour the hot de-ionized water from the second container into a pump type sprayer. Then mix a 2% by volume solution of Oakite 33 with the de-ionized water in that pump type sprayer.



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- 5.11 With the pump type sprayer containing the 140° to 160°F Oakite 33 cleaning solution, thoroughly spray the exposed surfaces of all coupons. While wearing clean neoprene rubber or chemical resistant gloves, turn over the coupons so that the opposite surface of the coupons is exposed. Then thoroughly spray those surfaces. Allow the used cleaning solution to run off into the catch basin.
- 5.12 Wait for five (5) minutes and repeat step 5.11. Any time the catch basin becomes nearly full of used Oakite 33 solution, pump the used cleaning solution from the catch basin into an empty plastic bucket(s).
- 5.13 After five (5) minutes have elapsed, proceed to step 5.14.
- 5.14 With the steam cleaner sprayer taking suction on the container of de-ionized water at a temperature of 140° to 160°F, thoroughly spray the exposed surfaces of all coupons to remove all traces of Oakite 33 cleaning solution. While wearing clean neoprene rubber or chemical resistant gloves, turn over the coupons so that the opposite surface of the coupons is exposed. Then thoroughly spray those surfaces to remove any remaining traces of Oakite 33 cleaning solution.
- 5.15 While wearing clean neoprene rubber or chemical resistant gloves, the operator shall turn the coupons to ensure that all surfaces are dry.
- 5.16 When the coupons are thoroughly dry, package the coupons in accordance with Caltech packaging instructions.
- 5.17 Add Oakite Enprox 714 to the bucket of used Oakite 33 cleaning solution until the solution is neutralized to a pH of 7 as indicated by the litmus paper remaining at its neutral color when dipped in the solution.
- 5.18 When the used Oakite 33 cleaning solution is neutralized, drain it into the sanitary sewer. **DO NOT** drain it into the storm sewer.