



HIGH PURITY TECHNOLOGY, INC.
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PROCESS SPECIFICATION
HPT - 300
CLEAN FOR OXYGEN SERVICE

1.0 **SCOPE:**

1.1 This procedure describes the oxygen cleaning process used at "High Purity Technology, Inc." for the preparation of tubing, pressure gauges, instruments, assemblies, small valves and fittings to be used on liquid or gaseous oxygen systems.

2.0 **REFERENCES:**

2.1 Specification to which cleaning is done such as CGA4.1, and any approved variance which applies specific customer requirements to this document.

3.0 **DISASSEMBLY AND INSPECTION:**

3.1 Disassemble the device where possible to gain access to any crevices that may harbor any contaminants. Visually inspect the device to determine if any oils were used in the manufacture or assembly of the unit. Inspection includes the use of a 3200 – 3800A wavelength black light in a non-lit room to check for any fluorescence, which may be an indication of any oil.

3.2 Disassembly may be done in the general shop work areas using standard tools.

3.3 Certain animal, fish or vegetable oils do not fluoresce. Make a note of this if it is observed.

4.0 **PRECLEANING:**

4.1 Preclean the unit and parts to remove general dirt, paint, scale, thread sealant and other foreign matter. Precleaning can consist of mechanical actions such as wire wheeling and sand blasting and /or general solution cleaning. Use extreme care not to mar machined sealing wetted surfaces.

5.0 **FINAL CLEANING:**

5.1 A three step bath process shall be used on all metallic parts that can be immersed using a detergent/deionized water solution final bath. Purity shall be tested per procedure step 6.0 (suggested cleaning solution is "Beyond 2001" @ 5%).

5.2 A progressive three (3) bath method shall be used, constantly monitoring the solution cleanliness per step 6.0 of the final bath. When the final bath becomes unacceptable, all baths shall be discarded.

5.3 Large parts can be soaked in a large cleaning tank and brushed clean, monitoring the solutions per step 6.0. Larger parts shall be wiped with a solution moistened clean lint free cloth. The cloth shall be tested per step 6.0.

5.4 Dead end devices, such as bourdon tube instruments, shall be alternately filled and evacuated using a special cleaning stand. New solution will be used for each fill. The drained solution shall be tested per step 6.0.



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- 5.5 If a non-fluorescent oil was found during step 3.3, the cleaning process shall be repeated for a total of (5) times.
- 5.6 A nonmetallic part shall be briefly immersed in a D/I water solution, or wiped with D/I water solution and lint free cloth.
- 5.7 All parts shall be copiously final rinsed with D/I water.
- 5.8 All final rinse fluids and cloths shall be inspected per step 6.0.
- 5.9 All parts are to be dried thoroughly using cryogenic nitrogen. Dead end devices are to be dried by evacuating the unit under vacuum heating, or both.

6.0 FINAL INSPECTION:

- 6.1 All final inspection shall be done in a clean room.
- 6.2 Inspect final rinse fluids and cloths visually. If unacceptable, reclean the part per step 5.0. To check for clarity, compare the rinse fluid to new fluid side by side in clear containers.
- 6.3 Inspect parts, dried fluids on filter paper and dried cleaning cloths using a 3200 – 3800A wavelength black light in a non - lit room. Any bluish white or orange fluorescent smears, blots, smudges of films will be cause for recleaning per step 5.0.
- 6.4 Inspect parts, dried fluid on filter paper and dried cleaning cloths using normal white light for any oil film or dirt contamination, which are cause for recleaning per step 5.0.
- 6.5 Particle size checking and counting shall be done at this point using microscope and counter, if required per customer specification.

7.0 ASSEMBLY:

- 7.1 All assembly work shall be done in a clean room using tools cleaned per this specification.
- 7.2 Any lubrication required for assembly or proper operation (o-rings, pivot pins, etc.) Shall be done using halocarbon oil. Threaded pipe connections are to be sealed using virgin teflon tape applied two threads back to prevent shredding.
- 7.3 Test assembled unit for proper operation, if required, using a clean testing apparatus with oil free, dry, filtered air or dry nitrogen.
- 7.4 Place completed product in a single polybag and seal.

8.0 REFERENCE DOCUMENTATION

- 8.1 HPT General Product Specification for **HP SERIES 1**.

(End)