

**CELCO 1021  
SPECIFICATION FOR  
AQUEOUS CLEANING  
Rev. A**

**Dated: October 8, 2008**

**Reviewed and approved for adequacy prior to issue by:**

APPROVED:

 11/04/08  
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## **REVISION HISTORY**

Revision A: Dated – October 8, 2008

Add approval signatures and dates.

## 1. Aqueous Cleaning Procedures.

1.1 The parts shall be inspected for foreign particles and pre-cleaned to remove large quantity of material.

1.1.1 Small parts shall be cleaned in an ultra sonic cleaner when possible for 20 - 30 minutes using hot water, approximately 120 degrees to 140 degrees F and a caustic detergent. If large quantities are to be cleaned, the parts shall be cleaned in a conveyer washer to minimize operation time.

1.1.2 Larger parts, piping, tubing, trays, blocks and etc., shall be pressure washed using hot water at 120 degrees to 140 degrees F, and a caustic detergent, then pressure rinsed with hot water at 120 degrees to 140 degrees F. If large quantities are cleaned and size is acceptable, the parts shall be cleaned in a conveyor washer to minimize operation time.

1.1.3 The final rinse of all parts shall utilize DI Water to offset staining and removal of potable water contaminates, chemicals, metals and etc.

1.1.4 Clean filtered air shall be used for drying of parts. When practical, hot filtered air shall be used.

1.1.5 The selection of the cleaning detergent shall be determined by the material to be cleaned.

## 2. Inspection

2.1 The following inspection procedure shall be used to determine cleanliness of the components.

2.1.1 Visual inspection - White light - Observe the part under an intense white light. Most contaminates can be observed by this method in detecting larger particles 50 microns or larger. For internal inspection, use a lint free swab to wipe the surface. Any particle or smudge constitutes a rework of the contaminated surface.

2.1.2 Visual inspection - Black light - Observe the part under a black light (ultraviolet) which causes most common hydrocarbon or organic oils to fluoresce. All oils do not fluoresce under ultraviolet light so a secondary inspection procedure may be used. If the part has been wiped with a cotton cloth, some fluoresce may be seen because of the cotton lint, this is acceptable but should be removed using a pressure blow off of oil free air or nitrogen gas.

- 2.1.3 Water break test - If the part has an oily or greasy residue on the surface, a light spray of clean water may be used. If the water forms a thin layer and displays no broken feature for five seconds, no oil is present. If the water beads repeat the cleaning process.
- 2.1.4 Wipe test - Using a clean lint free cloth or white paper, rub the cleaned surface hard enough to remove any existing oxide. Examine the residue under a white light or black light. If unacceptable foreign material is present clean the component again.

### 3. Packaging

3.1 The following packaging process shall be used as follows.

- 3.1.1 Small parts shall be placed in plastic bags and heat sealed to assure protection from outside sources.
- 3.1.2 Large parts shall be wrapped in plastic wrap to assure protection from outside contamination.

4. Personnel safety - All aqueous cleaning operations shall be carried out in a manner which provides for the safety of all personnel performing the cleaning and the surrounding personnel and shall conform to all local, federal and state ordinances and regulations.

- 4.1 All personnel shall be trained and instructed in the safe use of the cleaning procedures and materials used in the cleaning process including the hazards associated with these materials.
- 4.2. Special consideration should be given to the safe disposal of waste cleaning solution and materials.
- 4.3 Protective equipment - Face shields and goggles shall be used for face or eye protection from cleaning solutions. Protective clothing shall be used when required to prevent cleaning solutions from contacting the skin.
- 4.4 Proper ventilation - All areas where cleaning operations are performed shall be adequately ventilated. If the operations are performed in an area where wind flow is a factor, the work shall be performed upwind so the vapors are ventilated away from the operation.