



**Summary of Substantive Changes
between the 2010 and 2019 editions of
AHAM DW-1 “Household Electric Dishwashers”**

Presented to the IAPMO Standards Review Committee on July 13, 2020

General: The changes to this standard might have an impact on currently listed products. The substantive changes are:

- Changed the rinse agent requirements to use a specific supplier (see Section 4.2)
- Changed machine pre-conditioning to require at least two cycles instead of one, clarified requirements for machine conditioning during test series and removed ambient temperature requirement (see Section 4.3)
- Clarified load conditioning and pre-conditioning, and added load conditioning during test series requirements (see Section 4.4)
- Added requirements for the measurement of water supply temperature, pressure, and hardness (see Section 4.8)
- Removed requirements for new dishwashers to undergo at least one preconditioning normal cycle before the clean up cycle (see Section 5.1)
- Reduced load requirements from 10 minimum place settings to 8 for standard dishwashers and from 6 to 4 for compact dishwashers (see Section 5.2)
- Revised soil preparation utensils required for the soiling test (see Section 5.3)
- Added additional requirements for the preparation of the soiling items and included milk preparation (see Section 5.5)
- Changed the application method for soil items (see Section 5.7)
- Added test temperature requirement, and removed the option of using power dry cycle (see Section 5.9)
- Added evaluation requirements to include time limits for inspection including 20 seconds for glassware and 10 seconds for all other load items (see Section 5.10)
- Unified scoring methods for all load items, clarified scoring and evaluation order (see Section 5.10.1)
- Added a requirement for glassware calculations to be done separately, and added a new total/combined cleaning index formula (see Section 5.12)

Section 2, Scope: Clarified scope as follows:

2.1 *This standard only applies to automatic and non-automatic household dishwashers as defined in 3.2.3.*

2.2 *This standard includes definitions, methods for testing and evaluating dishwasher cleaning performance, a reference to testing for safety and methods of testing and recommended levels for inlet and drain tubing of household electric dishwashers of the types indicated. The standard also includes requirements recommendations for the dishwasher drain connection to a food waste disposer, inlet and drain tubing tests, ~~and~~ references to energy and water consumption measurement methods, and safety. This standard does not specify test methods for determining energy consumption, water consumption, drying performance, or sound levels or noise for dishwashers.*



Section 3, Definitions: Removed Undersink term and added new terms as follows:

3.7.4 3.2.4 Size Classification

....

~~**3.7.4.3 Undersink.** A dishwasher intended for mounting under the sink area which has a capacity of less than 8 place settings.~~

3.173.5 Serving pieces. The dishware and flatware used for serving food, as shown in Table 2. Amount shown is for one dishwasher table setting (See Appendix C).

~~NOTE 1: Regarding 3.16 and 3.17: Acceptable alternative dishware is noted in Appendix E. When performing dishwasher comparability testing, the same type of place settings, serving pieces, and detergent (Section 4.1) must be used in each unit.~~

~~NOTE 2: Regarding 3.163.4 and 3.173.5: If it is found that place settings and serving pieces specified above and in Appendix E are no longer not available, the user can contact AHAM (info@aham.org) for further assistance in identifying suitable alternatives.~~

~~**3.123.8 Flatware.** Implements used in preparing, serving and eating food: i.e., knives, forks, spoons, ladles, etc. as shown in Table 1 and 2.~~

3.11 Test Run. Single cycle performance assessment.

3.12 Test Series. Set of test runs which are collectively used to assess the performance. A minimum of three test runs constitutes a test series.

3.14 Normal Cycle. The cycle type, including options, recommended in the manufacturer's instructions for daily, regular, or typical use with a full load of normally soiled dishes.

3.27 Water Spot, Water Streak, and Rack Contact Mark. An area of dried deposit resulting from evaporated water left on the surface of the glass.

Section 4.1, Detergent: Changed the measurement conditions when using detergents to include the required quantity, and instructions for use as follows:

~~**4.1 Detergent².** Use 0.5% concentration in pre-wash and main wash cycles of dry weight detergent as determined by water quantities. Carry-over water can be considered. Laboratories need to ascertain that the detergent is fresh and not a special test market detergent. Use Cascade® with the Grease Fighting Power of Dawn® powder national formula. The detergent shall be stored in a cool and dry atmosphere. It shall be used within nine months after production as identified by the date code on the product packaging. Detergent from the same date code shall be used for a given test series (refer to Appendix D regarding determination of date code). Before use, the detergent shall be homogenized by gently rotating the box to ensure uniform distribution of contents.~~

The quantity of detergent for one test run shall be 1.8 grams per place setting in the main compartment of the detergent dispenser and 1.8 grams per place setting in the pre-wash compartment of the detergent dispenser or other pre-wash location as recommended by the manufacturer. If the detergent dispenser does not include a pre-wash cup and if no recommendation for pre-wash detergent location is given by the manufacturer, the pre-wash detergent shall be placed on the inner door near the detergent dispenser.



Section 4.2, Rinse Agent: Changed the rinse agent requirements to use a specific supplier as follows:

4.64.2 Rinse Agent. Use ~~the rinse agent recommended by the manufacturer.~~ Finish® Jet Dry® liquid, original unscented. For dishwashers with an adjustable automatic dispenser, the setting shall be as shipped from the manufacturer. If the dishwasher is not equipped with a rinse agent dispenser and the manufacturer does not recommend using a rinse agent, no rinse agent shall be used.

Section 4.3, Machine Pre-Conditioning and Conditioning: Changed machine pre-conditioning to require at least two cycles instead of one, clarified requirements for machine conditioning during test series and removed ambient temperature requirement as follows:

4.24.3 Machine Pre-Conditioning and Conditioning. Install dishwasher in accordance with the manufacturer's instructions. ~~The dishwasher is to be at room ambient (refer to section 4.7) at the start of each test.~~

4.3.1 Machine Pre-Conditioning. A dishwasher shall be pre-conditioned prior to starting a test series. The dishwasher is to be clean and free of all residues at the start of each test series. To ~~assure~~ ensure cleanliness of ~~the a~~ dishwasher interior, run at least ~~one (normal)~~ two cycles using dishwasher detergent, rinse agent and water, per Sections 4.1, ~~4.64.2~~ and 4.8. This cycle shall be the normal cycle or a cycle described by the manufacturer as one intended to clean heavily soiled dishes. Filters and/or strainers shall be cleaned before starting a test series, and between test series, using cleaning technique(s) as described by the manufacturer's instructions.

4.3.2 Machine Conditioning during Test Series. After each test run, the dishwasher shall be operated through a clean-up operation using the normal cycle as described in Section 3.14. This clean-up cycle shall be run without dishes but with detergent, rinse agent, and water per Sections 4.1, 4.2, and 4.8. Filters and / or strainers shall not be cleaned between test runs.

Section 4.4, Load Conditioning, Preparation, and Storage: Clarified load conditioning and pre-conditioning, and added load conditioning during test series requirements as follows:

4.34.4 Dishware Load Conditioning, Preparation, and Storage. ~~Before each test, the load is to be thoroughly clean with no remaining soil or residue.~~ The dishware ~~is to~~ shall be free from cracks or other damage with the glaze in good condition. Glassware ~~should~~ shall be free of scratches. Flatware shall be free of pits and ~~deep~~ scratches.

4.3.1 4.4.1 Load Pre-Conditioning. **NOTE:** New dishware, glassware, and flatware ~~should~~ shall be thoroughly cleaned. ~~Then~~ Pre-condition ~~the~~ new load items or load items from ~~storage in the same manner above~~ before use. One recommended approach is to machine wash new load items in another a dishwasher (not the test machine) using ~~a~~ the normal cycle with dishwasher detergent per Section 4.1, and machine dry the load. Use of rinse agent per Section 4.2 is optional during this cycle. Hand washing and drying may be used as long as no detergent residue remains.

4.4.2 Load Conditioning during Test Series. Before each test run, the load shall be conditioned by machine washing in another dishwasher (not the test machine) so that each item would achieve a score of 0 if assessed per Section 5.10 (excluding 5.10.1.2 and 5.10.1.3). One recommended approach is to use the normal cycle with dishwasher detergent per Section 4.1, and machine dry the load. Use of rinse agent per Section 4.2 is optional during this cycle.

4.3.24.4.3 Preparation. ~~Dishes~~ Load items shall be dry and at room ambient temperature before soiling.



4.3.34.4.4 Storage. Store ~~dishware and glasses~~ load items in such a manner to prevent scratching and damage.

Section 4.5.2, Voltage: Clarified the voltage requirements as follows:

4.5.2 Voltage. Operate dishwasher at 120, 208 or 240 volts $\pm 2\%$ as intended by the manufacturer.

Section 4.6, Test Cycle: Updated the test cycle from specifying the use of an automatic timer to use the normal cycle when testing as follows:

4.54.6 Test Cycle. ~~If the dishwasher is equipped with an automatic timer and cycle selector giving two or more automatic cycles, the cycle for normal soils indicated by the manufacturer is to be used. Use the normal cycle as described in Section 3.14.~~ Record cycle and options used per 5.11.
~~If the dishwasher is not equipped with an automatic timer, operate it manually using the cycle indicated by the manufacturer for regular or normal soils.~~

Section 4.8, Water Supply: Added requirements for the measurement of water supply temperature, pressure, and hardness as follows:

4.8.1 Temperature. For a dishwasher that is intended to be connected to the hot water supply, the input water temperature shall be maintained at 120°F $\pm 2^\circ\text{F}$ (49°C $\pm 1^\circ\text{C}$). For a dishwasher that is intended to be connected to the cold water supply, the input water temperature shall be maintained at 50°F $\pm 2^\circ\text{F}$ (10°C $\pm 1^\circ\text{C}$). These temperatures shall be maintained during each dishwasher fill through the test cycle and shall be measured at least every 4 seconds. These temperatures shall be maintained up until the connection point described below.

For dishwashers that include a water supply line (i.e. the water inlet hose is supplied by the manufacturer), the volume of the water pipe between the measurement device for temperature and the connection point to the water inlet hose of the test dishwasher shall not exceed 8.5 fl oz (250 ml). For dishwashers that do not include a water supply line (i.e. the water inlet hose is not supplied by the manufacturer), the volume of the water pipe between the measurement device for temperature and the connection point to the water inlet supply valve of the test dishwasher shall not exceed 13.53 fl oz (400 ml). If the temperature is measured in the circulation loop, the volume of the spur taking the water from the circulation loop shall not exceed 8.5 fl oz (250 ml) for dishwashers that include a water supply line, or shall not exceed 13.53 fl oz (400 ml) for dishwashers that do not include a water supply line. If a bypass to ensure water supply temperature is installed, at each connection to the water inlet hose(s), or water inlet supply valve, of the dishwasher, the bypass shall be opened before starting tests until the water inlet temperature is in the required range.

4.8.2 Water Pressure. Maintain the pressure of the water supply at 35.0 \pm 2.5 pound per square inch (2.52.41 \pm 0.2 0.17 bar) during each dishwasher fill during the test cycle. Water pressure is best measured at the height level of the dishwasher water inlet valve. For convenience, floor level may be used as a reference point. Water pressure shall be measured no greater than 70 inches (177.8 cm) above the floor level and shall be achieved within 5 seconds of opening the water supply valve and then measured at a frequency not to exceed once every 5 seconds.

NOTE: Height level affects water pressure measurement. For every 12 inches (30.5 cm) that water pressure is measured above floor level, an additional 0.43 psig (0.03 bar) of water pressure is experienced by the dishwasher water inlet valve.



4.8.3 Hardness. ~~Water~~ Maintain the hardness of the water supply ~~should be~~ between 0 and 85 parts per million (ppm) of CaCO₃. Where necessary a cation exchange water softener may be used to maintain water hardness at this level. Conduct water hardness measurements no less than once a week across a test series.

Section 5.1, Dishwasher Cleaning Performance - General: Removed requirements for new dishwashers to undergo at least one preconditioning normal cycle before the clean up cycle as follows:

5.1 Dishwasher Cleaning Performance - General. Execute this a test ~~minimum of three times per series on each~~ dishwasher in order to minimize the effect of variables due to soiling, dishwashing, ~~judging scoring~~ or other general condition variables. ~~A new dishwasher will first go through at least one preconditioning normal cycles and then a cleanup cycle after each test run.~~

Section 5.2, Load: Reduced load requirements from 10 minimum place settings to 8 for standard dishwashers and from 6 to 4 for compact dishwashers as follows:

5.2 Load. The test load is to consist of ~~10~~ 8 place settings minimum plus serving pieces for a standard dishwasher ~~per Appendix D~~. For compact dishwashers, the test load is to consist of ~~6~~ 4 place settings minimum plus serving pieces, ~~per Appendix D~~ except where the rated capacity is lower than 4 place settings. Refer to Appendix C for test load quantities. Prepare all test load items as indicated in ~~4.3.4.4~~ before soiling which is to be done in accordance with 5.7 Application Method.

Section 5.3, Soil Preparation Utensils Needed: Revised soil preparation utensils required for the soiling test as follows:

5.3 Soil Preparation Utensils Needed

- (1) One 1 qt or 1 L saucepan with cover
- (2) One bowl for egg yolks
- (3) Several sets of measuring spoons
- (4) ~~Three stiff~~ Several bristle brushes ~~with 1/2 inch (13 mm) wide by 1 inch (25 mm) long bristles.~~
- (5) Several ~~rubber~~ flexible spatulas ~~1 inch wide (Rubbermaid #2733 or equivalent)~~
- (6) Two ~~glass~~ measuring cups, 2 cup (~~470~~473 ml) capacity
- (7) One can opener
- (8) One stopwatch
- (9) One 1 qt or 1 L sealed storage ~~Tupperware®~~ container, ~~or equivalent, with cover~~
- (10) One aluminum clad stainless skillet, or equivalent
- (11) One drip coffee maker (minimum 4 cups) ~~any brand~~
- (12) One paper coffee filter
- (13) One round wire mask divided in fourths (optional)
- (14) One round wire mask divided in halves (optional)

Section 5.5, Soiling Agent Preparation: Added additional requirements for the preparation of the soiling items and included milk preparation as follows:

5.5 Soiling Agent Preparation



All soil items shall be brought to ambient temperature before application except as noted below. For those items that are refrigerated, a container with the food item may be placed in a water bath of 100-110°F (38- 43°C) water.

Exception: The eggs, oatmeal, [coffee](#) and potatoes should not be brought to ambient temperature before application.

.....

2) Cream Style Corn

Stir contents of the can approximately 5 times to ensure consistency [before application](#).

The cream style corn will be applied to the bread & butter plates, some of the fruit bowls, one serving spoon, one serving bowl, and some of the teaspoons.

[Place the remaining corn in a tightly covered container and store in the refrigerator until ready to use.](#)

[The stored corn may be used for up to one week.](#)

.....

4) Instant Mashed Potatoes

Prepare 1 cup (237 ml) (2 servings) of Hungry Jack™ Instant Mashed Potatoes.

In a 1 qt (946 ml) saucepan, combine 2/3 cup (158 ml) water, 1 tablespoon (15 ml) ~~margarine~~ [vegetable oil spread](#), and ¼ teaspoon (1 ml) salt. Bring to a rolling boil and then remove from heat.

With a fork, stir into the mixture 1/3 cup (79 ml) reconstituted nonfat dry milk, and 2/3 cup (158 ml) potato flakes until potatoes are smooth.

The mashed potatoes will be applied to the dinner plates, one of the serving spoons, and one serving bowl.

[Apply mashed potato mixture within 30 minutes of preparation.](#)

[Do not use microwave to prepare instant mashed potatoes.](#)

5) Ground Beef Mixture

Prepare ground beef from round steak with all visible fat removed. Mix together (by weight) 75% round steak with 25% kidney suet; grind together twice. A grinding wheel with 1/8 inch (3 mm) holes shall be used.

NOTE: For convenience, the ground beef/kidney suet mixture may be purchased in large quantities and frozen in 1 lb (454 g) packages before using. [If frozen, thaw in a refrigerator or water bath before preparation.](#)

.....

Remove from ~~surface-unit~~ [heat](#) and [immediately](#) mix with one 12 oz can (355 ml) of Contadina™ Tomato Paste, ~~using a rubber spatula to remove~~ [removing](#) all the tomato paste from the can.

[NOTE: One proven method to remove all the tomato paste from the can is to open both ends of the can and use a rubber spatula.](#)

.....

7) Coffee (Drip Decaffeinated)

Place 4 tablespoons (59 ml) of drip ground decaffeinated coffee [into a paper filter](#) and 2 ½ cups (591 ml) of cold water into the coffee maker. Set coffee maker on strongest brew strength, if applicable. Energize coffee maker. Retain coffee grounds for application.

.....

8) Peanut Butter

~~No preparation necessary.~~ Use directly as purchased, [stirring before use to ensure the peanut oil has not separated.](#)

.....



10) Milk

Prepare Carnation™ Nonfat Dry milk by adding water per the instructions on the package.

The milk will be used in preparing the oatmeal and potatoes.

Section 5.7, Application Method: Changed the application method for soil items as follows:

5.7 Application Method.

Each soil ~~will shall~~ be applied uniformly to ~~required~~ dishware, flatware or glassware ~~item before beginning the next soil item~~. Uniformly means an even distribution and amount of soil on each item in thickness and dimension. Figures 1-14 show the recommended appearance of uniform application.

Assure soiling technique is consistent from load to load and follows the order of application described in 5.6. All measurements shown shall be level measurements. ~~Pre-soil the brush by dipping all the bristles of the brush into the soil material once.~~

Level measurements for measuring spoons are described further as follows:

Egg yolks: Measuring spoons shall be leveled by dipping into soil and filling completely. Measuring spoons shall be emptied onto dish load items by pouring.

Creamed corn, oatmeal, instant potatoes, ground beef mixture, red raspberry preserves, coffee grounds and peanut butter: Measuring spoons shall be leveled using a flat straight edge (e.g. with a spatula), drawn across the top of the open surface of the measuring spoon. Any excess soils on the exterior of the measuring spoon shall be removed (e.g. with a spatula). Measuring spoons shall be emptied onto each dish load item using a spatula, ensuring all soil is transferred.

Peanut butter alternative option for soil transfer: Measuring spoons may be emptied using a finger for direct application to each knife.

Pre-soil brushes by working the soil into the brush and then remove any excess before using for soil application. Pre-soiling ensures consistent amount application on each item.

SERVING PLATTER: Platter shall be soiled by resting the knives on it which will leave peanut butter on the outer rim.

FLATWARE:

All flatware is to be coated uniformly on both sides, excluding the handle, consistent with dishware. The orientation of the flatware as shown in the figures below is intentional. Care shall be taken to match the orientation of each item during the soiling process.

KNIVES: ¼ teaspoon (1 ml) of peanut butter per knife applied uniformly onto the blade to the end of the serrated edge on both sides as shown in Figure 9. Rest the soiled end of the knife blade on the rim of serving platter as shown in Figure 10.

NOTE: One proven method for peanut butter application is the use of a finger for removing the peanut butter from the measuring spoon and applying it to the knife. Care should be taken when applying soil to the serrated knife edge.

SPOONS: Using a pre-soiled brush, brush spread cream style corn on both sides of half the quantity of the spoons and place them on the half of the bread and butter plates soiled with corn. Using a pre-soiled brush, brush spread oatmeal on both sides of the remaining quantity of spoons with the oatmeal mixture



and ~~rest~~ place ~~them on their respective halves~~ the half of the bread and butter plates soiled with oatmeal (see Figure 12).

FORKS: ~~Tines to be soiled with egg yolk by brush and placed~~ Using a pre-soiled brush, spread egg yolk on both sides of fork tines to the hilt and place on the quarter of the dinner plates already soiled ~~by~~ with egg yolk (see Figure 13).

SERVING SPOONS: ~~One shall be soiled with~~ Using a pre-soiled brush, spread cream corn on both sides of one serving spoon and placed in the serving bowl soiled with corn (see Figure 14). Using a spatula, spread potatoes on both sides of ~~the remaining~~ serving spoon ~~shall be soiled with potatoes~~ and placed in the bowl soiled with potatoes (see Figures 15).

SERVING FORK: ~~Shall be~~ Using a pre-soiled ~~with~~ brush, spread egg yolk on both sides of serving fork and placed on any the quarter of the dinner plates already soiled with egg yolk (see Figure 16).

Section 5.8, Loading the Soiled Load Items: Clarified loading soiled items as follows:

5.8 Loading the Soiled Load Items

After the two hour air dry period, the soiled ~~ware~~ load items is-are first to be stacked and then to be loaded as follows:

Stack dinner plates by first placing one plate on a flat surface. The next plate should be stacked with a ¼ turn so that the soil is oriented 90° to the soil on the plate below it. Each successive plate is to be oriented 90° in the same direction to the one below. Stack bread and butter plates and fruit bowls by alternating the cream corn and oatmeal. Maintain the stacking orientation described above when loading into the dishwasher racks. ~~For every test run, dishes need to be placed in the same orientation with regard to soil and configuration.~~

Load the dishwasher in accordance with manufacturer's recommendation, following the loading pattern provided in the manufacturer's use and care guide. The dishwasher shall be loaded in a manner to minimize overlapping, contacting or shadowing (without nesting) of the dishware or flatware, ensuring proper water impingement. If a loading pattern is not provided by the manufacturer, develop a precise loading configuration.

Photograph and follow the same loading pattern, ~~for all tests~~ including soil orientation, for subsequent test runs in a test series.

Section 5.9, Dishwasher Operation: Added test temperature requirement, and removed the option of using power dry cycle as follows:

5.9 Dishwasher Operation

The dishwasher is to be at room ambient temperature (per Section 4.7) at the start of each test run.

Operate the dishwasher through one complete Normal Cycle using power dry or per manufacturer's recommended cycle for normally soiled dishes. Clean filter or strainer per manufacturer's recommendations, and not less than once after each test series and before starting a new test series.

One clean-up run is required operation (per Section 4.3.2) shall be executed between individual test loads for more consistent results per Section 4.2 runs.



Section 5.10, Evaluation: Added evaluation requirements to include time limits for inspection including 20 seconds for glassware and 10 seconds for all other load items as follows:

5.10 Evaluation. *At the completion of the cycle, carefully remove one piece of the ~~ware load~~ at a time and evaluate. Evaluation of each item, excluding glassware, shall not take longer than 10 seconds. Glassware evaluation shall not take longer than 20 seconds. These evaluation times exclude handling (for example, taking out, putting aside) or confirming the nature of a mark or irregularity. Each ~~piece of ware-load item~~ should shall be evaluated in a ~~room space~~ with diffused light using a lamp, rated or measured, with a color temperature of 3500- 4500 K. The lamp should be installed ~~over the area~~ in order to avoid any direct glare. The illuminance measured at the ~~relevant~~ evaluation plane shall be 1000-1500 lux.*

Each piece shall be examined visually ~~by the judge~~ and evaluated according to the scoring instructions in 5.10.1, ~~5.10.2, and 5.10.3.~~ ~~No single piece can exceed a cumulative count of 9. Thus, if the particle count plus the spot or streak count for a piece was greater than 9, that piece would be assigned a value of "9".~~ NOTE: For comparative purposes, the same individual should perform scoring in a given facility. If more than one technician is used for scoring, the test lab shall have a plan in place to eliminate bias in the scoring procedure. All scoring technicians should be experienced in use of this procedure. Technicians who have never conducted previous tests should familiarize themselves by conducting trial tests in order to gain experience.

Section 5.10.1, Scoring: Unified scoring methods for all load items, clarified scoring and evaluation order as follows:

5.10.1 Scoring –~~Dishware~~

~~The maximum score for a piece of dishware cannot exceed~~ No single load item can exceed a cumulative count of 9. Thus, if the particle count plus the spot or streak count for a piece was greater than 9, that load item would be assigned a value of "9".

Dishware - Cups, saucers, dinner plates, bread and butter plates, fruit bowls, serving platter and serving bowls are scored on the basis of particle count only.

Flatware, including serving spoons and serving fork, ~~is are~~ scored on the basis of particle count only.

Glassware ~~is shall be~~ scored as described in sections 5.10.1.1, 5.10.1.2, and 5.10.1.3. The scores from sections 5.10.1.2 and 5.10.1.3 shall be summed, resulting in a glassware score on the basis of particles ~~for~~ spots, streaks and rack contact marks.

It is recommended that the glassware scoring be conducted after dishware and flatware in order that maximum drying will take place. For evaluation, the glassware should be placed between the light source and the technician.

5.10.2 Scoring –~~Flatware~~

~~The maximum score for a piece of flatware cannot exceed "9".~~

5.10.2.15.10.1.1 Particles. Visible particles are scored according to size of the largest linear dimension and number on each piece as follows:

Less than or equal to 1/8 in (3 mm) - Score 1 per particle ~~with a maximum score of 9.~~

Greater than 1/8 in (3 mm) and less than or equal to 1/4 in (6 mm) - Score 3 per particle ~~with a maximum score of 9.~~

Greater than 1/4 in (6 mm) and less than or equal to 3/8 in (10 mm) - Score 7 per particle ~~with a maximum score of 9.~~

Greater than 3/8 in (10 mm) - Score 9 per particle ~~with a maximum score of 9.~~



5.10.3 Scoring – Glassware.

It is recommended that the glass scoring be conducted after dishware and flatware in order that maximum drying will take place.

The maximum score for a glass cannot exceed “9”. For evaluation, the glass should be placed between a light source and the technician.

5.10.3.1 Particles. Visible *particles are scored according to size of the largest linear dimension and number on each glass as follows.*

Less than or equal to 1/8 in (3 mm) – Score 1 per particle with a maximum score of 9.

Greater than 1/8 in (3 mm) and less than or equal to 1/4 in (6 mm) – Score 3 per particle with a maximum score of 9.

Greater than 1/4 in (6 mm) and less than or equal to 3/8 in (10 mm) – Score 7 per particle with a maximum score of 9.

Greater than 3/8 in (10 mm) score 9 per particle with maximum score of 9.

5.10.3.2 5.10.1.2 Spots and Streaks. Water spots or streaks are scored according to size of the largest linear dimension and number on each glass as follows:

A streak that results from water present when the glass was removed from the dishwasher is not to be scored.

A water spot less than or equal to 3/8 in (10 mm) - Score 1.

A larger water spot greater than 3/8 in (10 mm) *with no soil present* - Score 3 to a maximum score for water spots of “9” per glass. If soil particles are present in the spots, the glass is to be scored for particles as well. *If there are soil particles in the spots, the maximum score (combined score of spots without soil and spots with soil) for a glass would be “9”.*

5.10.3.3 5.10.1.3 Rack Contact Marks. A rack contact mark on a glass is scored as follows:

Each light mark, such as an outline with a faint area inside the line - Score 1.

Each white mark - Score 3.

Section 5.12, Calculation of Cleaning Indices: Added a requirement for glassware calculations to be done separately, and added a new total/combined cleaning index formula as follows:

5.12 Calculation of Cleaning Indices. The following operations are to be followed to calculate the cleaning index using the indicated forms:

.....

5.12.2.2

.....

This calculation is done separately for glassware in terms of soil particles only, and for total glassware cleaning (combined watermarks and soil particles).

5.12.3 Cleaning Indices for One Test Run. To determine the weighted arithmetic mean of the total cleaning index for each test run, perform the following operation:

5.12.3.1 Cleaning Index – Soil Particles Only

Calculate the total cleaning index for soil particles, excluding spots, streaks and rack contact marks, for one soil test run by using the following formula:

.....

5.12.3.2 Cleaning Index – Total / Combined Cleaning

Calculate the total cleaning index including soil particles, spots, streaks and rack contact



marks of glasses for one test run by using the following formula:

$$\frac{\text{Total Cleaning Index}}{\text{Index}} = \frac{(CI_D \times N_D) + (CI_{GT} \times N_{GT}) + (CI_F \times N_F)}{N_D + N_{GT} + N_F}$$

Where, CI = Category cleaning index for Dishware (D), Glasses (GT) and Flatware (F)

N = Number of pieces specified for Dishware (D), Glasses (GT) and Flatware (F)



Section 6, Section 7, and Section 8: Language from these sections have been relocated to “New” Appendix E. Language/Table in previous Appendix E has been deleted.

Appendix C & D: These appendices have been combined and language revised. This appendix is not “C”.

Appendix D: This is a new appendix

The following figures were added:

[Figure 3, Fruit bowl with oatmeal](#)

[Figure 4, Fruit bowl with cream style corn](#)

[Figure 5, Coffee cup](#)

[Figure 6, Saucer](#)

[Figure 7, Serving bowl with cream corn](#)

[Figure 7, Serving bowl with mashed potatoes](#)

[Figure 8, Serving bowl with mashed potatoes](#)

[Figure 9, Knife](#)

[\(Note: Soil the blade length from the tip to the end of the serrated edge.\)](#)

[Figure 10, Serving platter](#)

[Figure 11, Platter with the peanut butter knives removed](#)

[Figure 12, Spoons](#)

[Figure 13, Forks](#)

[Figure 14, Serving bowl with cream corn, serving spoons placed](#)

[Figure 15, Serving bowl with potatoes, serving spoons placed](#)

[Figure 16, Serving fork](#)

[Figure 17, Glass](#)