

CHAPTER 1, FOOD SAFETY

Section IV. STANDARDS AND SANITATION OF FOOD SERVICE EQUIPMENT AND UTENSILS

- 4-1 STANDARDS
- 4-2 WARE WASHING METHODS
- 4-3 WARE WASHING AGENTS
- 4-4 SANITIZING AGENTS (DISINFECTANTS)
- 4-5 AUTOMATIC COLD WATER GLASS WASHER
- 4-6 MESSING FACILITY SANITATION
- 4-7 UTENSILS AND EQUIPMENT
- 4-8 HAZARDOUS METALLIC COATINGS

4-1 STANDARDS

a. All equipment and utensils used in food establishments under Navy and Marine Corps jurisdiction must be constructed of sanitary, nontoxic, corrosion resistant materials designed, assembled, and installed to provide for ease of cleaning. Sanitary standards for the equipment shall not be less than those promulgated by an American National Standards Institute (ANSI) accredited third party organization (e.g., the National Sanitation Foundation (NSF) or equivalent). Shipboard food service equipment must comply with NAVSUP PUB 533, Shipboard Food Service Equipment Catalog.

b. Stationary equipment must be installed to permit proper cleaning and sanitary maintenance of such equipment, adjacent equipment, and floor and wall surfaces in the immediate vicinity. Floor-mounted equipment, not easily moved, must be sealed to the floor or elevated on legs that provide at least a 6-inch clearance (aboard ship, 8 inches) between the floor and equipment. However, if no part of the floor under the floor mounted equipment is more than 6 inches from cleaning access, the clearance space may be only 4 inches.

c. All food service spaces and equipment must be free from salt water connections, cross connections with a nonpotable water supply, and submerged fresh water inlets. Exceptions to the salt water requirement are those shipboard sculleries which contain food waste disposers that have been specifically approved by CHBUMED to use salt water during the food waste grinding or pulping process and approved refrigeration units which use salt water.

d. Surfaces of Equipment or Utensils:

(1) Food Contact Surfaces. Food contact surfaces will be of materials which are smooth, corrosion resistant, nontoxic, stable, and nonabsorbent under use conditions and will not impart

CHAPTER 1, FOOD SAFETY

Rev Aug 99

an odor, color or taste, nor contribute to adulteration of food. All joints and seams in the food contact zone will be sealed and smooth at the surfaces being joined.

(2) Splash Contact Surfaces. Food splash zone materials will be smooth, easily cleanable, and corrosion resistant, or rendered corrosion resistant with a material which is non-cracking and nonchipping. Paint will not be used except for surfaces which are normally dry. Lead base paint will not be used. If food service equipment is to be refinished, only the manufacturer's standard practice will be used.

(3) Nonfood Zone. Exposed screws, projecting screws, studs and rivet heads will be used only when other fastening methods are impractical. In areas subject to cleaning; projections, ledges and recesses will be minimized. The ends of all hollow sections of reinforcing and framing members will be closed.

4-2 WARE WASHING METHODS

- 4-2.1 INTRODUCTION
- 4-2.2 STEPS OF THE WARE WASHING PROCESS
- 4-2.3 WARE WASHING MACHINES, MANUFACTURERS' OPERATING INSTRUCTIONS
- 4-2.4 WARE WASHING MACHINE, DATA PLATE OPERATING SPECIFICATIONS
- 4-2.5 WARE WASHING MACHINES, INTERNAL BAFFLES
- 4-2.6 WARE WASHING MACHINES, TEMPERATURE MEASURING DEVICES
- 4-2.7 MANUAL WARE WASHING EQUIPMENT, HEATERS AND BASKETS
- 4-2.8 WARE WASHING MACHINES, FLOW PRESSURE DEVICE
- 4-2.9 WARE WASHING SINKS AND DRAINBOARDS, SELF-DRAINING
- 4-2.10 SANITIZING SOLUTIONS, TESTING DEVICES
- 4-2.11 WARE WASHING EQUIPMENT, CLEANING FREQUENCY
- 4-2.12 WARE WASHING EQUIPMENT, CLEAN SOLUTIONS
- 4-2.13 MANUAL WARE WASHING EQUIPMENT, WASH SOLUTION TEMPERATURE
- 4-2.14 MECHANICAL WARE WASHING EQUIPMENT, WASH SOLUTION TEMPERATURE
- 4-2.15 MANUAL WARE WASHING EQUIPMENT, HOT WATER SANITIZATION TEMPERATURES
- 4-2.16 MECHANICAL WARE WASHING EQUIPMENT, HOT WATER SANITIZATION TEMPERATURES
- 4-2.17 MECHANICAL WARE WASHING EQUIPMENT, SANITIZATION PRESSURE
- 4-2.18 TEMPERATURE MEASURING DEVICES

CHAPTER 1, FOOD SAFETY

4-2.19 MANUAL WARE WASHING

4-2.20 ALTERNATIVE MANUAL METHODS

4-2.1 Introduction

a. A sufficient supply of utensils must be available to prevent the recycling of inadequately cleaned, wet or hot tableware and utensils.

b. Care must be taken to prevent contamination of clean and sanitized tableware and utensils by eliminating the cross handling of soiled and clean items and protecting the clean items from splashes or aerosols. Ware washing areas must be designed to direct the flow of tableware and utensils from the soiled areas (scraping and preflushing) to clean areas (drying area).

c. Sanitized tableware and utensils must be air dried and stored in a manner that protects the tableware and utensils from contamination resulting from unnecessary handling, dust and splashes.

4-2.2 Steps of the Ware washing Process

The six steps in the ware washing process are:

- a. Sorting
- b. Scraping
- c. Washing
- d. Rinsing
- e. Sanitizing
- f. Air Drying

4-2.3 Ware Washing Machines, Manufacturers' Operating Instructions

a. A ware washing machine and its auxiliary components shall be operated by the machine's data plate and other manufacturer's instructions.

b. A ware washing machine's conveyor speed or automatic cycle times shall be maintained accurately timed by the manufacturer's specifications.

4-2.4 Ware Washing Machine, Data Plate Operating Specifications

Ware washing machines will be provided with an easily accessible and readable data plate affixed to the machine by the manufacturer that indicates the machine's design and operating specifications including the:

- a. Temperatures required for washing, rinsing, and sanitizing;
- b. Pressure required for the fresh water sanitizing rinse unless the machine is designed to use only a pumped sanitizing rinse; and
- c. Conveyor speed for conveyor machines or cycle time for stationary rack machines.

4-2.5 Ware Washing Machines, Internal Baffles

Ware washing machine wash and rinse tanks shall be equipped with baffles, curtains, or other means to minimize internal cross contamination of the solutions in wash and rinse tanks.

4-2.6 Ware Washing Machines, Temperature Measuring Devices

Ware washing machines will be equipped with a temperature measuring device that indicates the temperature of the water:

- a. In each wash and rinse tank; and
- b. As the water enters the hot water sanitizing final rinse manifold or in the chemical sanitizing solution tank.

4-2.7 Manual Ware Washing Equipment, Heaters and Baskets

If hot water is used for sanitization in manual ware washing operations, the sanitizing compartment of the sink shall be:

- a. Designed with an integral heating device that is capable of maintaining water at a temperature not less than 171°F (77°C); and
- b. Provided with a rack or basket to allow complete immersion of equipment and utensils into the hot water.

CHAPTER 1, FOOD SAFETY

4-2.8 Ware Washing Machines, Flow Pressure Device

a. Ware washing machines that provide a fresh hot water sanitizing rinse will be equipped with a pressure gauge or similar device such as a transducer that measures and displays the water pressure in the supply line immediately before entering the ware washing machine; and

b. If the flow pressure measuring device is upstream of the fresh hot water sanitizing rinse control valve, the device will be mounted in a 6.4 millimeter or one-fourth inch iron pipe size (IPS) valve.

c. Paragraphs (a) and (b) above do not apply to a machine that uses only a pumped or recirculated sanitizing rinse.

4-2.9 Ware Washing Sinks and Drainboards, Self-draining

Sinks and drainboards of ware washing sinks and machines shall be self-draining.

4-2.10 Sanitizing Solutions, Testing Devices

The concentration of sanitizing solution(s) shall be verified with a test kit or other device that accurately measures the concentration in mg/L or ppm.

4-2.11 Ware Washing Equipment, Cleaning Frequency

Ware washing machines; the compartments of sinks, basins, or other receptacles used for washing and rinsing equipment and utensils will be cleaned:

a. Before use;

b. Throughout the day at a frequency necessary to prevent recontamination of equipment and utensils and to ensure the equipment performs its intended function; and

c. At least every 24 hours.

4-2.12 Ware Washing Equipment, Clean Solutions

The wash, rinse, and sanitize solutions shall be maintained free of food or other organic matter that affect solution performance.

4-2.13 Manual Ware Washing Equipment, Wash Solution Temperature

The temperature of the wash solution in manual ware washing equipment shall be maintained at not less than 110°F (43°C) unless a different temperature is specified on the cleaning agent manufacturer's label instructions.

4-2.14 Mechanical Ware Washing Equipment, Wash Solution Temperature

a. The temperature of the wash solution in spray type warewashers that use hot water to sanitize may not be less than:

(1) For a single tank, stationary rack, single temperature machine, 165°F (74°C);

(2) For a single tank, conveyor, dual temperature machine, 160°F (71°C);

(3) For a stationary rack, dual temperature machine, 150°F (66°C); or

(4) For a multitank, conveyor, multitemperature machine, 150°F (66°C).

b. The temperature of the wash solution in spray type warewashers that use chemicals to sanitize may not be less than 120°F (49°C).

4-2.15 Manual Ware Washing Equipment, Hot Water Sanitization Temperatures

If immersion in hot water is used for sanitizing in a manual operation, the temperature of the water shall be maintained at 171° F (77° C) or above.

4-2.16 Mechanical Ware Washing Equipment, Hot Water Sanitization Temperatures

a. In a mechanical operation, the temperature of the fresh hot water sanitizing rinse as it enters the manifold may not be more than 194°F (90°C), or less than:

(1) For a single tank, stationary rack, single temperature machine, 165°F (74°C); or

b. For all other machines, 180°F (82°C).

CHAPTER 1, FOOD SAFETY

4-2.17 Mechanical Ware Washing Equipment, Sanitization Pressure

The flow pressure of the fresh hot water sanitizing rinse in a ware washing machine may not be less than 15 pounds per square inch (100 kilopascals) or more than 25 pounds per square inch (170 kilopascals) as measured in the water line immediately upstream from the fresh hot water sanitizing rinse control valve.

4-2.18 Temperature Measuring Devices

Temperature measuring devices shall be calibrated in by the manufacturer's specifications as necessary to ensure their accuracy. Each device will be accurate to $\pm 3^{\circ}\text{F}$ ($\pm 1.5^{\circ}\text{C}$).

4-2.19 Manual Ware Washing

4-2.19.1 Equipment

4-2.19.2 Field Messing

4-2.19.1 Equipment

a. A three-compartment deep sink is basic for proper manual ware washing procedures. If a three-compartment sink cannot be provided, a two-compartment sink and/or other containers, e.g., large kettle, etc., may be used provided adequate provisions are made to accomplish the six steps of the ware washing process.

b. Accessory equipment and supplies required for proper manual ware washing include a booster heater for the final rinse sink, thermometers for monitoring the final rinse water temperatures, a drip and drain basket and/or arm length rubber gloves for the final rinse, approved brushes, hand ware washing compounds, and sanitizing agents.

4-2.19.2 Field Messing

Manual ware washing methods are contained in NAVMED P-5010 Chapter 9, Preventive Medicine for Ground Forces.

4-2.20 Alternative Manual Methods

When ware washing in sinks or ware washing machines is impractical, ware washing will be done by alternate methods, as approved by the PMA:

- a. Disassemble as necessary to permit access to all parts;
- b. Scrape or rough clean to remove gross food particle

accumulation;

c. Clean the equipment using a high pressure detergent spray, a line pressure spray detergent foam or a swabbing/brushing procedure using a detergent solution.

d. Rinse the washed equipment with potable water or detergent sanitizer solution.

e. Manually swab or pressure spray the equipment with the concentration of detergent sanitizer or chemical sanitizer specified on the label.

4-3 WARE WASHING AGENTS

a. Detergents. The efficiency of the detergent is affected by the degree of hardness of the water. Different detergents are available for hard and soft waters. Preference should be given to a detergent demonstrated to be effective with the particular water supply used. Water produced by a ship's distilling plants is normally very soft.

b. Detergent Feeding. Detergent must be added to ware washing machines. It can be added manually; however, automatic dispensers are highly recommended. The proper amount of detergent will depend on the capacity of the tank and hardness of the water. Detergent should be added to the machine as directed in the manufacturer's recommendations.

c. Unauthorized Ware Washing Agents. General purpose cleaning agents which do not specifically state, on the label, the intended use is for food contact surfaces will not be used for washing tableware and utensils. Manual ware washing compounds must not be used in ware washing machines and ware washing machine detergent will not be used for manual ware washing.

4-4 SANITIZING AGENTS (DISINFECTANTS)

4-4.1 MANUAL AND MECHANICAL WARE WASHING EQUIPMENT, CHEMICAL SANITIZATION TEMPERATURE, pH, CONCENTRATION, AND HARDNESS

4-4.2 MANUAL WARE WASHING EQUIPMENT, CHEMICAL SANITIZATION USING DETERGENT SANITIZERS

4-4.3 WARE WASHING EQUIPMENT, DETERMINING CHEMICAL SANITIZER CONCENTRATION

4-4.4 HOT WATER AND CHEMICAL SANITIZING

4-4.5 STRENGTH DETERMINATIONS

CHAPTER 1, FOOD SAFETY

4-4.1 Manual and Mechanical Ware Washing Equipment, Chemical Sanitization Temperature, pH, Concentration, And Hardness

A chemical sanitizer used in a sanitizing solution for a manual or mechanical operation shall be used per the EPA-Approved manufacturer's label use instructions and as follows:

a. A chlorine solution shall have a minimum temperature based on the concentration and pH of the solution as listed in table 1-5.

Table 1- 5. Requirements for a 10 second chlorine rinse

Minimum Chlorine Concentration	Minimum Water Temperature	
	pH 10 or less °F	pH 8 or less °F
mg/L (ppm)		
25	120	120
50	100	75
100	55	55

b. An iodine solution shall have a:

(1) Minimum temperature of 75°F (24°C),

(2) A pH of 5.0 or less or a pH no higher than the level for which the manufacturer specifies the solution is effective; and

(3) Concentration between 12.5 mg/L and 25 mg/L;

c. A quaternary ammonium compound solution shall:

(1) Have a minimum temperature of 75° F (24°C),

(2) Have a concentration as required in 21 CFR 178.1010 sanitizing solutions and as indicated by the manufacturer's use directions included in the labeling, and

(3) Be used only in water with 500 mg/L hardness or less, or in water having a hardness no greater than specified by the manufacturer's label.

d. Other chemical sanitizers approved by the PMA may be used if they are applied per the manufacturer's use directions included in the labeling.

4-4.2 Manual Ware Washing Equipment, Chemical Sanitization

If a detergent sanitizer is used to sanitize in a cleaning and sanitizing procedure where there is no distinct water rinse between the washing and sanitizing steps, the agent applied in the sanitizing step shall be the same detergent sanitizer that is used in the washing step.

4-4.3 Ware Washing Equipment, Determining Chemical Sanitizer Concentration

Concentration of the sanitizing solution shall be accurately determined by using a test kit or other device.

4-4.4 Hot Water and Chemical Sanitizing

After washing, equipment food contact surfaces and utensils shall be sanitized in:

a. Hot water manual operations by immersion for at least 30 seconds as specified under section 4-2.15;

b. Hot water mechanical operations by being cycled through equipment that is set up as specified under section 4-2.3 and 4-2.16 and 4-2.17 and achieving a utensil surface temperature of 160°F (71°C) as measured by an irreversible registering temperature indicator; or

c. Chemical manual or mechanical operations, including the application of sanitizing chemicals by immersion, manual swabbing, brushing, or pressure spraying methods, using a solution as specified under section 4-4.1 by providing:

(1) An exposure time of at least 10 seconds for a chlorine solution,

(2) An exposure time of at least 30 seconds for other chemical sanitizer solutions, or

(3) An exposure time used in relationship with a combination of temperature, concentration, and pH that yields sanitization as defined in this chapter.

CHAPTER 1, FOOD SAFETY

4-4.5 Strength Determinations

Table 1-6 indicates the amount (in ounces) of chlorine compound required for initial concentration of 200 ppm free available chlorine (FAC) and the amount (in ounces) of iodine type disinfectant required for an initial dilution of 25 ppm. Always follow directions on the container label.

a. Table 1-6 is a guide to determine the proper amount of sanitizing solution for each amount of water. For specific guidelines follow the manufacturers' recommendation.

Table 1-6. Ounces of agent required for chemical sanitizing solution

Gallons of Water	5	10	15	20	25
Required Ounces of Agent:					
Sodium Hypochlorite Liquid 5% available chlorine to make 200 ppm solution	2.5	5.0	7.5	10.0	12.5
Sodium Hypochlorite Liquid 10% available chlorine to make 200 ppm solution	1.25	2.5	3.75	5.0	6.25
Disinfectant, Liquid, Iodine Type to make 25 ppm solution	1.0	2.0	3.0	4.0	5.0
Note: Three teaspoons equal 1 tablespoon. Two tablespoons equal 1 ounce. Eight ounces equal 1 cup.					

4-5 AUTOMATIC COLD WATER GLASS WASHER

a. Bars in military clubs and messes may use automatic cold water glass washers provided they meet NSF standards and other provisions discussed in this chapter.

b. When inspecting bar areas, the PMA must ensure approved products are used and the glass washer is being operated as recommended by the machine manufacturer's operating instructions.

4-6 MESSING FACILITY SANITATION

4-6.1 DAILY INSPECTION OF TABLEWARE

4-6.2 MESSING FACILITY TABLES

4-6.3 PEST CONTROL SURVEYS

4-6.1 Daily Inspection of Tableware

Tableware must be inspected daily by supervisory personnel. Forks with broken or badly bent tines must be immediately removed from use and surveyed. Badly worn, rough edge spoons, chipped or cracked cups, dishes, glasses, and other dinnerware will be surveyed and discarded on detection. These items should be removed during the sorting procedure, prior to ware washing.

4-6.2 Messing Facility Tables

During the meal period and prior to closing each day, tables and seating areas will be cleaned using the "two pan method" with one pan containing a mild detergent and water solution and the second pan containing a rinse solution.

4-6.3 Pest Control Surveys

During food sanitation inspections the PMA shall conduct pest control surveys. Specific procedures for accomplishing surveys and establishing proper control techniques are contained in the Shipboard Pest Control Manual, BUMEDINST 6250.13 or superseding instruction, and NAVMED P-5010, Chapter 8, Medical Entomology and Pest Control Technology of this manual.

4-7 UTENSILS AND EQUIPMENT

- 4-7.1 FOOD SERVICE EQUIPMENT**
- 4-7.2 STEAM JACKETED KETTLES AND URNS**
- 4-7.3 CAN OPENERS**
- 4-7.4 WOODEN FOOD SERVICE EQUIPMENT**
- 4-7.5 CUTTING BOARDS**
- 4-7.6 SPONGES AND CLEANING CLOTHS**
- 4-7.7 METAL POLISH**
- 4-7.8 STEEL WOOL**
- 4-7.9 UTENSILS**
- 4-7.10 SINGLE SERVICE AND SINGLE USE ARTICLES**
- 4-7.11 STORAGE EQUIPMENT**
- 4-7.12 MICROWAVE OVENS**

4-7.1 Food Service Equipment

Food service equipment must be maintained in good operating condition and serviced when required. Equipment which is no longer used or is unserviceable, must be removed from the galley spaces. Utensils and food contact surfaces of equipment must be cleaned and sanitized.

CHAPTER 1, FOOD SAFETY

a. Utensils and equipment used in production line, processing, or continuous operations must be cleaned and sanitized as follows:

(1) Each time there is a change in processing between types of raw animal products such as beef, fish, lamb, pork, and poultry;

(2) Each time there is a change from raw to ready-to-eat foods;

(3) After any substantial interruption of operations in which contamination may have occurred;

(4) Throughout the day at intervals necessitated by food temperature, type of food, and food particle accumulation;

(5) After final use each working day.

b. Utensils and food contact surfaces of equipment used in noncontinuous food operations must be cleaned and sanitized:

(1) After each use;

(2) After a substantial interruption of operations in which contamination may have occurred.

4-7.2 Steam Jacketed Kettles and Urns

a. Steam jacketed kettles and urns must be scrubbed inside and outside after each use with a scrub brush and detergent solution followed by a rinse with potable water and a sanitizing rinse of either hot water or chemical sanitizing rinse. See section 4-4.4 above, NSTM 9340 or NAVSUP PUB 421 Appendix B for details.

b. The PMA should ensure steam jacketed kettles:

(1) Are equipped with functional steam safety release valves.

(2) Have at least 18" long chains on the steam safety relief valves.

(3) Have steam discharge piped down to kettle coamings and directed away from operators.

(4) Steam and water piping are protected by a perforated corrosion resistant steel (CRES) or aluminum shield which surrounds the pipe with approximately ½" standoff from the pipe.

(5) Are in compliance with hydrostatic testing periodicity.

4-7.3 Can Openers

Cutting or piercing parts of can openers must be readily removable for cleaning and for replacement.

4-7.4 Wooden Food Service Equipment

a. Except as specified below, wood and wood wicker may not be used as a food contact surface.

b. Hard maple or an equivalently hard, close-grained wood may be used for:

(1) Cutting boards; cutting blocks; bakers' tables; and utensils such as rolling pins, doughnut dowels, salad bowls, and chopsticks;

(2) Wooden paddles used in confectionery operations for pressure scraping kettles when manually preparing confections at a temperature of 110°C (230°F) or above.

c. Whole, uncut, raw fruits and vegetables, and nuts in the shell may be kept in the wood shipping containers in which they were received.

d. If the nature of the food requires removal of rinds, peels, husks, or shell before consumption, the whole, uncut, raw food may be kept in:

(1) Untreated wood containers;

(2) Treated wood containers if the containers are treated with a preservative that meets the requirements specified in 21 CFR 178.3800, Preservatives for Wood.

4-7.5 Cutting Boards

Cutting boards must be cleaned and sanitized after each use. This includes those occasions when different meat products or the same meat products (after a substantial interruption) are to come in contact with the same cutting board. Cleaning and sanitizing may be accomplished manually or by machine. Cutting boards must not contain cut marks that impede cleaning and sanitizing. Cutting boards which are scored or cut should be resurfaced or discarded.

CHAPTER 1, FOOD SAFETY

4-7.6 Sponges and Cleaning Cloths

All sponges and cleaning cloths used for cleaning galley utensils and equipment must be washed and sanitized after each meal period. Sponges may not be used in contact with cleaned and sanitized or in use food contact surfaces.

4-7.7 Metal Polish

Metal polish is not approved for use on food contact surfaces. When metal cleaners and polishes are used for nonfood contact surfaces, food products, utensils, dinnerware and food packaging materials must be removed from the space or carefully protected. All odors associated with these compounds must be dissipated before food products, etc., are reexposed in the space.

4-7.8 Steel Wool

The use of steel wool for cleaning equipment, utensils, and other food contact surfaces is prohibited. Metal sponges (carried in the supply system) may be used, but must be discarded when they show signs of wear.

4-7.9 Utensils

a. All utensils used in food preparation or service shall be cleaned and sanitized by manual or machine ware washing after each use.

b. A food dispensing utensil shall be available for each food item on a self-service unit such as a buffet or salad bar.

c. All "in use" food dispensing utensils shall be properly stored to prevent contamination of the food item.

4-7.10 Single Service and Single Use Articles

a. Single service and single use articles are required when cleaning and sanitizing of regular utensils cannot be properly accomplished.

b. Single service and single use articles may not be reused.

c. Disposable flatware shall be dispensed in a sanitary manner.

4-7.11 Storage Equipment

Storage shelves, racks, cabinets, or drawers in food preparation or serving areas must be kept free from food residues and debris.

CHAPTER 1, FOOD SAFETY

Rev Aug 99

Liners (aluminum foil and wax paper) should not be used in drawers or on shelving because they allow food to accumulate and provide insect harborages.

4-7.12 Microwave Ovens

a. Microwave ovens shall meet the safety standards specified in 21 CFR 1030.10 Microwave Ovens.

b. Microwave ovens must be cleaned daily or as often as necessary.

4-8 HAZARDOUS METALLIC COATINGS

a. Only materials which meet NSF Standard No. 2 or its equivalent may be used in the construction of food service utensils and equipment.

b. Enameled ware, galvanized metal, copper, cadmium, antimony, zinc or tin utensils will not be used for food contact surfaces. The soluble salts and/or oxides of such heavy metals can cause abrupt and severe gastrointestinal symptoms, typically in a setting where foods or beverages of high acid content have reacted chemically with the metal containers in which they were prepared or stored.

c. Silver plated pitchers or bowls must not be used for holding or serving acidic food or beverages. Even minor pitting or scratching exposes the underlying copper to the leaching action of the acid food or drink. Sufficient copper ions may be present in such beverages to result in copper poisoning. Stainless steel, plastic or glass containers are recommended for dispensing acidic food and beverages.