MIL-STD-1482C

16 September 1985

SUPERSEDING

MIL-STD-1482B

5 June 1980

MILITARY STANDARD

SANITARY STANDARDS FOR BUTTER (AND RELATED PRODUCTS) PLANTS

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

FSC 8910

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1. SCOPE

1.1 Purpose. This standard establishes the general sanitary requirements for butter and related products plants.

1.2 Application. This standard is applicable to all types of plants supplying butter and related products destined for Armed Forces procurement. Compliance with this standard is mandatory for the listing of plants in the Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement as provided in AR 40-657/NAVSUPINST 4355.4 /AFR 161-32/MCOP 10110.31 .

1.3 Objectives. This standard is primarily intended to insure clean, wholesome food products that are free from chemical, microbiological, and physical contaminants and to prevent the transmission of foodborne disease to members of the Armed Forces.

1.4 Limitations. This standard will not be used to determine the capability of an establishment to produce or furnish products or services which are in compliance with specifications or other purchase descriptions.

2. REFERENCED DOCUMENTS

2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this standard to the extent specified herein.

LAWS AND REGULATIONS

Environmental Protection Agency (EPA)

Code of Federal Regulations (CFR) Title 40, Protection of the Environment

(Application for copies should be addressed to Superintendent of Public Documents, US Government Printing Office, Washington, DC 20402)

US Department of Agriculture (USDA)

Code of Federal Regulations (CFR), Title 7, Agriculture, and Regulations Promulgated Thereunder

List of Proprietary Substances and Nonfood Compounds Authorized for use under USDA Inspection and Grading Programs

(Application for copies should be addressed to Superintendent of Public Documents, US Government Printing Office, Washington, DC 20402)

General Specifications for Dairy Plants Approved for USDA Inspection and Grading Service

(Application for copies should be addressed to the Dairy Division, AMS USDA, Washington, DC 20250)

Uniform Methods and Rules--Brucellosis Eradication, Public 91-1
Uniform Methods and Rules--Bovine Tuberculosis Eradication

(Application for copies should be addressed to the Veterinary Services, Animal and Plant Health Inspection Service, US Department of Agriculture, Federal Center Building, Hyattsville, MD 20782)

US Department of Health and Human Services (HHS)

Code of Federal Regulations (CFR), Title 21, Food and Drug, and Regulations Promulgated Thereunder

Grade "A" Pasteurized Milk Ordinance - 1978 Recommendations of the United States Public Health Service, Food and Drug Administration Publication 229

(Application for copies should be addressed to the Superintendent of Public Documents, US Government Printing Office, Washington, DC 20402)

2.2 Other publications. The following documents form a part of this standard to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply:

American Public Health Association (APHA)

Standard Methods for the Examination of Dairy Products

(Application for copies should be addressed to the American Public Health Association, Inc., 1015 15th St., N.W., Washington, DC 20005.)

Association of Official Analytical Chemists (AOAC)

Official Methods of Analysis of the Association of Official Analytical Chemists

(Application for copies should be addressed to the AOAC, 1111 North 19th St., Suite 210, Arlington, VA 22209.)

Illuminating Engineering Society (IES)

IES Lighting Handbook

(Application for copies should be addressed to Illuminating Engineering Society, 40 United Engineering Center, 345 East 47th Street, New York, NY 10017.)

International Association of Milk, Food, and Environmental Sanitarians, Inc.

3-A Sanitary Standards

(Application for copies of particular standards pertaining to dairy equipment should be addressed to the Journal of Food Protection, P.O. Box 701, Ames, IA 50010.)

National Sanitation Foundation (NSF)

NSF Standard 37 for Air Curtains

NSF Standard C-6 for Continuous Cloth Towel Dispensers

(Application for copies should be addressed to the National Sanitation Foundation, P.O. Box 1468, Ann Arbor, MI 48106.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using federal agencies.)

3. DEFINITIONS

3.1 General.

3.1.1 Adequate. Methods which are needed to accomplish the intended purpose in keeping with accepted public health practices.

3.1.2 Adulterated. Adulterated shall mean the condition of a food (a) if it bears or contains any poisonous or deleterious substance in a quantity which may render it injurious to health; (b) if it bears or contains added poisonous or deleterious substance for which no safe tolerance has been officially established, or in excess of such tolerance if one has been established; (c) if it consists in whole or part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for human consumption; (d) if it has been processed, prepared, packed, or held under insanitary conditions, whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health; (e) if it is in whole or in part the product of a diseased animal, or an animal which has died otherwise than by slaughter; or (f) if its container is composed in whole, or in part, of any poisonous or deleterious substance which may render the contents injurious to health.

3.1.3 Clean-In-Place (C I P) pipelines. C-I-P pipelines are rigid pipelines which have welded joints or have sanitary cleaned-in-place connections or joints of such design as to form a substantially smooth, flush interior surface.

3.1.4 Contamination. Contamination shall be the act or process of exposing the product to an adulterant or unwholesome material.

3.1.5 Culinary steam. Culinary steam is steam that is used with product.

3.1.6 Food. Any raw, cooked, or processed edible substance, ice, beverage, or ingredient used or intended for use or for sale in whole or in part for human consumption.

3.1.7 Pasteurization (pasteurized). "Pasteurized" when used to describe a dairy product means that every particle of product shall have been heated in properly operated equipment to one of the temperatures specified in the table of this paragraph and held continuously at or above that temperature for at least the specified time (or other time/temperature relationship which has been

demonstrated to be equivalent thereto in microbial destruction):

Temperature	Time
145°F (62.8°C) 1/2/	30 minutes
161°F (71.7°C 1/2/	15 minutes
191°F (88.3°C)	1.0 second
194°F (90.0°C)	0.5 second
201°F (93.9°C)	0.1 second
204°F (95.6°C)	0.05 second
212°F (100.0°C)	0.01 second

1/If the dairy ingredient has a fat content of 10 percent or more, or if it contains added sweeteners, the specified temperature shall be increased by 5°F (2.7°C).

2/In accordance with CFR, Title 7, cream for butter manufacture shall be pasteurized at 165°F (73.9°C) with a 30-minute hold period, or pasteurized at 185°F (85.0°C) for not less than 15 seconds, or by an approved method giving equivalent results.

3.1.8 Plant. The building or buildings or parts thereof, used for or in connection with the manufacturing, processing, packaging, labeling, or holding of human food.

3.1.9 Processing. Processing is all steps in the manufacture or preparation of a product into its final form.

3.1.10 Production area. The room or area in which processing occurs.

3.1.11 Product area. The production area and all other areas where the product, ingredients, and packaging materials are handled or stored.

3.1.12 Product zone (food contact surface). The surface of any equipment, utensils, or other material that contacts the product or ingredients during processing.

3.1.13 Sanitize (sanitization). An adequate treatment of product zones by a process that is effective in destroying vegetative cells of pathogenic bacteria and in substantially reducing other microorganisms. Such treatment shall not adversely affect the product and shall be safe for the consumer.

3.1.14 Wholesome. That characteristic possessed by a food product that is conducive to good health and well being in the consumer.

3.2 Dairy products terms.

3.2.1 Butter. The food product, usually known as butter and which is made exclusively from milk or cream or both, with or without common salt, with or without additional coloring matter; and containing not less than 80 percent by weight of milkfat, all tolerances having been allowed for.

3.2.1.1 Whipped butter. Butter which has been stirred or whipped to incorporate air or inert gas, until its volume has been increased by up to a range of from 50 to 100 percent. It contains not less than 80 percent fat by weight.

3.2.2 Cream. Cream is the sweet, fatty liquid separated from milk, with or without the addition of milk or skim milk containing not less than 18 percent milkfat.

3.2.2.1 Frozen cream. Sweet cream which has been pasteurized and frozen. It contains approximately 40 percent milkfat.

3.2.2.2 Plastic cream. Sweet cream which has been pasteurized and contains approximately 80 percent milkfat.

3.2.3 Milk. The whole lacteal secretion, practically free from colostrum, obtained by the complete milking of one or more healthy cows located in approved herds.

3.3 Related products.

3.3.1 Anhydrous milkfat. Anhydrous milkfat is the food product resulting from the removal of practically all of the moisture and solids-not-fat from pasteurized cream. It contains not less than 99.8 percent fat, and not more than 0.15 percent moisture.

3.3.2 Butteroil. The food product resulting from the removal of practically all of the moisture and solids-not-fat from butter. Butteroil contains not less than 99.6 percent fat and not more than 0.3 percent moisture; and not more than 0.1 percent other butter constituents, of which the salt is not more than 0.05 percent.

4. GENERAL REQUIREMENTS

4.1 Sanitary compliance rating (SCR). Establishments that attain an SCR of 90 or more shall be recommended for listing in the Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement, provided no critical defects, determined in accordance with 4.2.1, are recorded. When a critical defect is recorded, an SCR shall not be computed and the plant shall not be recommended for listing or retention in the Directory of Sanitarily Approved Food Establishments for Armed Forces Procurement.

4.2. Plant sanitary compliance checklist. The sanitary requirements are set forth in this military standard and itemized as sanitation defects in column 1 of the checklist (see Appendix). The individual defects are given assigned points in column 2 of the checklist, with some being designated as critical.

4.2.1 Recording of defects. The inspector designates as critical or numerically rates the observed sanitation defects. The numerical rating shall be within the numerical range of the assigned defects points in column 2 and recorded in column 3. Any defect entry and related defect points that are not applicable to the plant shall be deleted by lining out the nonapplicable defect and assigned defects point. Nonapplicable defect points shall not be included when totaling column 2. In instances where the inspector considers a defect to be of such magnitude as to constitute a serious health hazard, the numerical rating shall be deleted in column 2 and the word 'critical' shall be recorded in column 2 and 3. Defects which are designated as critical in the checklist may not be downgraded or assigned defect points. Numerical and critical defects shall be explained in the remarks section in sufficient detail so as to clearly describe the condition which resulted in the disrating.

Deficiencies not listed on the checklist that are observed and considered by the inspector to be of sufficient importance to affect the SCR will likewise be explained in this section.

4.2.2 Computation of the sanitary compliance rating (SCR). If a critical defect is recorded, an SCR shall not be computed. If no critical defects are found, columns 2 and 3 are totaled and the SCR shall be computed using the following formula:

$$\frac{\text{Net total of column 2} - \text{Net total of column 3}}{\text{Net total of column 2}} \times 100 = \text{SCR}$$

The SCR assigned will be rounded to the nearest whole percent.

4.2.3 Checklist reproduction. DD Form 2362 (Butter (and Related Products) Plant Sanitary Compliance Checklist) will be locally reproduced on 8 ½" x 11" paper. A copy for local reproduction purposes is located at the back of this MIL STD.

5. DETAILED REQUIREMENTS

5.1 Premises. The premises shall present a clean and orderly appearance. They shall be well drained, free of environmental conditions and/or materials that are a nuisance or a hazard to sanitation. The area shall be free of weeds, debris, and unused equipment and materials. The area shall be free of waste materials that are stored or handled in such a manner as to be a potential health hazard. The presence of any harborage, attractant, and/or breeding area for insects, rodents, or birds shall not be permitted. If the plant grounds are bordered by grounds not under the plant operator's control, care must be exercised in the plant by inspection, extermination, or other means to effect exclusion of pests, dirt, and other filth that may be a source of food contamination. The approaches to receiving and shipping docks shall be kept clean and maintained to minimize dust.

5.2 Raw materials. All raw materials must be obtained from approved sources as required by AR 40-657/NAVSUPINST 4355.4 /AFR 161-32/MCOP 10110.31 . Food which shows evidence of adulteration, contamination, insect infestation, or any condition that from a public health or aesthetic standpoint renders the product unfit for human consumption, shall not be accepted by the plant. All raw materials must meet USDA, USPHS, and CFR requirements and specifications.

5.2.1 Raw milk/cream. The raw milk/cream used in the plants shall comply with all the quality requirements specified in the General Specifications for Dairy Plants Approved for USDA Inspection and Grading Service. All milk for pasteurization shall be from approved herds which meet the requirements of the HHS Grade A Pasteurized Milk Ordinance, USDA Uniform Methods and Rules—Brucellosis Eradication, and USDA Uniform Methods and Rules--Bovine Tuberculosis Eradication. The milk/cream shall be practically free from colostrum, fresh, wholesome, and normal in appearance and odor and shall be subject to inspection by the procuring agency or authorized representative. The raw milk/cream supply shall comply with the minimum bacterial and sediment requirements set forth in the General Specifications for Dairy Plants Approved for USDA Inspection and Grading Service.

5.2.2 Single-service articles and packaging materials. Single-service articles and packaging materials shall be free of contamination and maintained in sanitary boxes, cartons, tubes, or otherwise protected and handled in a sanitary manner.

5.3 Construction of building. The building shall be large enough to accomodate the operation without hampering sanitary practices. Floors, walls, and ceilings shall be constructed of materials that can readily be kept clean, sanitary, and in good repair. An unnecessary clutter of wiring, pipes, hangers, ducts, etc., shall be avoided. Pipe openings, vents, etc., through walls shall be sealed or otherwise protected to prohibit entrance of vermin. Ceilings shall be free of peeling paint (painted ceilings shall be avoided) and condensates. The exterior openings, including doors, windows, conveyor openings, pipe openings and vents,shall be clean, in good repair. Where practicable, exterior openings shall be equipped with screens or other effective means (for example, air curtains, overlapping plastic strips) to prevent the entrance of insects, birds, and/or other animals. When the screening of opening is impracticable, such as in receiving areas, flying insect entry may be controlled by properly positioned air curtains or overlapping plastic strips large enough to cover the total door opening. Air curtains shall comply with the National Sanitation Standard No. 37 for Air Curtians for Entranceways in Food Establishments. Screen doors shall open outward and be self-closing. Rooms in the processing areas shall not open directly into any barns or stables, living quarters, toilets, garages, or heavy maintenance shops.

5.3.1 Printing and packaging room. Separate rooms equipped with automatic filling and packaging equipment shall be provided.

5.3.2 Receiving facilities. Facilities used for bulk unloading from tankers shall be constructed of smooth concrete or equally impervious material, with the floor properly sloped to drain, and equipped with trapped drains of sufficient size. Enclosed or covered facilities (as climatic conditions require) shall be available for washing and sanitizing of transport tanks, piping, and accessories, at central locations or at all plants that receive or ship milk or milk products in transport tanks. Tank manholes shall be protected against contamination from dust, insects, rodents, birds, and falling debris. Facilities shall be provided for adequate washing and sanitizing of tanks, bins, piping, pumps, and other items of equipment used in bulk receiving operations. Enclosed bulk milk receiving rooms, when present, shall be separated from the processing rooms by a wall. Rooms for receiving can milk shall be separated from the processing rooms by a partition or by suitable arrangement of equipment. All pipe passes, doors, or window entrances to the plant proper shall be protected by screening; quick-acting, self-closing doors; air curtains; or otherwise approved rodent and insect-proof closures.

5.4 Lighting. Each room shall have sufficient natural or artifical lighting for the purpose for which it is to be used. Lighting intensities shall conform to the intensities established in the latest edition of the IES Lighting Handbook. Lights in the product areas shall be equipped with protective shields or shall be of such construction that they will not shatter if broken.

5.5 Ventilation and humidity. Humidity shall be regulated in conjunction with ventilation or air movement to control condensation, objectionable odors, and mold growth on ceilings and walls in all areas. Air for ventilation shall be adequately filtered as appropriate to prevent contamination. Ventilation systems shall be kept clean and maintained in good repair.

5.5.1 Packaging and printing rooms. Rooms used for packaging print or bulk butter and related products should provide an atmosphere relatively free from mold (not more than 15 colonies per plate during a 15-minute exposure), dust, or other airborne contamination.

5.6 Water supply. The water supply shall be readily accessible, of a sufficient quantity, and have an acceptable sanitary quality, as established in the National Interim Primary Drinking Water Regulations or individual military service regulations. The water heater shall be of such capacity so as to be able to furnish an undiminished supply of hot water for a complete food plant cleaning procedure at all times throughout a working day. There shall be mixing valves at all scullery sinks and hose connections. There shall be no cross-connection between potable and nonpotable lines. There shall be protection against possible back-siphonage. There shall be effective protection of wells from contamination by surface drainage or floods. Bacteriological examination and water test results shall be maintained at the plant to show that the water supply has been approved by Federal, state, or local health authorities within the past six months.* Within CONUS, Hawaii, and Alaska, a water supply approved by a Federal, state, or local health authority will be considered potable, and certification of potability will normally not be required. Nonpotable water outlets, if present, shall be located and identified by color code and labeled nonpotable so as to preclude the use of nonpotable water for other than the purposes designated. The color code used shall be readily identifiable, prominently displayed, and clearly understood by plant personnel.**

*If Federal, state, or local health authorities do not have such evidence of water potability, applicable military regulations governing potable water supplies will be followed to approve the water supply(ies).

**The use of nonpotable water is permitted for the flushing of urinals and commodes, for boilers, and for such other similar uses provided it does not directly, nor indirectly, contact the ingredients, product, packaging materials, general product area, or personnel handling the product.

5.6.1 Steam. Steam shall be supplied in sufficient volume and pressure for satisfactory operation of each applicable piece of equipment. Culinary steam used in direct contact with milk or dairy products shall be free from harmful substances or extraneous materials and only those boiler water additives which meet the requirements of 21 CFR 121.1088 shall be used or a secondary steam generator shall be used in which soft water is converted to steam and no boiler compounds are used. Steam traps, streamers, and condensate traps shall be used wherever applicable to insure a satisfactory and safe steam supply.

5.7 Ice (if used). Ice shall be made from a supply of potable water which meets the requirements of 5.6. It shall be manufactured, handled, stored, and used in a sanitary manner.

5.8 Disposal of wastes. Liquid wastes shall be conveyed to a public sewer through inclosed piping or shall be disposed of in another sanitary sewage system approved by local/state health authorities. Floor drains shall be functional and properly trapped. Dry and product waste shall be placed in suitable covered receptacles conveniently located throughout the plant and premises. All waste shall be collected and disposed of at frequent intervals in a sanitary manner to prevent insect and rodent attraction and development of objectionable odors.

5.9 Toilet, dressing room, and handwashing facilities. A sufficient number of sanitary toilets or privies shall be provided. Employee toilet facilities required:

Persons of same sex	Toilet bowls required
1-15 inclusive	1
16-35 inclusive	2
36-55 inclusive	*3
56-80 inclusive	*4
For each additional 30 persons in excess of 80	*1

*Urinals may be substituted for toilet bowls but only to the extent of one-third of the total number of bowls stated.

Toilet rooms shall be conveniently located, constructed of materials which can be easily and satisfactorily cleaned, adequately lighted, and separately vented to the outside. They shall be constructed so that they do not open directly into rooms or areas where components or products are processed or stored. The doors shall be tight-fitting and self-closing. A sign directing employees to wash their hands before returning to work shall be conspicuously posted in all toilet rooms. Handwashing signs shall be multilingual, as appropriate. Handwashing facilities, with running water at a suitable temperature for handwashing, soap (liquid or powder), soap dispenser, and sanitary single-service towels, or clean individual sections of continuous cloth toweling, or hot air blower-type hand dryers will be conveniently located in the toilet rooms and throughout the processing areas. Continuous cloth towel dispensers shall comply with the National Sanitation Standard No. C-6 for Continous Cloth Towel Dispensers. Toilets, dressing rooms, and handwashing facilities will be maintained in a clean, orderly manner. There shall be a sanitary waste receptacle in each toilet room. Toilets/dressing rooms shall not be used for storage of cleaning equipment. Privies shall be separate from the processing building, and of a sanitary type, location, and construction. Each employee shall be furnished a locker or other suitable facility, and lockers and dressing rooms shall be kept clean and orderly.

5.10 Construction and repair of equipment and utensils. Equipment and utensils shall be designed, constructed, and used so as to preclude the adulteration of food with toxic lubricants, fuel, metal fragments, contaminated water, and any other contaminants. Lubricants used on contact surfaces of moving parts to pumps, product handling and processing equipment shall be edible and nontoxic and shall be used spraringly. The only lubricants authorized for use are those listed in the USDA publication, "List of Proprietary Substances and Nonfood Compounds Authorized for Use Under USDA Inspection and Grading Programs."

5.10.1 Equipment and utensils. All equipment and utensils shall be designed and shall be of such material and workmanship so as to be smooth, easily cleanable, and durable. The food contact surfaces of such equipment and utensils shall, in addition, be easily accessible for cleaning, nontoxic, corrosion-resistant, and consist of nonabsorbent material. Food contact surfaces and solder shall be corrosive-resistant and shall not contain antimony, bismuth, cadmium, lead, zinc, and/or other toxic materials. Solder on the food contact surface shall be hard solder of such formulation so as to be nontoxic under use conditions. Equipment shall be so located as to provide adequate space for cleaning, maintenance, and inspection. All parts or interior surfaces of equipment, pipes, (except certain piping cleaned-in-place), or fittings, including valves and connections shall be accessible for inspection.

5.10.2 Equipment and utensils for processing of milk and manufactured dairy products. Equipment that is in compliance with 3-A Sanitary Standards for Dairy Equipment shall be considered acceptable. Nonmetallic parts, other than glass, having product contact surfaces shall comply with 3-A Sanitary Standards for Plastic or Rubber and Rubber-Like Materials. C-I-P systems shall comply with 3-A Accepted Practices for Permanently Installed Sanitary Product-Pipelines and Cleaning Systems. In addition for certain other equipment, the following requirements shall be met:

5.10.2.1 Brine tanks. Brine tanks used for the treating of parchment liners shall be constructed of noncorrosive material and have an adequate and safe means of heating the salt solution for the treating of the liners. The tanks should also be provided with a satisfactory drainage outlet.

5.10.2.2 Bulk butter trucks, boats, texturizers, and packers. Bulk butter trucks, boats, texturizers, and packers shall be constructed of aluminum, stainless steel, or equally corrosion resistant metal free from cracks and seams, and have a surface that is relatively smooth and easily cleanable.

5.10.2.3 Butter, frozen or plastic cream melting machines. Shavers, shredders, or melting machines used for rapid melting of butter and frozen or plastic cream shall be stainless steel, or equally corrosion resistant metal, free of cracks and of sanitary construction, and readily cleanable.

5.10.2.4 Can washers. Can washers shall have sufficient capacity and ability to discharge a clean dry can and cover and shall be kept properly timed in accordance with the instructions of the manufacturer. They should be equipped with proper temperature controls on the wash and rinse tanks and have the following additional devices: prerinse jet, wash tank solution feeder, can sanitizing attachment, forced air vapor exhaust, and removable air filter on the drying chamber. The water and steam lines supplying the washer shall maintain a reasonably uniform pressure and if necessary be equipped with pressure regulating valves. The steam pressure to the can washer should be not less than 80 pounds and the temperature of the wash and final rinse solution should be automatically controlled and not exceed 175°F (79°C).

5.10.2.5 Coil or dome type batch pasteurizers. Coil or dome type batch pasteurizers shall be stainless steel lined and if the coil is not stainless steel or other equally noncorrosive metal it shall be properly tinned over the entire surface. Sanitary seal assemblies at the shaft ends of coil vats shall be of the removable type, except that existing equipment not provided with this type gland will be acceptable if the packing glands are maintained and operated without adverse effects. New or replacement units should be provided with removable packing glands. Dome-type pasteurizer agitators shall be stainless steel except that any nonmetallic parts shall comply with 3-A Sanitary Standards for Plastic or Rubber and Rubber-Like Materials, as applicable. Each pasteurizer used for heating product at a temperature of 5°F (2.7°C) or more above the minimum pasteurization temperature need not have the air-space heater. It shall be equipped with an air-space thermometer to insure a temperature at least 5°F (2.7°C) above that required for pasteurization of the product. There shall be adequate means of controlling the temperature of the heating medium. Batch pasteurizers shall have temperature indicating and recording devices.

5.10.2.6 Continuous churns. All product-contact surfaces shall be noncorrosive material. All nometallic product-contact surfaces shall comply with 3-A Sanitary Standards for Plastic, Rubber, and Rubber-Like Materials, and shall be readily accessible for cleaning and inspection.

5.10.2.7 Conventional churns. Churns shall be constructed of aluminum, stainless steel, or equally corrosion resistant metal free from cracks, seams, and must have a surface that is relatively smooth and easily cleanable. All gasket material shall be fat resistant, nontoxic, and reasonably durable. Seals around the doors shall be tight.

5.10.2.8 Conveyors. Conveyors shall be constructed of material that can be cleaned readily. They shall be maintained in good repair.

5.10.2.9 Evaporators and vacuum pans. All equipment used in the removal of moisture from milk or milk products for the purpose of concentrating the solids must conform to the 3-A Sanitary Standards for Milk and Milk Products Evaporators and Vacuum Pans.

5.10.2.10 Indicating thermometers.

5.10.2.10.1 Air space indicating thermometers. Air space indicating thermometers, where applicable, which are accurate within 1°F (.6°C), plus or minus, for the proper temperature range shall also be installed above the surface of the products pasteurized in vats, to make certain that the temperature of the foam and/or air above the products pasteurized also received the required minimum temperature treatment.

5.10.2.10.2 Long stem indicating thermometers. Long stem indicating thermometers which are accurate within 0.5°F (.3°C), plus or minus, for the applicable temperature range, shall be provided for checking the temperature of pasteurization and cooling of products in vats and checking the accuracy of recording thermometers.

5.10.2.10.3 Short stem indicating thermometers. Short stem indicating thermometers, which are accurate within 0.5°F (.3°C), plus or minus, for the applicable temperature range, shall be installed in the proper stationary position in all pasteurizers. Storage tanks where temperature readings are required shall have thermometers which are accurate within 2°F (1.1°C), plus or minus.

5.10.2.11 Internal return tubular heat exchangers. Internal return tubular heat exchangers shall comply with the 3-A Sanitary Standards for Tubular Heat Exchangers for Milk and Milk Products.

5.10.2.12 Milk cans. Cans used in transporting milk or cream from dairy farm to plant shall be of such construction (preferably seamless with umbrella lids) as to be easily cleaned, and shall be inspected, repaired, and replaced as necessary to exclude substantially the use of cans and lids with open seams, cracks, rust, milkstone, or any insanitary condition.

5.10.2.13 Plate type heat exchangers. Plate type heat exchangers shall comply with the 3-A Sanitary Standards for Plate Type Heat Exchangers for Milk and Milk Products. All gaskets shall be tight and kept in good operating order. Plates shall be opened for inspection by the operator at sufficiently frequent intervals to determine if the equipment is clean and in satisfactory condition. A cleaning regimen shall be posted to insure proper cleaning procedures between inspection periods.

5.10.2.14 Printing equipment. All printing equipment shall be designed so as to adequately protect the product and be readily demountable for cleaning of product contact surfaces. All product contact surfaces shall be aluminum; stainless steel; or equally corrosion resistant metal; or plastic, rubber and rubber like material which comply with 3-A Sanitary Standards.

5.10.2.15 Product storage tanks or vats. Storage tanks or vats shall be fully enclosed or tightly covered and well insulated. The entire interior surface, agitator, and all parts shall be accessible for thorough cleaning and inspection. Any opening at the top of the tank or vat, including the entrance of the shaft, shall be suitably protected against the entrance of dust, moisture, insects, oil or grease. The sight glasses, if used, shall be sound, clear, and in good repair. Vats which have hinged covers shall be easily cleaned and shall be so designed that moisture, or dust on the surface, can not enter the vat when the covers are raised. If the storage tanks or vats are equipped with air agitation, the system shall be of an approved type and properly installed in accordance with the 3-A Sanitary Standards for Accepted Practices for Supplying Air Under Pressure. Storage tanks or vats intended to hold product for longer than approximately 8 hours shall be equipped with adequate refrigeration and/or have adequate insulation. New or replacement storage tanks or vats shall comply with the appropriate 3-A Sanitary Standards for Storage Tanks for Milk and Milk Products or 3-A Sanitary Standards for Silo-Type Storage Tanks for Milk and Milk Products and shall be equipped with thermometers in good operating order.

5.10.2.16 Pumps. All pumps used for milk and dairy products shall be of the sanitary type and shall be constructed to meet 3-A Sanitary Standards. Unless pumps are specifically designed for effective cleaning-in-place, they shall be disassembled and thoroughly cleaned after use.

5.10.2.17 Recording thermometers. Recording thermometers that are accurate within 1°F (.6°C), plus or minus, for the applicable temperature range, shall be used on each heat treating, pasteurizing, or thermal processing unit to record the heating process. Additional use of recording thermometers accurate within 2°F (1.1°C), plus or minus, may be required where a record of temperature or time of cooling and holding is of significant importance. Recorder charts shall be marked to show date and plant identification, reading of the indicating thermometer at a particular referenced reading point on the recording chart, amount, and name of product, product temperature at which the "cut-in" and "cut-out" function, record of the period in which flow diversion valve is in forward-flow position, signature or initials of operator.

5.10.2.18 Separators. All product contact surfaces of separators shall be free from rust and pits and insofar as practicable, shall be of stainless steel or other equally noncorrosive metals.

5.10.2.19 Short-time pasteurizing systems. When pasteurization is intended or required, the HTST or UHT system shall be equipped with an approved timing pump or device, or recorder-controller, automatic flow diversion valve and holding tube or its equivalent. If not a part of the existing equipment, the above listed items shall be installed on all such equipment used for pasteurization, to assure complete pasteurization. The entire facility shall comply with the 3-A Accepted Practices for the Sanitary Construction, Installation, Testing and Operation of High-Temperature, Short-Time Pasteurizers. After the unit has been tested according to the 3-A Accepted Practices, the timing pump or device and the recorder/controller shall be sealed at the correct setting to assure pasteurization. The system should be rechecked semiannually to assure continued compliance with the 3-A Accepted Practices. Sealing and rechecking of the unit shall be performed by the control authority having jurisdiction. When direct steam pasteurizers are used, the steam, prior to entering the product, shall be conducted through a steam strainer and a steam purifier equipped with a steam trap. Only steam meeting the requirements for culinary steam as specified by the 3-A Accepted Practices for a Method of Producing Steam of Culinary Quality shall be used.

5.10.2.20 Starter vats. Bulk starter vats shall be of stainless steel or equally corrosion resistant metal and should be constructed according to applicable 3-A Sanitary Standards. The vats shall be equipped with tight fitting lids, have effective temperature controls, and be in good repair.

5.10.2.21 Surface coolers. Surface coolers shall be equipped with hinged or removable covers for the protection of the product. The edges of the fins shall be so designed as to divert condensate on nonproduct contact surfaces away from product contact surfaces. All gaskets or swivel connections shall be leak proof.

5.10.2.22 Vacuumizing equipment. The vacuum chamber, as used for flavor control, shall be made of stainless steel or other equally corrosion resistant metal. The unit shall be constructed to facilitate cleaning and all product contact surfaces shall be accessible for inspection. Vacuum chambers located on the pasteurized side of the unit shall be isolated by means of a vacuum breaker and a positive activated check valve on the product inlet side and a vacuum breaker and a positive activated check valve on the discharge side. If direct steam is used for heating, the vacuum chamber shall also be equipped with a ratio controller to regulate the composition when applicable to the finished product. Only steam which meets the requirements for culinary steam shall be used. The incoming steam supply shall be regulated by an automatic solenoid valve which will cut off the steam supply in the event the flow diversion valve of the pasteurizer is not in the forward flow position. Condensers when used shall be equipped with a water level control and an automatic safety shut-off valve.

5.10.2.23 Weigh cans and receiving tanks. Weigh cans and receiving tanks shall comply with the 3-A Sanitary Standards for Weigh Cans and Receiving Tanks for Raw Milk. They shall be easily accessible for cleaning both inside and outside and shall be elevated above the floor and protected sufficiently with the necessary covers or baffles to prevent contamination from splash, condensate, and drippage. Where necessary to provide easy access for cleaning of floors and adjacent wall areas, the receiving tank shall be equipped with wheels or casters to allow easy removal.

5.11 Cleaning and sanitizing treatment. The methods used for cleaning and sanitizing shall be such that the product shall not be contaminated or adulterated. All products shall be moved sufficiently far away or otherwise protected prior to the start of cleaning to avoid contamination or adulteration by spashing. All multiple-service containers, equipment, and utensils used in handling, processing, storing, or transporting of exposed product shall be disassembled as applicable, cleaned thoroughly, and sanitized after use. Chemicals used in cleaning and sanitizing treatments shall be properly labeled and stored. Cleaning and sanitizing chemicals shall be used IAW the manufacturer's recommendation. The only chemical compounds authorized for use are those listed in USDA publication, "Proprietary Substances and Nonfood Compounds Authorized for Use Under USDA Inspection and Grading Programs." When chemical sanitizers are used, a test kit or other device that accurately measures the correct concentration of the solution shall be provided and used. If water is to be used as the sanitizer, it must be not less than 170°F (77°C). All rooms and areas used to receive, process, or store components or the finished product shall be maintained in a clean, sanitary manner so as to preclude the possibility of microbiological, chemical, or physical contamination. Steel wool or metal sponges shall not be used in the cleaning of any dairy equipment or utensils. Sanitary seal assemblies shall be removable on all agitators, pumps, and vats and shall be inspected at regular intervals and kept clean. Utensils and portable equipment used in processing and manufacturing operations shall be stored above the floor in clean, dry locations and in self-draining position on racks constructed of impervious corrosion-resistant material.

5.11.1 Building. All windows, glass, partitions, and skylights should be washed as often as necessary to keep them clean. Cracked or broken glass shall be replaced promptly. The walls, ceilings, and doors should be washed periodically and kept free from soil and unsightly conditions. The shelves and ledges should be wiped or vacuumed as often as necessary to keep them free from dust and debris. The material picked up by the vacuum cleaners shall be disposed of in sealed containers which will prevent contamination or insect infestation from the waste material. Processing rooms shall be kept free from equipment and materials not regularly used.

5.11.2 C-I-P or mechanical cleaning systems. C-I-P or mechanical cleaning systems shall be used only on equipment and pipeline systems which have been designed, engineered, and installed for that purpose. When such cleaning is used, careful attention shall be given to the proper procedures to assure satisfactory cleaning. All C-I-P installations and cleaning procedures shall be in accordance with 3-A Suggested Method for Installation and Cleaning of Cleaned-In-Place Sanitary Milk Pipelines for Milk and Milk Products Plants. Because of the possibilities of corrosion, the recommendations of the cleaning compound manufacturer should be followed with respect to time, temperature, and concentration of specific acid or alkaline solutions and bactericides. Such cleaning operation should be preceded by a thorough rinse at approximately 110-115°F (43-46°C) continuously discarding the water. Following the circulation of the cleaning solution, the equipment and lines shall be thoroughly rinsed with lukewarm water and checks should be made for effectiveness of cleaning. All caps, plugs, special fittings, valve seats, cross ends, pumps, and tee ends shall be opened or removed and brushed clean. All nonpasteurized product contact surfaces should be sanitized. Immediately prior to starting the product flow, the pasteurized product contact surfaces shall be given sanitizing treatment.

5.11.3 Can washers. Can washers shall be maintained in a clean and satisfactory operating condition and kept free from accumulation of scale or debris which will adversely affect the efficiency of the washer. Only washing compounds which are compatible with the water for effective cleaning, should be used. The can washer shall be checked regularly during the run for proper operation. At the end of the day, the wash and rinse tanks shall be drained and cleaned, jets and strainers cleaned, air filters checked and changed or cleaned if needed, and checks should be made for proper adjustment and condition of mechanical parts.

5.11.4 Milk cans. Milk cans and lids shall be cleaned, sanitized, and dried before returning to producers.

5.11.5 Milk Transport Tanks. A covered or enclosed wash dock and cleaning and sanitizing facilities shall be available to all plants that receive or ship milk in tanks. Milk transport tanks, sanitary piping, fittings, and pumps shall be cleaned and sanitized at least once each day after use provided that, if they are not to be used immediately after emptying a load of milk, they shall be washed promptly after use and given sanitizing treatment immediately before use. After being washed and sanitized, each tank should be identified by a tag attached to the outlet valve, bearing the following information: plant and specific location where cleaned, date, and time of day of washing and sanitizing, and the name of person who washed and name of person who sanitized the tank. The tag shall not be removed until the tank is again washed

and sanitized.

5.12 Methods. Methods used in the processing, handling, and storage shall be conducted in a sanitary manner so as to prevent contamination or adulterations, and not contribute to deterioration of the product from a public health standpoint.

5.12.1 Lined bulk butter containers. The lined bulk butter containers shall be protected from possible contamination prior to filling. Use of parchment liners may be accomplished by alternately inverting one container over the other or stacking the lined boxes on their sides in a rack, until ready for use. When using polyethylene liners, the boxes should be lined immediately prior to use.

5.12.2 Parchment liners. Parchment liners for bulk butter packages shall be completely immersed in a boiling salt solution in a suitable container constructed of stainless steel or other equally noncorrosive material. The liners shall be maintained in the solution for not less than 30 minutes. The liners shall be effectively treated with a solution consisting of at least 15 pounds of salt for every 85 pounds of water, and shall be strengthened to keep the solution full strength and in good condition.

5.12.3 Pasteurization. The milk or cream shall be pasteurized at the plant where the milk or cream is processed into the finished product by one of the methods described in paragraph 3.1.7 or other time/temperature relationship which has been demonstrated to be equivalent thereto in microbial destruction.

5.12.3.1 Cream for butter making. The cream for butter making shall be pasteurized at a temperature of not less than 165°F (73.9°C) and held continuously in a vat at such temperature for not less than 30 minutes; or pasteurized by HTST method at a minimum temperature of not less than 185°F (85°C) for not less than 15 seconds, or it shall be pasteurized by any other equivalent temperature and holding time which will assure adequate pasteurization. Additional heat treatment above the minimum pasteurization requirement is advisable to insure keeping-quality characteristics. Adequate pasteurization control shall be used and the diversion value shall be set to divert at no less than 185°F (85°C), with a 15 second holding time or its equivalent in time and temperature to assure pasteurization. If the vat or holding method of pasteurization is used, vat covers shall be closed prior to holding period to assure temperature of air space reaching 5°F (-15°C) higher than the minimum temperature during the holding time. Covers shall also be kept closed during the holding and cooling period.

5.12.3.2 Cream for plastic or frozen cream. The pasteurization of cream for plastic or frozen cream shall be accomplished in the same manner as in paragraph 5.12.1.1, except that the temperature for the vat method shall be not less than 170°F (76.7°C) for not less than 30 minutes, or not less than 190°F (87.8°C) for not less than 15 seconds, or by any other temperature and holding time which will assure adequate pasteurization and comparable keeping-quality characteristics.

5.12.4 Printing and packaging. Printing and packaging of consumer size containers of butter shall be conducted under sanitary conditions. The outside cartons must be removed from bulk butter in a room outside of the printing operation, but the parchment removal and cutting of the butter may be done in the print room.

5.13 Public health controls. When applicable, means shall be provided to assure adequate public health control of the raw materials and finished product. The means shall include physical, chemical, and microbiological examinations and/or tests necessary to establish that product has not been adulterated or contaminated. Evidence that all necessary examinations and/or tests have been performed and records of such examinations and/or tests shall be on file and made available to the military inspector.

5.13.1 Official test methods.

5.13.1.1 Chemical. Chemical analysis shall be made in accordance with methods described in the latest edition of Official Methods of Analysis of the Association of Official Analytical Chemists, and Official and Tentative Methods of the American Oil Chemists Society, or any other methods giving equivalent results. However, in the case of dispute, the official method will prevail.

5.13.1.2 Microbiological. Microbiological determinations shall be made in accordance with the methods described or suggested in the latest edition of Standard Methods for the Examination of Dairy Products.

5.14 Cooling and refrigeration. Cooler rooms shall be free from objectionable odors and from mold. They also shall be maintained in a sanitary condition. The coolers and freezers shall be capable of obtaining and maintaining temperature and humidity necessary for the preservation of the foods being stored or processed.

5.14.1 Storage of butter to be held more than 30 days. Butter intended to be held more than 30 days shall be placed in a freezer room as soon as possible after packaging. If not frozen before being placed in the freezer, the packages shall be spaced in such a manner as to permit rapid freezing and repiled, if necessary, at a later time.

5.14.2 Storage of finished product in coolers. All products shall be kept under refrigeration at temperatures of 40°F (4.4°C) or lower after packaging and until ready for distribution or shipment. The product(s) shall not be placed directly on the floor or exposed to foreign odors or conditions such as drippage due to condensation which might cause package or product damage.

5.14.3 Storage of finished product in freezer storage. The room shall be maintained at a temperature of 0°F (-17.8°C) or lower.

5.14.4 Storage of finished product in sharp freezers. Plastic cream or frozen cream intended for storage shall be placed in quick freezer rooms immediately after packaging for rapid and complete freezing within 24 hours. The packages shall be piled or spaced in such a manner that air can freely circulate between and around packages. The rooms shall be maintained at -10°F (-23.3°C) or lower and shall be equipped to provide sufficient high velocity

air circulation for rapid freezing. After the products have been completely frozen, they may be transported to a freezer storage room for continued storage.

5.15 Storing and storage facilities. Storage facilities shall be provided for storing raw materials, packing and packaging materials, and finished products. They shall be clean, sanitary, and in good repair. Storing methods which minimize deterioration and prevent contamination shall be used. Shelves, cabinets, and dunnage or pallets shall be used where necessary to protect materials from contamination. Insecticides, rodenticides, cleaning compounds and other nonfood products shall be properly labeled and segregated, stored in a separate room or cabinet away from milk, dairy products, ingredients, or packaging supplies.

5.16 Control of insects, birds, and animals. Insects, birds, and/or other animals shall be excluded from the plant. Effective measures for the control of insects, birds, and other animals shall be maintained at all times. Operations or procedures which produce rodent harborages or insect breeding areas are prohibited. Insecticides and rodenticides, if used, shall be only those which appear in the USDA publication, "List of Proprietary Substances and Nonfood Compounds Authorized for Use Under USDA Inspection and Grading Programs." These products shall be used IAW labeled directions and shall be handled and stored in a safe manner.

5.17 Vehicles and transportation facilities. Vehicles and transportation facilities shall be constructed and operated to protect contents from contamination and deterioration. They shall be kept clean and in good repair.

5.18 Cleanliness and health of personnel.

5.18.1 Cleanliness. All employees shall wash their hands before beginning work and upon returning to work after using toilet facilities, eating, smoking, or otherwise soiling their hands. They shall keep their hands clean and follow good hygienic practices while on duty. Eating, expectorating, or use of tobacco in any form shall be prohibited in each room and compartment where any food products or supplies are prepared, stored, or otherwise handled. With the exception of plain wedding bands or emergency medical bracelets, employees shall not wear any jewelry or fingernail polish while working in the plant. All persons engaged in receiving testing, processing, manufacturing, packaging or handling food products shall wear clean, white, or light colored washable or disposable outer garments. Hair nets, caps, beard nets, or other effective hair restraints to effectively cover hair shall be worn so as to prevent contamination of food and food contact surfaces. Employees' personal effects shall not be stored in production areas.

5.18.2 Health. No person afflicted with, or a carrier of, a communicable disease shall be permitted in any room or compartment where products are prepared, manufactured, or otherwise handled. No person who has a discharging or infected wound, sore, or lesion on hands, arms, or other exposed portion of the body shall work in any processing rooms or in any capacity resulting in contact with the processing or handling of products, containers, or equipment. Where health authorities require health certificates, they shall be kept on file

at the plant office. Plant personnel shall receive appropriate training in proper food handling techniques, disease control, and food protection principles and will be cognizant of the damage of poor personal hygiene and insanitary practices.

Custodians:

Army - GL
Navy - SA
Air Force - 50

Review activities:

Army - MD
Navy - MS, SA
Air Force - 50

Preparing activity:

Army - GL

Project No.: 8910-0436

Copies of this standard for military use may be requisitioned on DD Form 1425 (Specification and Standard Requisition) and submitted to Commanding Officer Naval Publications and Form Center, 5801 Tabor Avenue, Philadelphia, PA 19120. The title and identifying symbol should be stipulated when requesting copies of military standard.

BUTTER (AND RELATED PRODUCTS) PLANT SANITARY COMPLIANCE CHECKLIST

(This appendix is an integral part of MIL-STD 1482C and its application is mandatory.)

1. DATE OF INSPECTION (YYMMDD)

2. PLANT INSPECTED

a. NAME

b. ADDRESS

3. PLANT OWNER

a. NAME OF COMPANY OR INDIVIDUAL

b. TELEPHONE NUMBER

4. ACCOMPANYING INDIVIDUAL

a. NAME

b. TITLE

SANITATION DEFECTS (1)	ASSIGNED DEFECT POINTS (2)	INSPECTOR'S DEFECT POINTS (3)
5. PREMISES		
a. Not cleaned or well organized	3	
b. Not well drained	3	
c. Surroundings not free from nuisances or sources of contamination	5	
6. RAW MATERIALS		
a. Not from approved source	Critical	
b. Show evidence of unsanitary conditions or deterioration	5	
c. Milk not from area meeting requirements of HHS Grade A Pasteurized Milk Ordinance, USDA Uniform Methods and Rules--Brucellosis Eradication, and USDA Uniform Methods and Rules--Bovine Tuberculosis Eradication	Critical	
d. Not free from contamination or adulteration	Critical	
e. Not inspected upon receipt and at other times as needed for determination of adulteration, contamination, or infestation	5	
f. Does not meet minimum bacterial and sediment requirements	Critical	
g. Not delivered, stored, or processed under sanitary conditions	Critical	
h. Single-service articles and packaging materials not protected	4	
7. CONSTRUCTION OF BUILDING		
a. Not large enough to accommodate the operation without hampering sanitary practices	4	
b. Rooms not separate when required	4	
c. Walls, floors, ceilings not in good repair or not constructed of materials that can easily be kept clean and sanitary	4	
d. Unnecessary clutter of wiring, pipes, hangers, ducts	4	
e. Exterior openings not clean and in good repair	4	
f. Exterior openings do not prevent the entrance of insects, birds, or animals	4	
g. Air curtains, if used, not in compliance with NSF standards	3	
h. Screen doors not outward opening and not self-closing	3	
i. Processing area opens directly into living quarters, garages, or heavy maintenance shops	4	
j. Inadequate washing/sanitizing facilities	Critical	
k. Bulk unloading facilities not properly constructed	4	
8. LIGHTING		
a. Insufficient lighting	4	
b. Lights in processing area not equipped with shields when required	5	
9. VENTILATION AND HUMIDITY		
a. Insufficient control of ventilation or air movement	5	
b. Presence of mold on walls or ceilings in processing or storage area	5	
c. Accumulation of condensates in processing or storage areas	5	
d. Ventilation systems not clean or in good repair	3	
e. Air not filtered and not directed outward when required	5	
10. WATER SUPPLY		
a. Not easily accessible	4	
b. Inadequate in quantity	5	
c. Undiminished supply of hot water not available	5	
d. Mixing valves not available at all scullery sinks and hose connections	4	
e. Cross-connection exists between potable and nonpotable water supply or sewage	Critical	
f. Potability certificate not current or available	5	

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BUTTER (AND RELATED PRODUCTS) PLANT SANITARY COMPLIANCE CHECKLIST

SANITATION DEFECTS (1)	ASSIGNED DEFECT POINTS (2)	INSPECTOR'S DEFECT POINTS (3)
10. WATER SUPPLY *(Continued)*		
g. Potable water supply found to be nonpotable	Critical	
h. Nonpotable water outlets not identified by prominently displayed color code	5	
i. Steam not supplied in sufficient volume and pressure where applicable	5	
j. Culinary steam not free of harmful substances, extraneous materials or nonapproved boiler water additives	Critical	
11. ICE *(If used)*		
a. Not made from potable water which meets requirement	Critical	
b. Not manufactured, handled, stored, or used in a sanitary manner	5	
12. DISPOSAL OF WASTES		
a. Liquid wastes not disposed of in a sanitary manner	5	
b. Floor drains not functional or improperly trapped	3	
c. Waste not collected in suitable, properly covered containers and disposed of at frequent intervals and/or in a sanitary manner	4	
13. TOILET, DRESSING ROOM, AND HANDWASHING FACILITIES		
a. Sufficient number of toilets or privies not provided	5	
b. Toilet rooms not conveniently located or constructed of materials that are not easily cleaned	4	
c. Toilet rooms not adequately lighted	2	
d. Toilet rooms not separately vented to the outside	5	
e. Toilet rooms open directly into processing area	5	
f. Doors not self-closing and tight-fitting	3	
g. Absence of handwashing sign	3	
h. Absence of hot and cold water, soap dispenser, or appropriate hand-drying facilities, conveniently located	5	
i. Sanitary waste receptacles not present	3	
j. Toilets, dressing rooms, and handwashing facilities not maintained in a clean, orderly fashion	4	
k. Toilet/dressing room used for storage of cleaning equipment	3	
l. Privies not separate from the processing building	Critical	
m. Privies not of sanitary type, location, and construction	5	
n. Each employee not furnished a locker or other suitable facility	5	
14. CONSTRUCTION AND REPAIR OF EQUIPMENT AND UTENSILS		
a. Design, construction, and use of such equipment and utensils does not preclude adulteration of food	Critical	
b. Product-contact surfaces not of impervious material, not smooth, nor of corrosion-resistant material	4	
c. Product-contact surfaces not of nontoxic material	Critical	
d. Not clean or not in good repair	5	
e. Not constructed so that all surfaces are readily sanitizable	5	
f. Equipment not easily accessible for cleaning, maintenance, and inspection	5	
g. Equipment with product-contact surfaces does not meet 3-A sanitary standards	5	
h. Clean-in place system does not comply with 3-A sanitary standards	5	
i. Brine tanks do not meet requirements	3	
j. Bulk butter trucks, boats, texturizers, and packers do not meet requirements	3	
k. Butter, frozen or plastic cream melting machines do not meet requirements	3	
l. Can washers do not meet requirements	5	
m. Batch pasteurizers do not meet requirements	5	
n. Continuous churns do not meet requirements	5	
o. Conventional churns do not meet requirements	5	
p. Conveyors do not meet requirements	3	
q. Evaporators and vacuum pans do not meet 3-A sanitary standards	5	
r. Indicating thermometers do not meet requirements	4	
s. Internal return tubular heat exchangers do not meet 3-A sanitary standards	5	
t. Milk cans found in poor repair or in unsanitary condition	5	
u. Plate type heat exchangers do not meet requirements	4	
v. Printing equipment does not meet requirements	5	
w. Storage tanks or vats do not meet requirements	4	
x. Pumps do not meet requirements	3	
y. Recording thermometers do not meet requirements	4	

BUTTER (AND RELATED PRODUCTS) PLANT SANITARY COMPLIANCE CHECKLIST

SANITATION DEFECTS (1)	ASSIGNED DEFECT POINTS (2)	INSPECTOR'S DEFECT POINTS (3)
14. CONSTRUCTION AND REPAIR OF EQUIPMENT AND UTENSILS *(Continued)*		
z. Separators do not meet requirements	5	
aa. Short time pasteurizers do not meet requirements	5	
bb. Starter vats do not meet requirements	5	
cc. Surface coolers do not meet requirements	4	
dd. Vacuumizing equipment does not meet requirements	4	
ee. Weight cans or receiving tanks do not meet requirements	5	
15. CLEANING AND SANITIZING TREATMENT		
a. Cleaning or sanitizing methods do not prevent product contamination or adulteration	Critical	
b. All products not moved away or protected prior to equipment or area cleaning to avoid contamination or adulteration	Critical	
c. All multiservice containers, equipment, and utensils not cleaned and sanitized after use	5	
d. Cleaning and sanitizing chemicals not properly labeled or stored	5	
e. Unauthorized chemical compounds used for cleaning and sanitizing	Critical	
f. Water used as a sanitizer less than 170°F (77°C)	5	
g. Rooms and areas not maintained in clean, sanitary manner	5	
h. Steel wool or metal sponges used to clean dairy equipment or utensils	Critical	
i. Building interiors not washed or vacuumed when needed or kept free of unsightly conditions	4	
j. C-I-P cleaning not conducted in accordance with requirements	5	
k. Milk cans and lids not cleaned, sanitized, and dried before returning to producer	5	
l. Can washer not maintained in a clean, satisfactory operating condition	5	
m. Milk transport tank trucks not provided with a covered dock for cleaning and sanitizing tanks.	3	
n. Transport tanks and equipment not cleaned, sanitized, and tagged daily	5	
16. METHODS		
a. Methods permit contamination/adulteration of product	Critical	
b. Methods permit deterioration of product	5	
c. Lined bulk butter containers not handled so as to prevent contamination	Critical	
d. Parchment liners for bulk butter not immersed in boiling solution for at least 30 minutes	5	
e. Pasteurization not accomplished in accordance with requirements of standard	Critical	
f. Milk or cream not pasteurized in plant where processed into finished product	Critical	
g. Outside cartons being removed from bulk container in printing operation area	3	
17. PUBLIC HEALTH CONTROLS		
a. When applicable, examinations not performed to assure adequate public health control of the raw material and finished products	5	
b. Records of examination and tests of raw materials and finished products not available	5	
c. Test methods not performed according to acceptable methods	4	
18. COOLING AND REFRIGERATION		
a. Cooler rooms not free from objectionable odors or from mold	5	
b. Cooler rooms not maintained in a sanitary condition	5	
c. Product not stored at proper temperature or humidity	5	
d. Product to be sharp frozen not handled as required	4	
19. STORING AND STORAGE FACILITIES		
a. Storage facilities not clean, sanitary, or in good repair	3	
b. Storing methods do not minimize deterioration or contamination	5	
c. Shelves, cabinets, or dunnage not used where necessary to prevent contamination or deterioration	5	
20. CONTROL OF INSECTS, BIRDS, AND ANIMALS		
a. Presence of insects, birds, or animals in production area	Critical	
b. Presence of insects, birds, or animals in nonproduction area	5	
c. Effective measure for the control of insects, birds, and rodents not maintained at all times	3	
d. Rodent harborages or insect breeding places present	4	
e. Unauthorized insecticides or rodenticides used	Critical	
f. Insecticides or rodenticides not used by approved methods	5	
g. Insecticides or rodenticides are handled or stored in an unsafe manner	5	
21. VEHICLE AND TRANSPORTATION FACILITIES		
a. Not constructed or operated to protect contents from contamination or deterioration	Critical	
b. Not properly maintained or not clean	3	

BUTTER (AND RELATED PRODUCTS) PLANT SANITARY COMPLIANCE CHECKLIST

22. CLEANLINESS AND HEALTH OF PERSONNEL		
a. Employees not washing hands after contamination	Critical	
b. Failure of employees to be hygienically clean	4	
c. Personnel not prohibited from eating, smoking, chewing tobacco, or expectorating in product handling areas	3	
d. Unauthorized jewelry or fingernail polish worn by plant employees	3	
e. Employees not wearing garments/hair restraints suitable for work being performed	5	
f. Storage of employees' personal effects in processing rooms	3	
g. Employees affected with or a carrier of a communicable or infectious disease not excluded from product areas	Critical	
h. Plant employees having an infectious wound, sore, or lesion on hands, arms, or other exposed parts of the body not excluded from contacting ingredients, product, or product zone	Critical	
i. Prescribed medical examinations of personnel not being made and/or records of such not available	4	
j. Plant personnel not instructed in acceptable hygienic practices and proper sanitary rules of food handling	Critical	
23. TOTALS		

24a. SANITARY COMPLIANCE RATING COMPUTATIONS	b. SANITARY COMPLIANCE RATING ASSIGNED	c. NUMBER OF CRITICAL DEFECTS

BUTTER (AND RELATED PRODUCTS) PLANT SANITARY COMPLIANCE CHECKLIST

25. OTHER REGULATORY AGENCIES CONCERNED WITH SANITATION OF THIS ESTABLISHMENT *(Record the agency, date and results of last inspection)*

26. METHODOLOGY SECTION *(Record narrative information describing the plant, premises, equipment and procedures)*

BUTTER (AND RELATED PRODUCTS) PLANT SANITARY COMPLIANCE CHECKLIST

27. REMARKS/RECOMMENDATIONS

28. INSPECTOR

a. TYPED NAME	b. TITLE	
c. SIGNATURE	d. GRADE	e. DATE SIGNED (YYMMDD)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE MIL-STD-1482C - Sanitary Standards for Butter (and Related Products) Plants
3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)* ☐ VENDOR ☐ USER ☐ MANUFACTURER ☐ OTHER *(Specify)*: _____
b. ADDRESS *(Street, City, State, ZIP Code)*	

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

DD FORM 82 MAR 1426 EDITION OF 1 OCT 76 IS OBSOLETE