

where smaller radii are required for essential functional reasons, such as for sealing ring grooves and in pumps.

(h) All solution contact surfaces shall be cleanable, either when in an assembled position or when disassembled. They shall contain no pockets or crevices that are not readily cleanable. Removable parts shall be readily demountable. Solution system appurtenances shall be accessible for inspection to determine freedom from biological, chemical, or physical soil contamination.

(i) Non-product contact surfaces shall have a smooth finish, be free of pockets and crevices, and be readily cleanable.

(5) **INSTALLATION OF C-I-P PIPELINE CIRCUITS.** (a) Prior to installation of C-I-P pipeline circuits a drawing or equivalent plan shall be made available to the department by the plant operator for each installation, or subsequent addition or modification, showing each permanent circuit to be cleaned, noting thereon the size and length of piping, fittings, pitch, drain points, access points, relative elevations, locations and specifications of circulating unit, and other pertinent data.

(b) The C-I-P pipeline together with gaskets if used, shall be supported so that they remain in alignment and position. The support system shall be designed so as to preclude electrolytic action between supports and pipelines.

(c) Each separate cleaning circuit, including product and solution lines, shall be provided with a sufficient number of access points, such as valves, fittings, or removable sections to make possible adequate inspection and examination of the interior surfaces.

(d) Relatively horizontal lines shall be self-draining and pitched to drain points.

(e) The circulating unit, consisting of a motor driven pump and solution tank, shall provide a minimum average solution velocity at any instance of not less than 5 feet per second through each pipe or fittings in the circuit. If split flow arrangement, pressure differential must be maintained to serve the 5 feet per second minimum flow rate. This operation is to be checked by observation and tests.

(f) C-I-P systems shall be designed so that the suction intake of the primary circulating pump shall be flooded at all times during the cleaning cycle.

(g) Solution temperature shall be automatically controlled by the use of a temperature regulator with a response range of plus or minus 5° F.

(h) The system shall be provided with a recording thermometer having a scale range of 60° to 180° F. with extension of scale on either side permitted, graduated in time scale divisions of not more than 15 minutes. Between 110° and 180° F., the chart shall be graduated in temperature divisions of not more than 2° F., spaced not less than 1/16 inch apart, and be accurate within 2° F., plus or minus. The sensor shall be protected against damage at 212° F. The sensing element of the recording thermometer shall be located in the return solution line as near the solution tank as possible.

(i) All connections between the solution circuit and the product circuit shall be so constructed as to positively prevent the commingling of the product and the solution during processing.

(j) All welding of sanitary product pipelines and solution lines shall be made by the Tungston Shield Arc Method or its equivalent. The following precautions shall be taken:

1. Inner backup gas shall be used to protect and control the interior of the weld.

2. The weld surface interior, face and exterior shall be cleaned and free of all foreign matter and surface oxide before welding. Iron free abrasives shall be used when cleaning surfaces.

3. All tube and fitting ends shall be square cut and deburred.

4. Welding procedures shall assume uniform and complete penetration of weld at all times.

5. All welds having pits, craters, ridges, or imbedded foreign materials shall be removed and the joints shall be properly rewelded.

6. Internal and external grinding or polishing of welds is not required.

7. An acceptable sample weld piece shall be provided at the beginning of each day or when required.

8. A boroscope or other acceptable inspection device, to inspect representative welds, shall be made available by the plant operator.

Note: Systems and milking and milk handling equipment which conform to the current "3-A Accepted Practices for the Design, Fabrication and Installation of Milking and Milk Handling Equipment", published by the International Association of Milk, Food and Environmental Sanitarians, Inc., Box 701, Ames, Iowa, will meet the requirements of this section.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.

Ag 31.07 Equipment cleaning and sanitizing. (1) **STANDARDS AND PROCEDURES; GENERAL.** (a) Equipment, sanitary piping and utensils used in receiving, storing, processing, manufacturing, packaging and handling milk or dairy products and ingredients thereof, and all product contact surfaces of homogenizers, high pressure pumps and lines, shall be kept clean. All such equipment shall be cleaned at the end of each day's operation. Before use, all equipment coming in contact with milk products shall be subject to an effective bactericidal or sanitizing treatment. Equipment not designed for cleaned-in-place cleaning shall be disassembled, thoroughly cleaned and sanitized. No cleaners, detergents, wetting or sanitizing agents adversely affecting or capable of contaminating milk or dairy products or ingredients thereof, shall be used. Steel wool or metal sponges shall not be used in the cleaning of equipment or utensils.

(b) Milk and cream cans shall be cleaned, subjected to bactericidal treatment and dried before removal from the plant for reuse. Can washers shall be kept free from accumulation of scale. Packing glands on all agitators, pumps and vats shall be inspected regularly and kept clean.

(c) Each dairy product transport tank shall, prior to each use, be washed and sanitized, and tagged with a washing and sanitizing tag showing the date of washing and sanitizing, the name of the person who washed and sanitized the tank, and the name and location of the plant

Register, October, 1978, No. 274

where the washing and sanitizing was done. The tag shall be attached to the outlet valve and shall not be removed until the tank is again washed and sanitized. The tag or other record of each washing and sanitizing shall be kept by the plant where the washing and sanitizing was done for a period of 90 days.

(2) **CLEANING AND SANITIZING PROCEDURE FOR C-I-P PIPELINE CIRCUITS.** C-I-P cleaning shall be used only for equipment and pipeline systems designed, engineered, and installed for C-I-P cleaning.

(a) An effective rinsing, cleaning and sanitizing program shall be adopted by plant operators to keep C-I-P systems in a clean condition. The recommendations of the cleaning compound manufacturer shall be followed with respect to the circulating time, temperature, and concentration of specific acid or alkaline solutions and bactericides to be used.

(b) Immediately after concluding the day's operations, all connections between cleaned-in-place lines and processing equipment not included in the cleaning circuit shall be removed, the openings capped, bypass connections made, and the lines rinsed thoroughly with tempered water not less than 120° F., continuously discarding the rinse water near the downstream end of the solution return line until the discarded effluent is clear.

(c) All solution and product contact surfaces not cleanable by mechanical cleaning procedures shall be cleaned manually.

(d) An effective detergent solution shall be circulated through the C-I-P circuit for such period of time and at such concentration and temperature as necessary for the effective removal of the soil residue in the circuit. The detergent solution shall be rinsed thoroughly from the circuit. An acid detergent may be used, when needed, as a supplement to the routine circulation. Acid detergent treatment shall be followed with a thorough rinsing of the circuit.

(e) All product contact surfaces shall be sanitized with one or a combination of the following methods:

1. The circulation of water through the circuit for 5 minutes at a minimum temperature of 170° F. at the discharge end of the circuit, and then drain.

2. The pumping of an approved chemical sanitizing solution of acceptable strength and recommended temperature through product lines and equipment for at least one minute, and then drain.

3. The use of steam at a temperature of 170° F. for 15 minutes or at a temperature of 200° F. for 5 minutes as measured at the drain outlet.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.

Ag 31.08 Storage. (1) **STORAGE OF CLEAN CONTAINERS AND EQUIPMENT.** Containers and other utensils used in the handling, storage or transportation of milk or dairy products shall, unless stored in a sanitizing solution, be so stored to drain dry and be kept free from contamination.

(2) **STORAGE OF SINGLE-SERVICE ARTICLES.** Single-service articles used in handling, processing and packaging milk and dairy products and coming in direct contact with milk and dairy products shall be purchased and stored in sanitary cartons, be kept in a clean dry place until used, and handled in a sanitary manner.

(3) **STORAGE OF PRODUCTS AND INGREDIENTS.** Products and ingredients shall be stored or arranged in an orderly manner in aisles, rows, sections or lots so as to permit ready access for inspection and adequate cleaning of the room or area in which they are stored. No products shall be placed directly on wet floors or exposed to foreign substances, odors or conditions which might cause package or product damage or contamination. Insecticides, rodenticides and other toxic materials shall be kept in their original containers and stored in a separate room or cabinet away from products, ingredients and packaging supplies.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.

Ag 31.09 Cooling and handling milk and cream. (1) **COOLING OF MILK AND FLUID DAIRY PRODUCTS.** Temperature of milk shall not exceed 50° F. when delivered to the plant unless it is delivered within 2 hours after milking. Milk received at the plant shall be cooled to and held at 50° F. or lower unless processed within 2 hours after receipt. Milk and fluid dairy products, other than cream or whey cream, held for manufacturing purposes, shall be kept at 50° F. or lower while at the plant or during transport between plants.

(2) **COOLING AND HANDLING CREAM AND WHEY CREAM.** (a) Cream, whey cream, or whey cream from drippings, shall be cooled at the plant where separated or received to 40° F. within 2 hours after it is separated or received, and maintained at that temperature until used.

(b) Cream and whey cream may not be sold or delivered to another plant for human food purposes if the titratable acidity of whey cream exceeds 0.20% or if cream or whey cream is held for more than 7 days at the plant where separated.

(c) All cream or whey cream shall be examined organoleptically prior to leaving the plant where separated or produced. No cream or whey cream having an unsatisfactory flavor or odor, because of the prior addition of approved chemical agents to the milk from which the cream was derived, or for any other reason, shall be sold or used for human food purposes.

(3) **COW AND GOAT MILK.** Cow milk and goat milk shall be handled separately and may not be commingled.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.

Ag 31.10 Construction plans. Dairy plants to be constructed, reconstructed or extensively altered shall conform to the requirements of this chapter. Plans and specifications for dairy plants to be constructed, reconstructed, or extensively altered shall be submitted to the department for its approval before the work is begun. Such plans shall be reviewed by the department and returned to the dairy plant operator within 14 days after their receipt, together with comments and objections.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.

Ag 31.11 Dairy plant records. (1) Every dairy plant operator shall keep for at least one year a record of each producer showing the results of farm inspections conducted during the calendar year, the date and results of all milk quality tests, and the date and quantity of any insanitary or adulterated milk received from each producer and rejected by the plant.

Register, October, 1978, No. 274

(2) The dairy plant operator shall furnish a copy of all farm inspection reports and milk quality test results to each producer as required under Wis. Adm. Code chapter Ag 30. Milk quality test results showing that the producer's milk is of acceptable sanitary quality shall be furnished each producer within at least 30 days after completion of such tests. Such test results may be delivered to the producer by the milk hauler.

(3) A water sample test report current within 24 months shall be kept on file by dairy plants for each producer.

(4) Dairy plants shall maintain records of pasteurization or heat treatment of all milk or dairy products processed by them in the past 6 months. Such records shall consist of recording charts or other records accurately showing the date of pasteurization or heat treatment, the temperature at which pasteurized or heat treated, and the name of the individual in charge of the pasteurization or heat treatment operation. The records shall include a record of a daily check of the recording thermometer for accuracy, the date on which the check was made, and the name of the person who checked the thermometer.

(5) Every dairy plant shall maintain for at least 90 days temperature recording charts or other records of each cleaning of a C-I-P system.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.

Ag 31.12 Department requested samples. Dairy plants, on reasonable notice, shall collect and furnish to the department fresh milk samples of milk received from individual producers. Samples may be requested once every 4 months or more often as the department considers necessary for animal health and milk quality testing and examination. All samples shall be identified with the patron number and date of collection, and shall be kept under refrigeration or ice at a temperature at or below 40° F. until they are transferred to department inspectors.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.

Ag 31.13 Laboratories. Butterfat and milk quality tests shall be conducted only in laboratories approved by the department. All laboratories certified by the state of Wisconsin department of health and social services under s. 143.15, Stats., to conduct milk quality tests shall be approved by the department. Laboratories engaged in butterfat testing shall be approved only if equipped and staffed to conduct accurate butterfat tests as prescribed under Wis. Adm. Code chapter Ag 107. Laboratories with equipment in compliance with chapter Ag 107 meet the requirements of this section. After notice and opportunity for hearing the department may withdraw approval of any laboratory, whether or not certified under s. 143.15, Stats., if tests are not conducted in accordance with prescribed laboratory test procedures, or test reports or results are false or inaccurate.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.

Ag 31.14 Applicability. This chapter applies to all dairy plants, including Grade A dairy plants.

History: Cr. Register, October, 1978, No. 274, eff. 1-1-79.