

Troubleshooting Guide to Common Cleaning Problems

FILM/DEPOSIT	IDENTIFICATION	PROBABLE CAUSE(S)	REMOVAL	PREVENTION	FYI...
Fats	Heavy deposit produces soft yellow film - Light buildup dulls surface and causes water to bead - "Greasy" appearance	Improper pre-rinse (cold water) temperature - Weak alkalinity detergent solution (pH below 10.5) - Low initial or distal water temperature - Rinsing only; not washing after each milking - Using acid washes only - Improper drainage	Mix chlorinated alkaline detergent at twice the recommended dosage to ensure proper pH and detergent - Ensure water temperature of 160° F (70°C) + and maintain above 120° F (50°C) for duration of wash cycle - Follow with acid rinse at twice the recommended dosage	Analyze water and prescribe proper detergent at proper concentration - Ensure pH above 10.5 and temperature above 120°F (70°C) at the end of the cycle - Check for proper wash volume, velocity, contact time and drainage - Ensure that the proper water temperature is obtained during the pre-wash rinse [95-110°F (35-43°C)]	Chlorine in a chlorinated alkaline detergent "peptizes" or breaks down protein and converts it to a more soluble form that can be carried out through the wash system.
Proteins	Heavy buildup produces yellow varnish-like appearance or slimy gelatinous film like applesauce - Light buildup will give a blue or rainbow cast to stainless steel. Causes water to bead	Use of non-chlorinated detergent or detergent low in chlorine (chlorine level below 60 ppm) - Rinsing only; not washing after each milking - Using acid washes only - Improper pre-rinse (hot water) temperature - Improper drainage	Mix chlorinated alkaline detergent at twice the recommended dosage and add liquid or powdered chlorine at 1 oz. for each 5 gallons of wash solution - For manual brush surfaces, prepare a paste of 4 oz. of chlorinated alkaline detergent + 1 oz. liquid chlorine - Pour on surface and allow to stand for 2 minutes - Brush thoroughly - Rinse - Repeat as necessary	Analyze water and prescribe proper detergent at proper concentration - Ensure proper pH, solution temperature, volume, velocity, contact time and drainage - Check for proper rotation and/or storage of chlorinated alkaline detergent - Ensure that the pre-wash rinse is performed with the correct water temperature [95 (35°C) - 110°F (43°C)]	Hard water used in the cleaning system is the leading cause of increased supply bills. More detergent is needed to remove buildup.
Hardness Minerals (Calcium/Magnesium)	Chalky - white to gray water spots and film and "Bluish" cast to stainless steel	Use of detergent with inadequate sequestering capacity to "tie up" minerals during washing - Not acid rinsing after each milking - Not employing alternate acid wash	Mix acid cleaner at recommended dosage in 140°F (60°C) water - Circulate for a minimum of 10 minutes - Repeat as necessary	Analyze water and recommend a water softener to remove hardness minerals - Use detergent high in sequestering capacity - Ensure acid rinsing in temperatures below 120°F (49°C)	
Milkstone	Heavy buildup produces hard white or yellow film	Compounded soil of minerals and milk soils usually caused by excessive water hardness or inadequate sequestering activity of detergent - Not using acidification rinse after each milking	Mix acid cleaner at three times recommended dosage in 140°F (60°C) water - Circulate 10 minutes - Follow with chlorinated alkaline detergent wash - Repeat acid wash in 95-110°F (35-43°C) water	Analyze water - Recommend water softener to remove hardness - Use acid rinse after each milking - Use acid wash as substitute for chlorinated detergent periodically	
Iron	Reddish-brown to almost black stain on equipment	Iron in water supply precipitating due to oxidation to ferric iron - Use of liquid chlorine as sanitizer causes oxidation and precipitation of iron - Use of detergent with inadequate concentration to compensate for iron in water supply	In cases of severe staining, use iron remover (sodium hydrosulfite) at 1 oz. per gallon in warm 120° (49°C) water - Circulate 10 minutes - Use acid cleaner at 1-2 oz. per gallon of solution in 140°F (60°C) water - Circulate 10 minutes	Analyze water - recommend water softener and/or iron filter depending on ppm of iron in water supply. Use daily acid rinse after each milking	1 ppm of iron is equal hardness or 4 gpg and should be accounted for when analyzing the hardness of the water.

Be sure all recommended acid rinses reach a pH of less than **3.5 in order to be fully effective in removal of the film/deposit.