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Technical Bulletin

ABI Hydrogen Peroxide Usage in Dairy Lines

Hydrogen peroxide (H_2O_2), particularly in **35% food-grade form**, is also used in dairy operations to maintain clean, sanitary milk lines and equipment. Its strong oxidizing properties make it effective at breaking down organic residues, biofilms, and microbial contaminants that can accumulate inside pipelines, receivers, and milk-handling components.

Purpose and Benefits

When used correctly, hydrogen peroxide in dairy lines can:

Reduce bacterial load and biofilm formation
Oxidize milk residues and prevent buildup
Improve overall sanitation of milking systems
Reduce somatic cell counts (SCC) by lowering environmental contamination
Support udder health by minimizing pathogen exposure
Extend the lifespan of equipment by reducing mineral and organic fouling

Because hydrogen peroxide decomposes into water and oxygen, it leaves no harmful chemical residues in the system when properly flushed.

How It Works in Dairy Pipelines

Hydrogen peroxide acts as a broad-spectrum oxidizing disinfectant, disrupting:

Bacteria
Yeasts
Molds
Biofilm matrices
Organic deposits (milk fats, proteins)

In dairy lines, it is often used:

As part of a clean-in-place (CIP) cycle
In combination with alkaline or acid detergents
As an oxidizing booster to enhance sanitation efficacy
To control microbial growth in areas where water stagnation or low flow occurs

Typical Application Rates

While exact dosing varies by equipment manufacturer and sanitation protocol, common guidelines include:
0.1–0.5% hydrogen peroxide solution for routine dairy line sanitation
0.5–1.0% solution for heavy organic load or biofilm remediation
Contact times typically range from 10–20 minutes, followed by thorough rinsing with potable water

These concentrations are prepared by diluting 35% hydrogen peroxide with clean water to the required working strength.

Example: To prepare 100 L of a 0.5% solution, you would add approximately 1.4 L of 35% H_2O_2 and top up with water.

Farmers should always follow equipment-specific CIP instructions and verify compatibility with stainless steel and rubber components.

Safety and Handling

Because 35% hydrogen peroxide is highly reactive and corrosive, dairy operators should:

Wear gloves, goggles, and protective clothing
Store the product in a cool, ventilated area away from sunlight
Use only approved dosing equipment
Avoid mixing with acids, chlorine, or other sanitizers
Rinse thoroughly to prevent milk contamination

Hydrogen peroxide must never be added directly to milk or used in a way that could leave residues in finished dairy products.

Professional Guidance

Before incorporating hydrogen peroxide into dairy line sanitation:

Consult your dairy equipment supplier
Review CIP specifications for your milking system
Confirm compatibility with detergents already in use
Discuss the plan with a dairy hygiene specialist or veterinarian

Proper implementation ensures effective sanitation without damaging equipment or compromising milk quality.