Milk Safety Notes

# ENERGY EFFICIENT VARIABLE FREQUENCY PUMPS

**What Are Variable Frequency Pumps?**

Variable frequency pumps are both centrifical and positive displacement type pumps whose flow rates can be electronically adjusted to perfectly match the needs of a system. These pumps have found a place in the dairy industry as flow control devices, booster pumps and stuffing pumps in HTST systems.

**How Are These Pumps Made Energy Efficient?**

Some variable frequency pumps are designed to be energy efficient. One means of improving the energy efficiency is to 'ramp' it up and down slowly. This means that the pump is stopped and started gradually rather than having the power to it cut completely and immediately.

**Is 'Ramping' Acceptable?**

No! Ramping down flow control devices, booster pumps and stuffing pumps in an HTST system is not acceptable. All pumps must stop immediately should the flow diversion valve not move into the fully diverted position within 1 second. Further, the booster pump must stop immediately upon the product being diverted.

**Why Is 'Ramping' Down Not Suitable?**

Ramping down would permit the continued flow of raw milk into the pasteurized milk side of the pasteurizer if the flow diversion valve was not properly seated in the divert position. Ramping down the booster pump would cause the raw regenerator pressure to be higher than the pasteurized regenerator pressure. In both cases unpasteurized milk could contaminate the pasteurized supply, leading to a potential health risk.

For further information contact the Dairy Plant Specialist at Food Protection Services

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