

Product Loss Monitoring in Dairy Factories

Introduction

With international milk solids prices forecast to hit record highs, getting control of product loss in the Dairy Industry has never been so important. Monitoring is used by plant managers as part of their performance improvement programs to reduce process waste. Monitoring can alert operators to a minor flange, joint or hatch leaks or a leaking valve or pump gland. Product loss monitoring can indicate to a major spill or process malfunction averting significant product loss, significant costs in waste processing or worse, significant excess municipal sewer charges. Gaining greater control in any or all of these areas can result in huge savings.

Using continuous monitoring of waste streams, Dairy Processing Plants can see what is going down the drain when it happens. Data from the LTH MXD70 Series controller can be fed into plant control systems, over-layered with drain flow data provides operators and management very important information showing losses in concentration and volume. If there are high flow with high solids concentration in drains outside a planned event like CIP losses are happening. If trending shows small increase in solids concentrations over a sustained period, losses are again happening, which accumulated over time can be very significant.

Loss Monitoring is a standard requirement in nearly all New Zealand Dairy Process Plants.

Solution – The Equipment



**MXD75 & MXD73
Series Controllers**



**S20 Immersion Suspended
Solids Sensor**

While competitive models stop working or drift as a result of leaking or fouling the Quadbeam Technologies Sensors does not. Designed to cope with the rigors of the highly efficient New Zealand Dairy Industry, Quadbeam's sensors have a "one piece" construction; there are no lenses to leak as a result of changing temperature providing a very reliable instrument. Four beam of attenuating light is used ratio metrically to ensure the sensor self-compensates as it becomes fouled or ages ensuring an accurate and repeatable signal is maintained.

A simple calibration process involving site samples of known quantity and determining the linearization points by dilution will ensure the system is calibrated to the product it is monitoring.

Then install the Quadbeam S20 Immersion Sensor into the plant drain, preferably where flow is monitored as well. In situations where there are no exposed flumes or weirs it is common to continuously pump a sample from the drain into a manifold where a range of measurements can be made including Solids, Conductivity and pH. The MXD70 Series transmitter will provide a 4-20mA output to connect to a PLC or DCS. Alarms can be set locally on the transmitter relays or within the plant system.



Typical Installation



Because of Quadbeam's ratio-metric four beam method of measurement the instrument effectively self-compensates for variation in temperature and fouling of the fingers, providing an accurate and repeatable signal. The LTH MXD70 Series transmitters can take up to three sensors where there are multiple drains and can accept other measurements such as Turbidity, Conductivity, pH/ORP & Dissolved Oxygen sensors in any combination.

Equipment details

Controller

- MXD75 IP66 Wall/Pipe mounting base instrument 85-265v supply Part No. 7500
- MXD73 IP66 Panel mounting base instrument 85-265v supply Part No. 7300
- MXD70SS Suspended solids input card Part No. 6001

Sensor

- S20-IMM-880-PP-10-NC S20 Immersion sensor Part No. 1903

Accessories

- 1200mm PVC holder for immersion style sensors Part No. 6098
- 2000mm PVC holder for immersion style sensors Part No. 6099
- S20 Immersion style sensor cleaning head assembly Part No. MISC

Benefit - Returns

This type of monitoring is now standard in many advanced Dairy processing plants. Large savings have been made by plants by catching small leaking valves or pumps long before maintenance checks, right through to early warning of large comprehensive product spills. Savings can easily be in the thousands in just one event. Product Loss is often used as an key performance indicator in many plants.

- ✓ GET CONTROL OF PRODUCT LOSS
- ✓ CONTROL YOUR EFFICIENCIES
- ✓ CONTROL YOUR RISK
- ✓ SAVE MONEY