

# Benefits Resulting from Installation of Magnetic Fluid Conditioners (MFCs) on Dairy Process Evaporators.

The information for the following diagrams is taken from the May 1991 “**Australian Dairy Foods**”, the Official Journal of the Dairy Industry Association of Australia.

## Bonlac Cororooke Whey Evaporator

### LENGTH OF PRODUCTION RUNS

Without MFCs

15 hrs



With MFCs

19 hrs



+ 4hrs (27%)

### **PLUS - CIP Benefits**

### LENGTH OF CIPs (hours)

Without MFCs

6 hrs



With MFCs 3 hrs



- 3hrs (50%)

The information for the following diagrams is taken from the May 1991 “**Australian Dairy Foods**”, the Official Journal of the Dairy Industry Association of Australia.

# Murray Goulburn Maffra Evaporator

Processing whole milk & heat stable high heat powders.

## LENGTH OF PRODUCTION RUNS

Without MFCs



With MFCs



Up to 50% Increase.

## PLUS - CIP Benefits

## LENGTH OF CIPs

Without MFCs



With MFCs



Reduced cleans.

# Bonlac Longwarry Skim Milk Evaporator

MFCs were installed on both calandrias and preheaters

Two operational objectives were considered and trialled on this plant. Operational objective #1 was the one selected.

**Operational Objective (1)**  
Maximise run time with no change in CIP

### LENGTH OF PRODUCTION RUNS

Without MFCs 19 hrs



With MFCs

36 hrs



+ 17hrs (90%)

**Operational Objective (2)**  
Increase run time & reduce acid cleans

### LENGTH OF PRODUCTION RUNS

Without MFCs 19 hrs



With MFCs

32 hrs



+ 13hrs (68%)

**No Change in CIP**

### LENGTH OF CIPs

Without MFCs



With MFCs



No reduction in CIP

**PLUS - CIP Benefits**

### LENGTH OF CIPs

Without MFCs



With MFCs



Reduced cleans.

The information for the following diagrams is taken from the August 1991 "Australian Dairy Foods", the Official Journal of the Dairy Industry Association of Australia.

# Bonlac Cobden Evaporator Triplex Scraped Surface Heat Exchangers on 50% solids concentrate to dryer. Processing skim, full cream & butter milk.

## LENGTH OF CIPs & DETERGENTS

Without MFCs



With MFCs



Reduced Strength CIP

## OPEN & INSPECT or PHYSICALLY CLEAN

Without MFCs



Inspect & Clean every 3 days

With MFCs



Inspect only every 7 days

□ Not opened    ■ Open, inspect & physically clean    ■ Open & inspect only

## THICKNESS OF DEPOSITS

Without MFCs

60 to 125mm



With MFCs

Clean



Surface clean and milk stain removed.

The information for the following diagrams is taken from the August 1991 “**Australian Dairy Foods**”, the Official Journal of the Dairy Industry Association of Australia.

## Tongala Evaporator

### PLANT PROCESS SCHEDULE

- (1) Process straight milk products -  
--▶ Then CIP -
- (2) Then process protein fortified products -  
--▶ Then CIP.

The following were the benefits achieved in CIPs from the **first stage of reductions**.

### LENGTH OF CIPs after straight milk product.

Without MFCs 2.5 hrs



With MFCs 1.5 hrs



- 1hr (40%)

### LENGTH OF CIPs after protein fortified products.

Without MFCs 4 hrs



With MFCs 3 hrs



- 1hr (25%)