

## Scheffer's 4 Effect Falling Film Evaporator

Lactose is the highest price it ever has been. Increase your Crystallizer and drying capacity by installing a finisher designed for lactose by one of the great dairy evaporator companies.

This is a nice Scheffer's 4 Effect Falling Film Thermal Evaporator in very good condition. It was last running sweet whey (not demineralized), partially delactosed sweet whey, whole sweet whey and lactose pre concentrate. It is designed to be a finisher after a pre concentrator evaporator or a membrane system. It is designed to take the final product solids to 60+%

Feed rates were designed to be 18,880 pounds per hour. Evaporation rates are 8,000 to 11,000 lbs /hr water evaporation using 1,650 to 3,050 lbs steam/hr in the evaporator and 34 KW power. This system has Fristam pumps. This system is in very good condition.

Effect 1

63 tubes, 1.25 in. diameter, 34 ft. long (3cm dia x 10 meters long)

Effect 2

42 tubes, 2.375 in. diameter, 34 ft. long (6cm dia x 10 meters long)

Effect 3

63 tubes, 2.375+in diameter, 34ft long (6cm dia x 10 meters long)

Effect 4

75 tubes, 2.375 in. diameter, 34 ft. long (6cm dia x 10 meters long)











April 27, 1981 date purchase order issued #300 Formost Farms, Appleton, Wisconsin  
Damrow Company Fond Du Lac, Wisconsin  
Original Cost new in 1981 \$ 432,700 fob Rotterdam, Netherlands  
Basic unit 304 Stainless Steel, .06 max C, for the following options:  
top and bottom tube sheet and tubes, all effects, 316 Stainless Steel , .03 max C  
finish inside grit mesh ground  
outside pickled and passivated

Flow: 4-3-2-1

Preheater: 4/C-3/4-2/3 -4th effect

1/3 -3rd effect

1/2 - 2nd effect

1/2 - pasteurizer direct steam injection heater (for product 3 only) 1st effect "a" - 1st  
effect "b" - vacuum cooler

Number of colandrias, 4. First effect divided into 2 sections

Number of separators 4

Number of preheaters 6

Number of pasteurizers 1 +1 second one is of the direct steam injection type

Number of holding elements 3 plus 1 - 15.6 second holding tube

Number of pumps 8, evaporator only ( 1 pump is feeding the de-superheating device)

Outside diameter of tubes in colandrias 1.5" and 2.5"

Length of tubes in colandrias 33 foot

Length of run with all products between short rinses, not to exceed 8 hours, with a complete CIP cycle  
every 20 hours

Products:

Products not demineralized and partially delactosed sweet whey.

Titrateable acidity 0.20

fat content db max 2.5%

Capacity feed rate 18,857 pounds per hour of 25.0% TS

7,857 pounds per hour of 60.0% TS

Amount of water evaporated 11,000 pounds per hour

Product temp to evaporator 50F or 80F

Product temp after preheating 144F

Product temp after pasteurization 169F

Product temp to first effect 169

steam pressure 115 psig at manifold

cooling water evaporator 34 - 80 F

Electricity 440V 60Hz 3 phase

First effect

vapor 172

product 149

Second effect

vapor 149

product 127

Third effect

vapor 127

product 114

Forth effect  
vapor 114  
product 104

Consumption data:

3060 # per hour steam on the evaporator  
235 # per hour steam on the pasteurizer  
water consumption 80 F 290 gpm maximum 100 F leaving condenser  
50 F 235 gpm  
power 34 kw

Whole sweet whey  
Titratable acidity 0.17  
fat content db max 1.5%  
Capacity feed rate 18,857 pounds per hour of 35.0% TS  
11,000 pounds per hour of 60.0% TS  
Amount of water evaporated 7,857 pounds per hour

Product temp to evaporator 50F  
Product temp after preheating 144F  
Product temp after pasteurization 180F  
Product temp after steam direct injection if used 200F-220F  
Product temp to first effect 200-220F  
steam pressure 115 psig at manifold  
cooling water evaporator 34 - 80 F  
Electricity 440V 60Hz 3 phase

First effect  
vapor 160  
product 149

Second effect  
vapor 149  
product 132

Third effect  
vapor 132  
product 125

Forth effect  
vapor 125  
product 118

Consumption data:

1645 # per hour steam on the evaporator  
220F 785 # per hour steam on the pasteurizer  
water consumption 80 F 105 gpm maximum 100 F leaving condenser  
power 34 kw

Lactose Concentrate

Capacity feed rate 18,857 pounds per hour of 35.0% TS  
11,000 pounds per hour of 60.0% TS  
Amount of water evaporated 7,857 pounds per hour

Product temp to evaporator 160 or 175F  
Product temp after preheating 153F  
Product temp after pasteurization 200F  
Product temp to first effect 200F  
steam pressure 115 psig at manifold  
cooling water evaporator 34 - 80 F  
Electricity 440V 60Hz 3 phase

First effect  
vapor 171  
product 160

Second effect  
vapor 160  
product 147

Third effect  
vapor 147  
product 139

Forth effect  
vapor 139  
product 133

Consumption data:

1740 # per hour steam on the evaporator  
470 # per hour steam on the pasteurizer  
water consumption 80F 105 gpm maximum 100 F leaving condenser  
power 34 kw

Turndown ratios:

Product number 1 10%, product 2 and 3 35%  
note the first effect includes a bpe of 1.8C (3.24F)

Stainless steel control panel has a feed flow recorder and a pasteurizer temperature control/recorder and 6 Honeywell % control. Has 72 button and lights. Overall dimensions 58-1/2 in. L x 37 in. W x 87 in. H.

