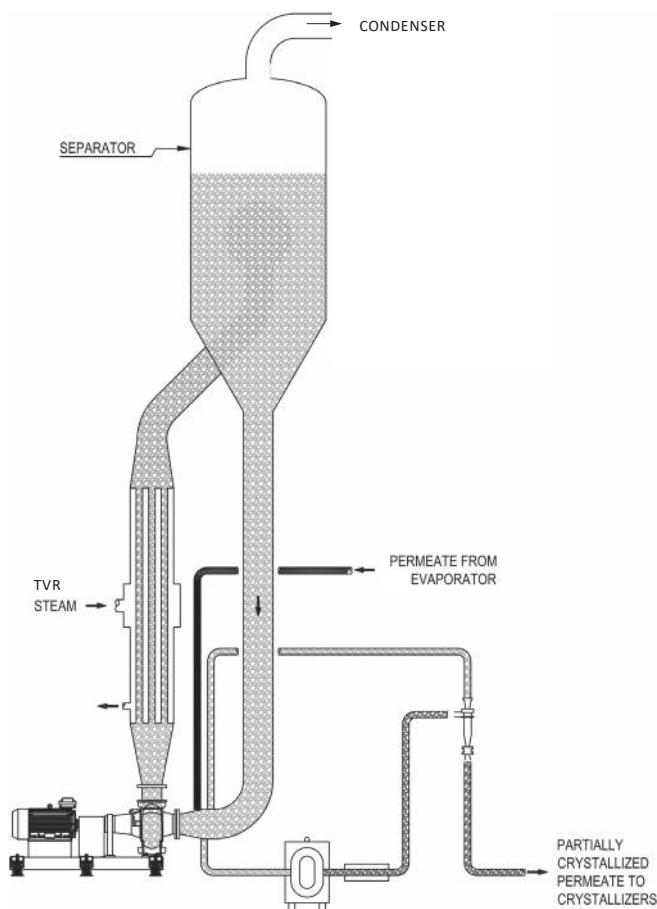


The CrystaLac<sup>™</sup> Crystallizing Evaporator is specifically designed to control crystal growth by recirculating a super-saturated lactose solution during evaporation. This process substantially improves final lactose yield, proven to achieve yields up to 91%, while reducing process variability for lactose drying systems.



The CrystaLac<sup>™</sup> technology sets a standard for best-practice lactose production and offers production and profitability benefits. With the CrystaLac<sup>™</sup> process, crystallization begins during the evaporation process, not during batch cooling as it does in traditional lactose manufacturing processes. Crystal growth in the evaporator is controlled at a high solids concentration, significantly increasing product yield and promoting stable operation of downstream processing equipment. Crystal slurry containing the larger crystals is continuously bled from the CrystaLac<sup>™</sup> Crystallizing Evaporator to the cooling crystallizers, increasing crystal size and maximizing lactose recovery in subsequent separation, washing and drying operations. The CrystaLac<sup>™</sup> can be configured with vapour recompression technology for improved energy efficiency.



## BENEFITS

Stable crystallization process performance means:

- Improved control of crystal size. The concentrated slurry from the crystallizing evaporator is classified by crystal size before further processing
- Reduced process variation in downstream equipment
- Simple plant to operate
- Quality and production improvements. The evaporator design

minimizes fouling on the heat transfer surface, resulting in fewer dryer upsets due to larger crystal variations resulting in longer periods between dryer cleaning

Increased lactose yield provides:

- More lactose from the same volume of permeate
- Less mother liquor
- Higher return on investment

Patents Issued: US #9,315,533 Canadian #CA2813914  
AU #2011312916 European Union #EP2011830982