

# STARCH

## EVAPORATION



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EPCON EVAPORATION TECHNOLOGY AS

EVAPORATORS – DRYERS – DISTILLATION & DEHYDRATION – HEAT RECOVERY SYSTEMS  
ENGINEERING AND AFTERSALES SERVICES

### EPCON products

EPCON supplies process plants for separating different types of fluids or fluids from solid material, based on the principles of evaporation, distillation and drying. EPCON has developed unique energy efficient technical solutions for a number of separation and purification processes.

### Energy saving

EPCONs core competence is energy utilization in evaporation, distillation and drying processes for a number of applications and industries. Energy savings of 80-98% are normally achieved, within a very favorable investment pay-back time.

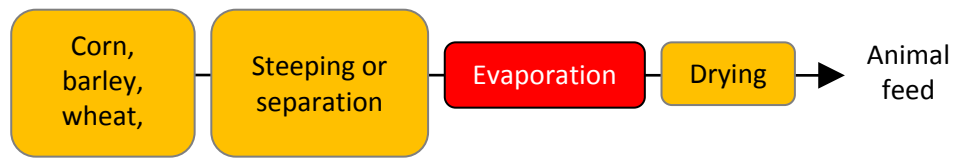
### Evaporation in starch industry

Typical evaporation applications within starch industry include:

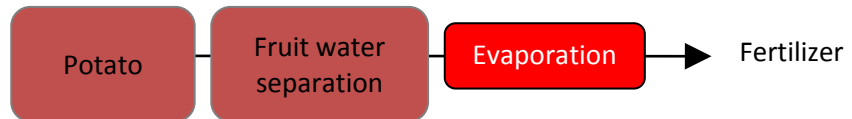
- Evaporation of steep liquid.
- Evaporation of fruit water.
- Evaporation of syrups.
- Evaporation of glucose, dextrose etc.
- Dewatering of waste water from starch industry.

EPCON has experience with all the above mentioned applications.

### Example (\*) of process route for washing water or steep liquid.



### Example (\*) of process route potato fruit water.



*(\*): process route and number of stages may differ from this example.*

### EPCON products for starch applications:

➤The EPCOVAP-MVR evaporators are a series of standardized compact evaporators with low energy consumption. These are for lower capacity evaporation in the range of 500-2500 kg/h evaporation.



➤Falling film evaporators with MVR to be tailor made for each specific application. EPCONs falling film evaporators are made for being resistant to fouling. They have a compact design, and hence requires a minimum of space.



➤EPCONs forced circulation evaporators with MVR are often used as the last stage in a combined evaporation system or as a stand alone evaporation system for high viscosity applications or where superior resistance to fouling is required.



➤Flash coolers for instant cooling and concentration of high viscosity syrups.



➤Combined evaporation plants. The technologies above are often combined to obtain the best technical solution.

**Refer the EPCON  
separate datasheets  
for further  
information of the  
listed process  
plants.**



## Case study

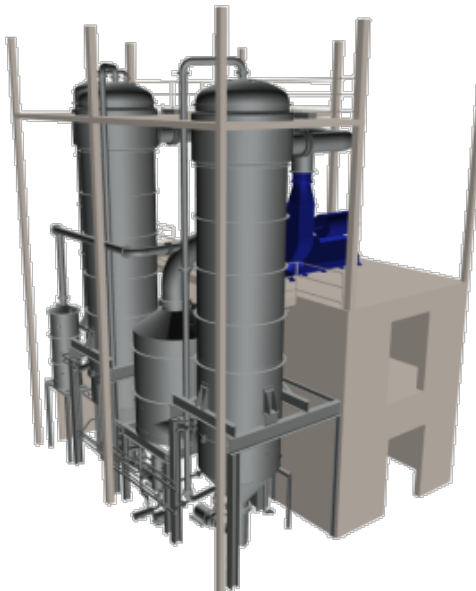
### Potato washing water

An MVR evaporator was installed to replace the biological wastewater treatment plant.

Very low energy consumption by utilizing MVR was achieved, with specific figure of 12 kWh per ton evaporated water. This means an energy saving versus direct steam of 98%.

Wastewater treatment at Hoff Norske Potetindustrier BA.

- Low capacity of the existing biological treatment plant.
- Physical restrictions for expanding the treatment plant.
- Need for removal of phosphorus from the discharge.
- Expensive sludge handling.



Falling Film Evap.	MVR, 3 stage
Evaporated mass	33000 kg/h
Total power cons.	396 kW

## Case studies for steep liquid

### Barley steep liquid

A barley steep liquid MVR falling film evaporator. The evaporator was located outdoor and was a turn key delivery .

- Evaporation capacity 10.000 kg/h
- Delivered 2008



### Corn steep liquid

A corn steep liquid MVR evaporator. The evaporator was combined falling film and forced circulation .

- Evaporation capacity 25.000 kg/h
- Product concentration 50 %
- Delivered 2004

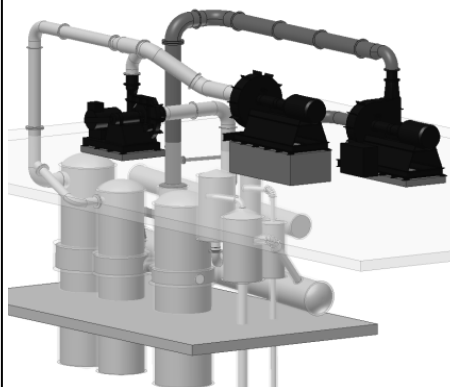


## Revamp case

### Potato fruit water

An original 5 effect potato fruit water evaporator was rebuilt by EPCON to MVR evaporator.

- Evaporation capacity 12.000 kg/h
- Delivered 2005

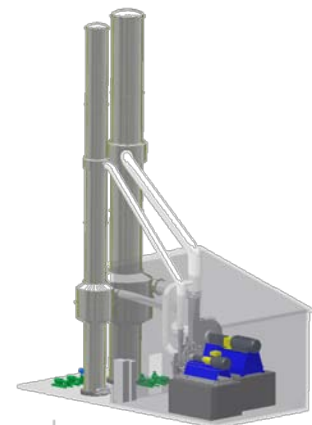


## Case study

### Corn syrup evaporation

A corn syrup MVR falling film evaporator located outdoor.

- Inlet concentration: 30 %
- Outlet concentration: 75 %
- Evaporation capacity 12.500 kg/h
- Delivered 2010



## Partners & distributors

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