



THE FUTURE OF MILK

AND RELATED POWDER PLANT

Different Types of Milk

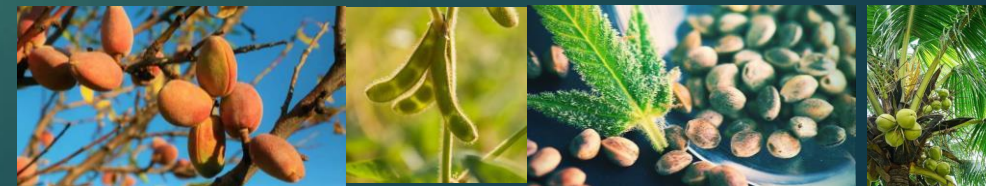
- Bovine Milk



- Non Bovine Milk



- Vegan Milk

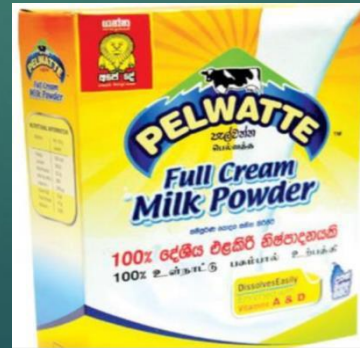


Bovine Milk Products



Different Types of Bovine Milk Powders Available: -

- Skimmed Milk Powder (SMP): Low Heat/Medium Heat/High Heat
- Full Cream Milk Powder (FCMP)
- Whole Milk Powder (WMP)
- Baby Food Powder
- Whey/ Lactose/ Casein Powder



Cow Milk Composition

Fat	4.14
SNF	9.25
Total Solid	13.39
Protein	3.58
Lactose	4.96
Ash	0.71
Water	86.61
Energy(kcal)	71

Non Bovine Milk



Camel

Mare

Goat

	Camel	Mare	Goat
Fat	5.38	1.59	4.25
SNF	6.94	9.34	8.65
Total	12.32	10.93	12.9
Protein	2.98	2.69	3.52
Lactose	3.26	6.14	4.27
Ash	0.7	0.51	0.86
Water	87.68	89.07	87.1
Energy(kcal)	72	49	69



Vegan Milk:



Almond Milk



Soy Milk



Walnut Milk



Coconut Milk



Oat Milk



Hemp Milk

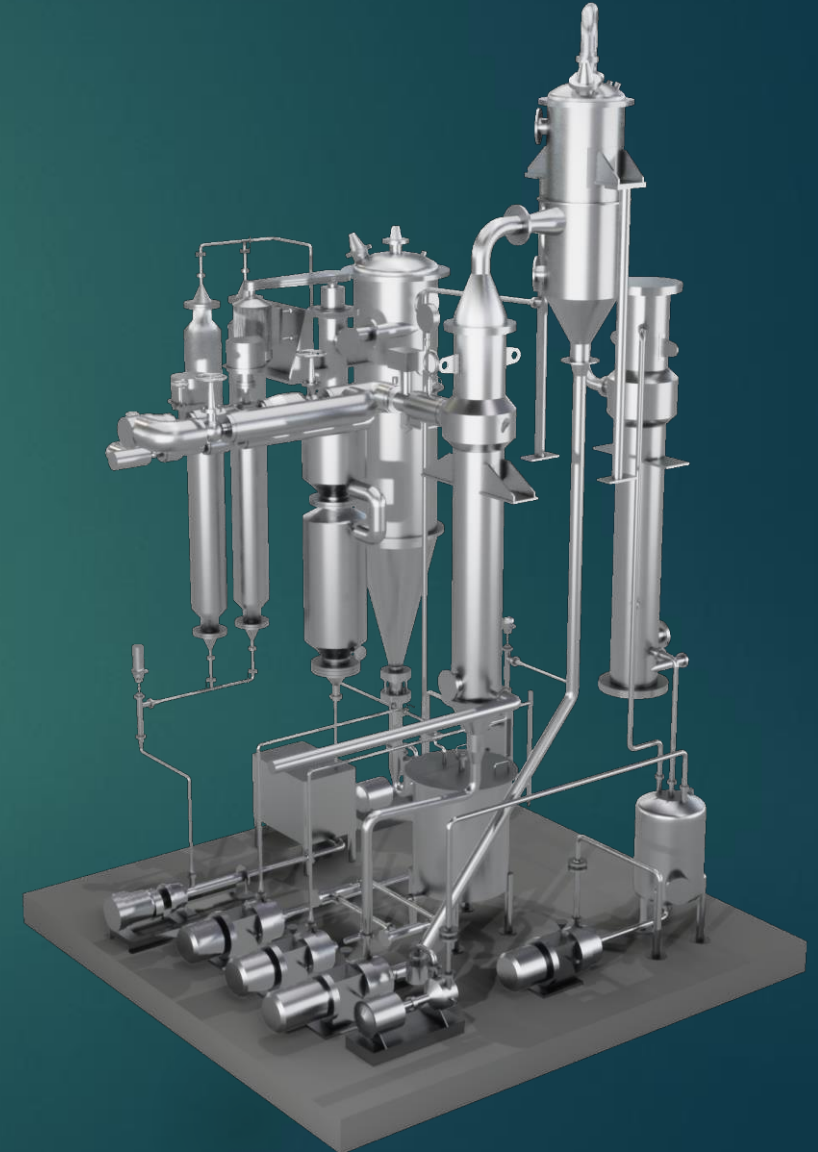


Pumpkin Milk

Future Dairy Products:

Concentrated Milk Solids (Khoa)

- Concentrated Milk @70% TS
- Solidifies and can be used as base material for making of various Sweets.
- A continuous khoa making machine is innovated.
- The equipment is energy efficient and produces different texture of khoa.



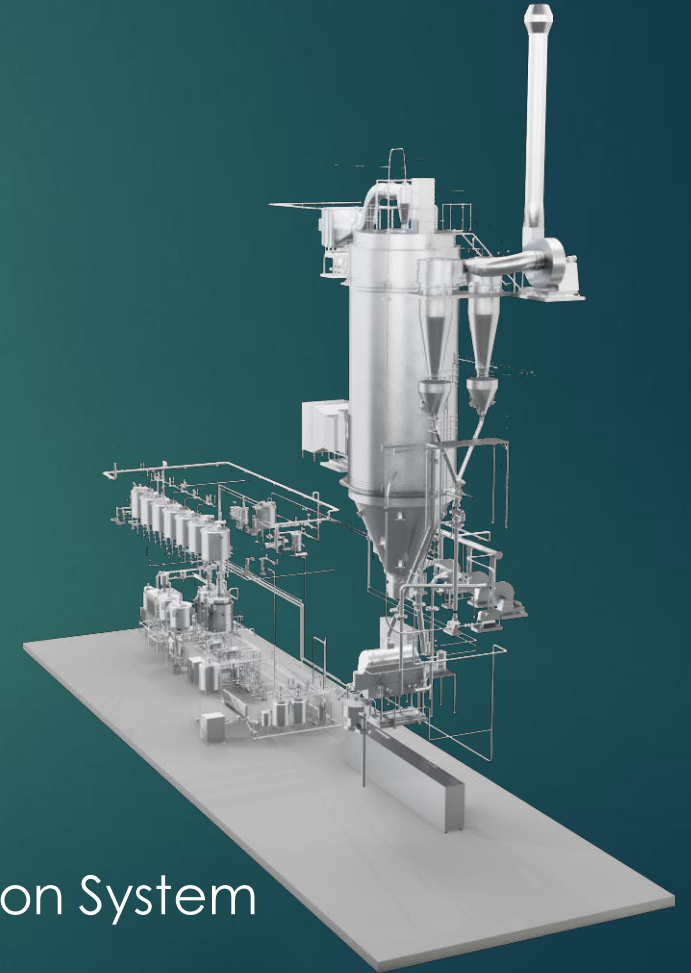
Future Dairy Products:

Agglomerated Milk Powder



Agglomerated SMP

Bulk density of Powder :
0.246 gm/cc loose BD and
0.320 gm/cc tapped BD



Agglomeration System

Future Products:



Nutraceutical Powder

Application:

Baby Food

For Youth

For Diabetics

Pregnant Women



Typical Composition: Skimmed Milk Powder, Vegetable Fat, Malto-dextrine (Carbohydrate), Emulsifier and Stabilizer

Future Products:



Camel Milk

Nutrition Facts	RDI*
(average in 100g)	
Fat	25g
Carbohydrate	40g
Protein	25g
Salt	1.6g
Vitamin A	87.2mg
Vitamin B1	0.4mg
Vitamin B2	0.3mg
Vitamin C	22.6mg
Vitamin D	0.7mg
Vitamin E	100mg
Calcium	1100mg



THE WORLD'S FIRST
SUPER FOOD MILK

Vitamins & Minerals

Substantially higher vitamin/mineral content

Easy Digestion

Most similar protein size to human breast milk

Non - Allergenic

No beta casein or Lactoglobulin

Immune Factors

Immune peptides support balanced immune system

Anti - Inflammatory

lactoferrin 30-100 times higher than in bovine milk

Blood Sugar

Contains insulin factors



Future Products:

Soy Milk Processing System

Various products from Soy Milk

- Natural Soy milk
- Flavoured Soy Milk
- Tofu (Acid coagulated mass)
- Soy Milk Powder-various flavours



Future Products:

Fat Filled Powder

Type of fat

- 100% Palm Oil
- 100 % Coconut Oil
- Palm Oil + Coconut Oil

Vegetable Fat Powder

having fat percentage of

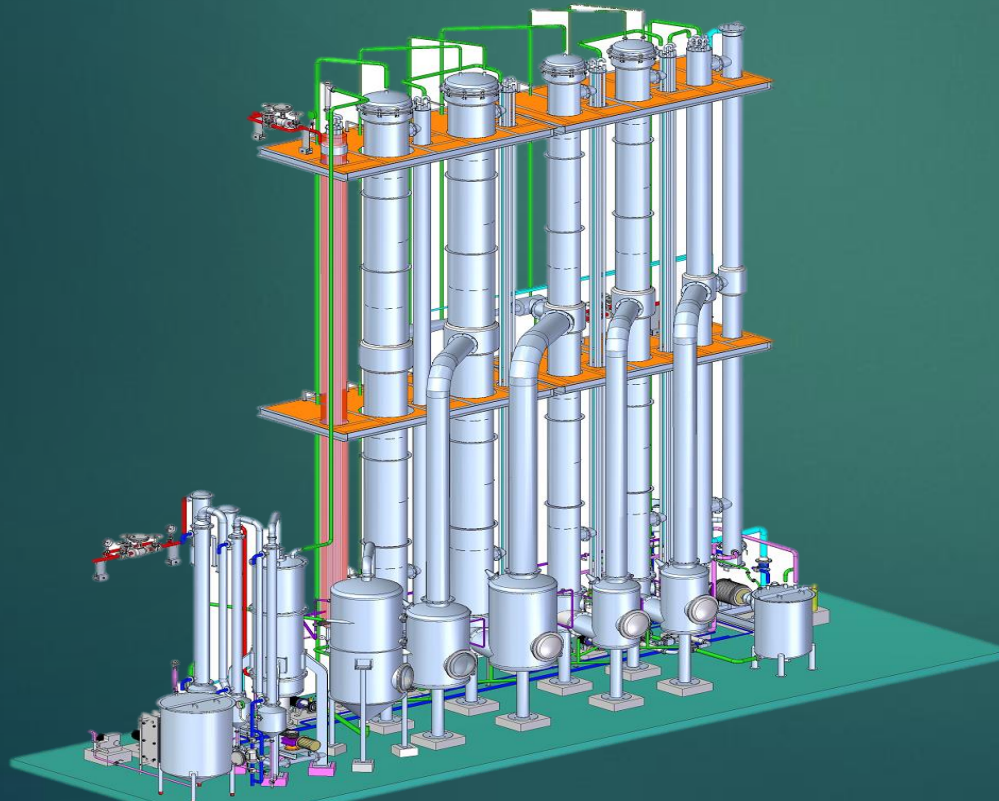
- 30%
- 60%
- 80%



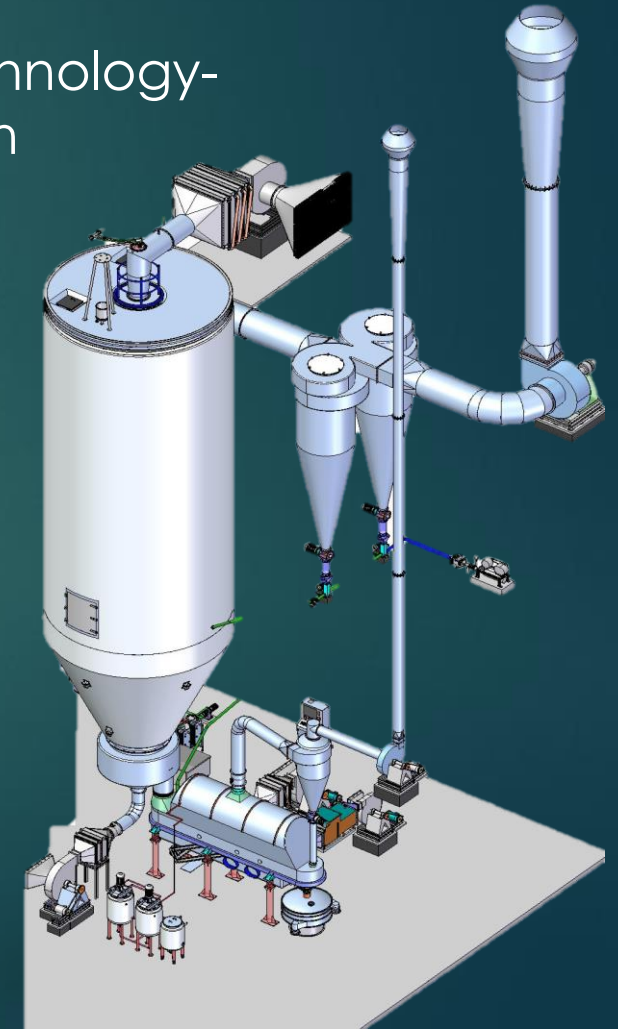
System for Milk Powder Production



Multistage Evaporation
Technology for concentration
under vacuum condition



Multistage Drying Technology-
for Powder Production



Energy Efficiency & Economics



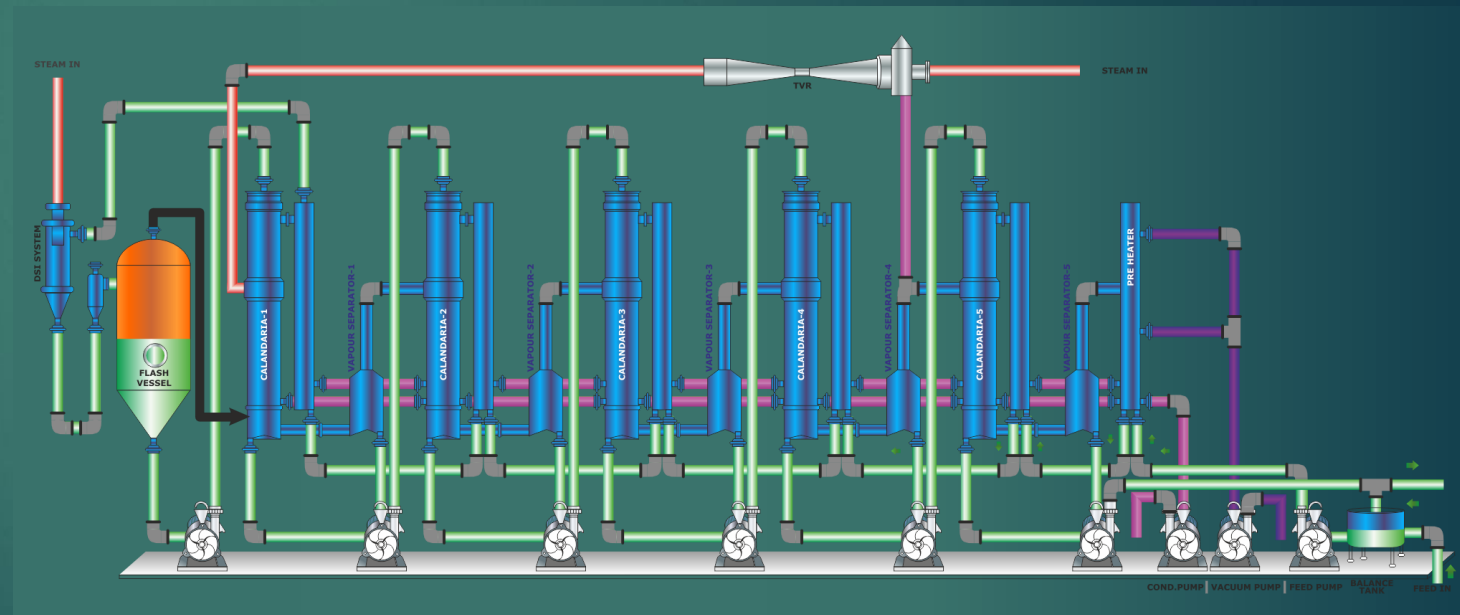
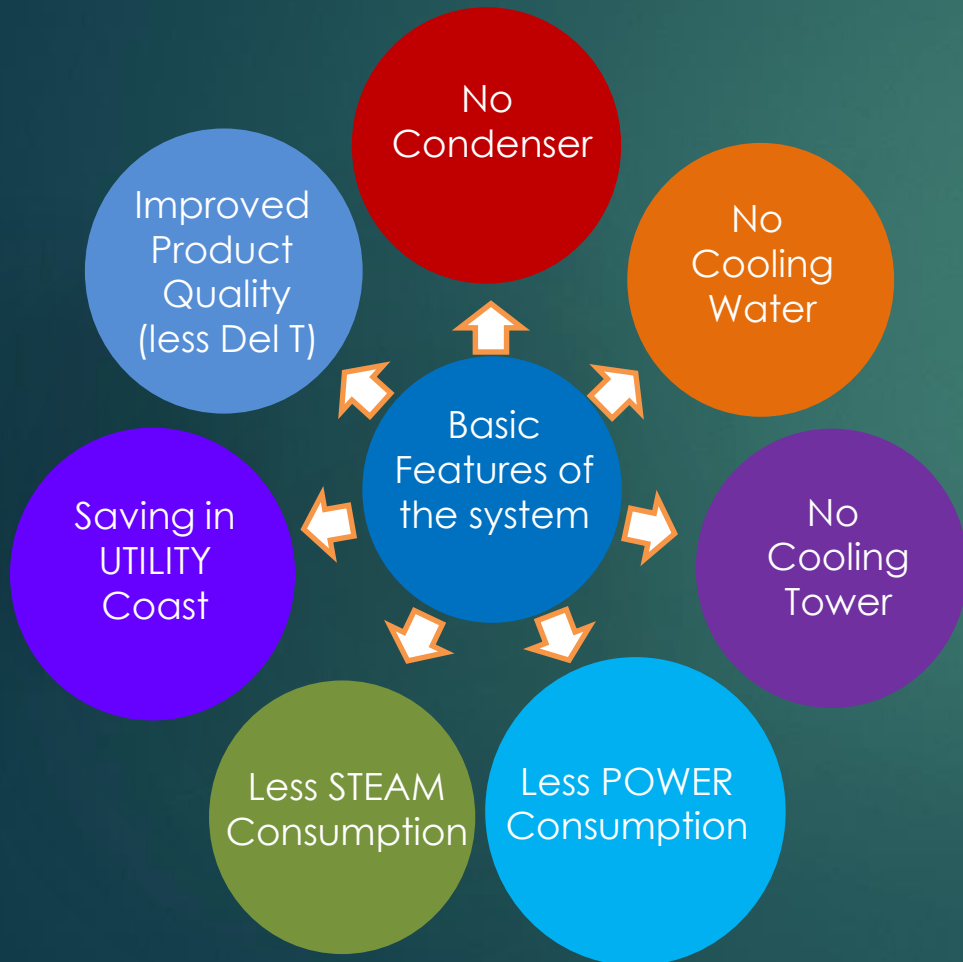
Comparing 5 Effect vs 3 Effect Evaporator with 1 Ton/Hr Powder Output

	Unit	No. of effect		Difference In energy consumption	Remarks
		3 Effect	5 Effect		
Capacity	Kg/Hr	10050	10050		
Steam consumption in TVR	Kg/Hr	2010	1256	754	Savings per annum : Euro 100,000 (Assuming cost of steam is Euro 23/Ton)
Cooling Water Circulation	m ³ /hr	180	90		Less Power consumption due to less TR of cooling tower capacity and cooling water circulation rate
	TR	355	167	168	
Average delta T in Jacket Vs. Boiling Point	Deg.C	10	5		Less delta T – gentle heat treatment during evaporation

Innovation:

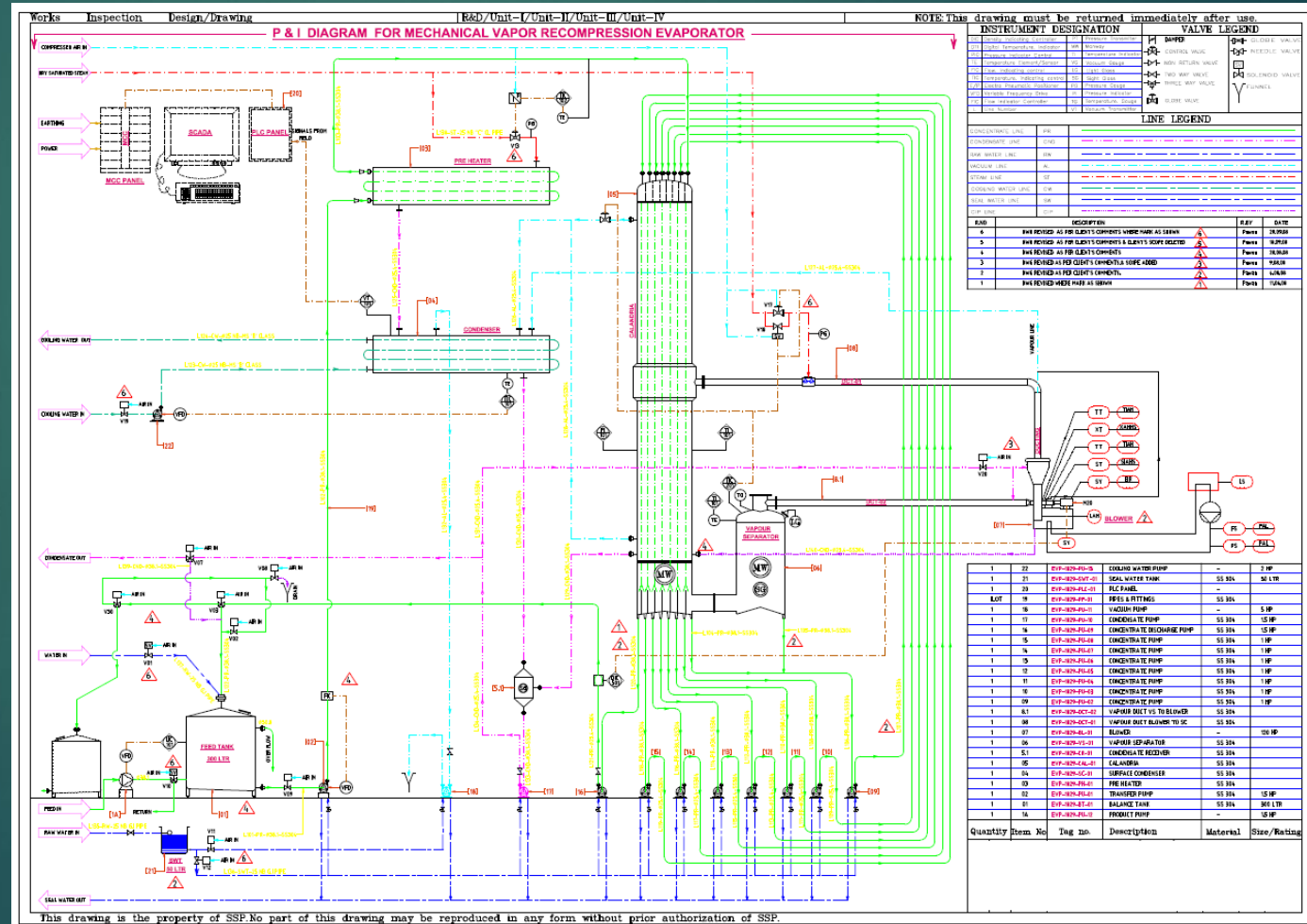


Most Energy Efficient Evaporator



Evaporator without Condenser

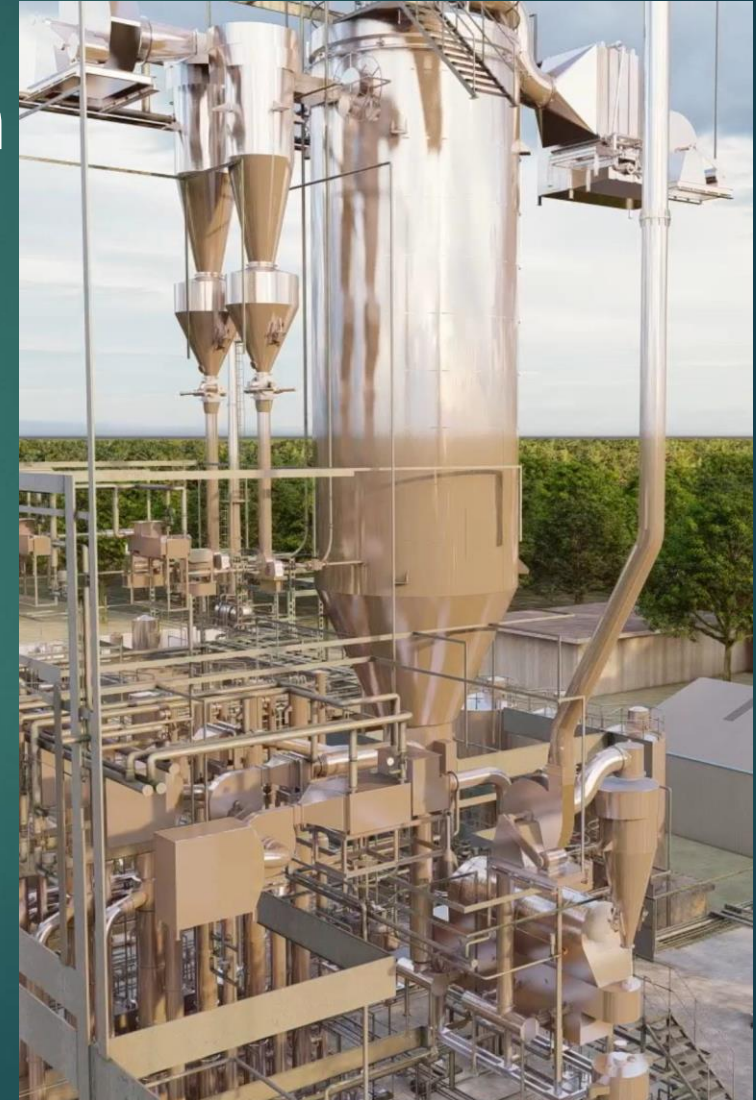
Evaporator with MVR



Spray Drying Section

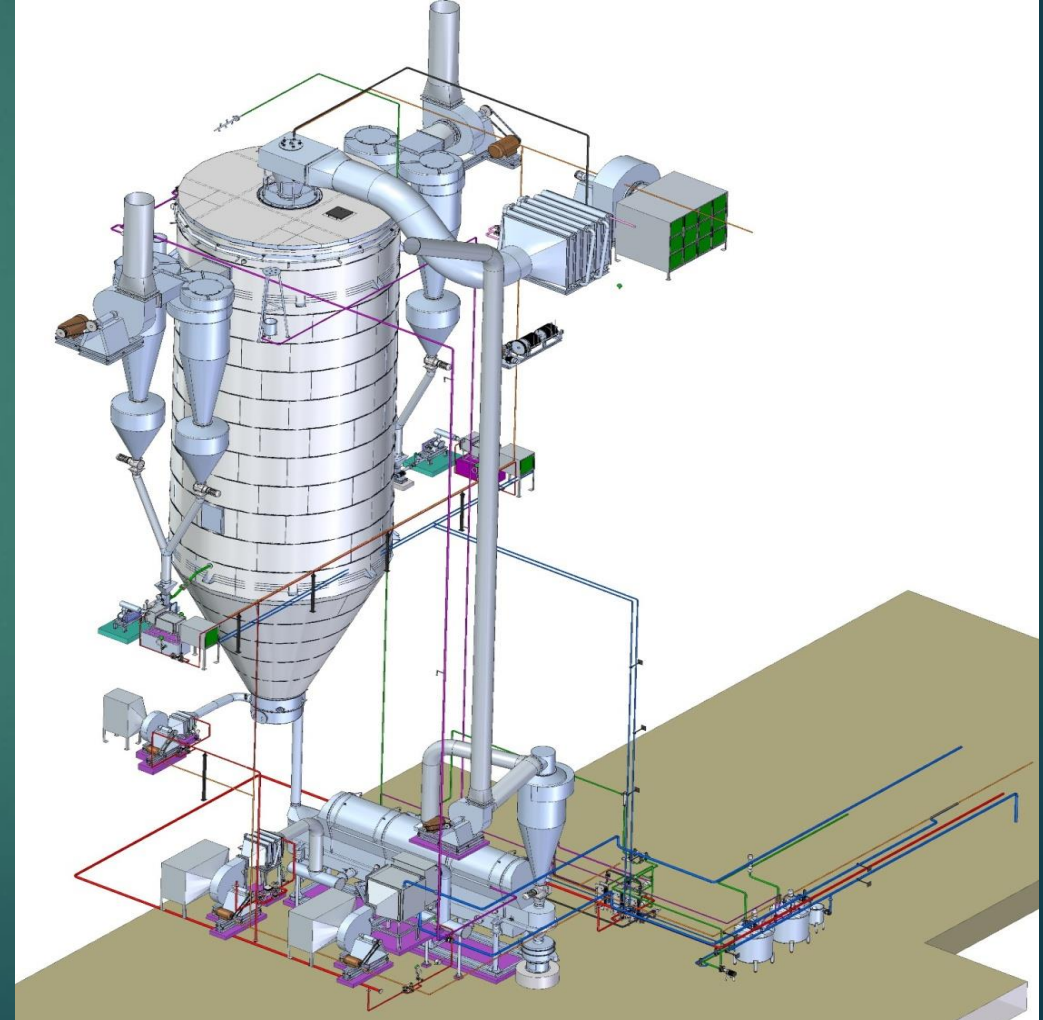
Most Energy efficient Drying System

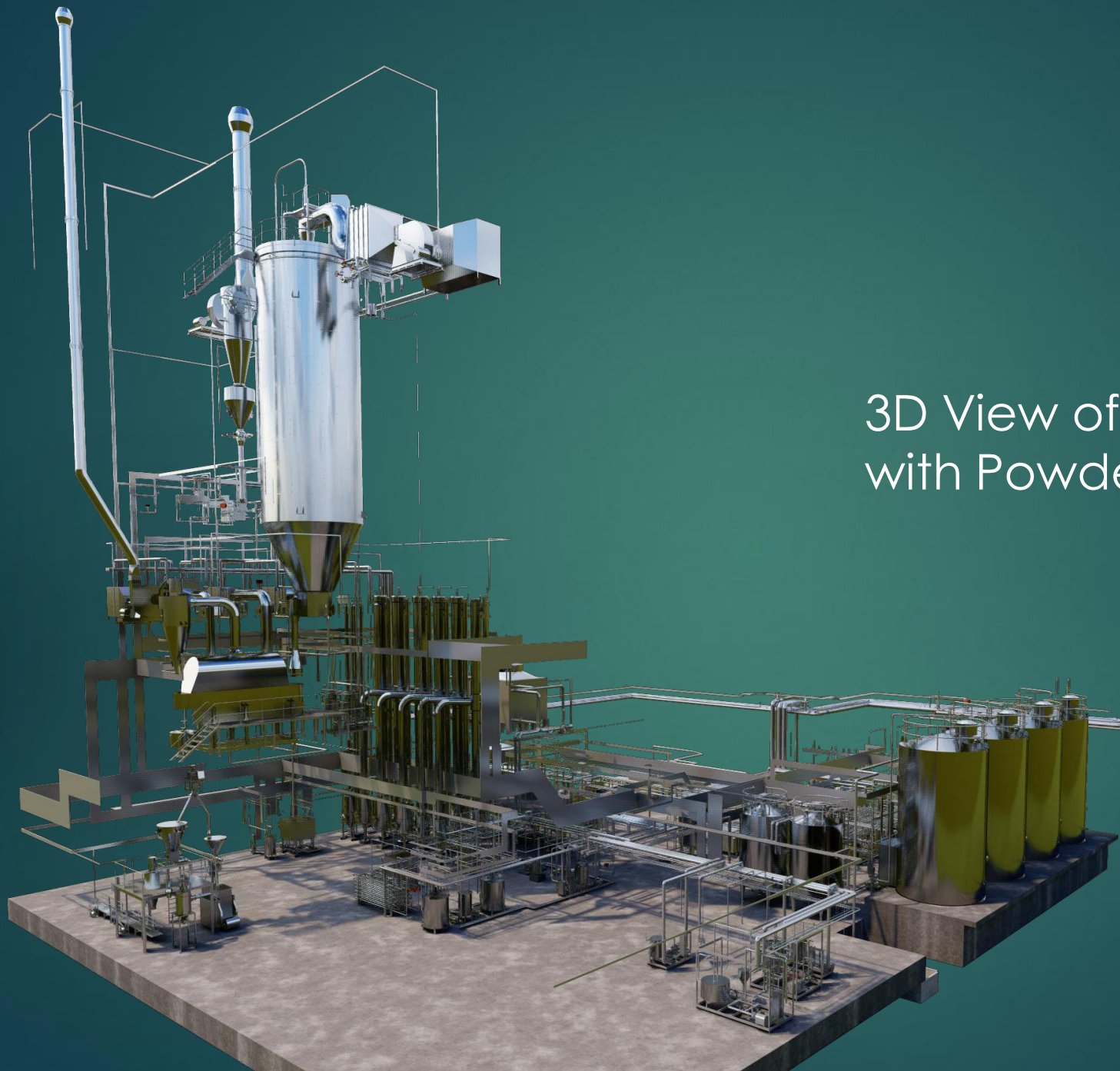
3 Stage Drying



Innovation:

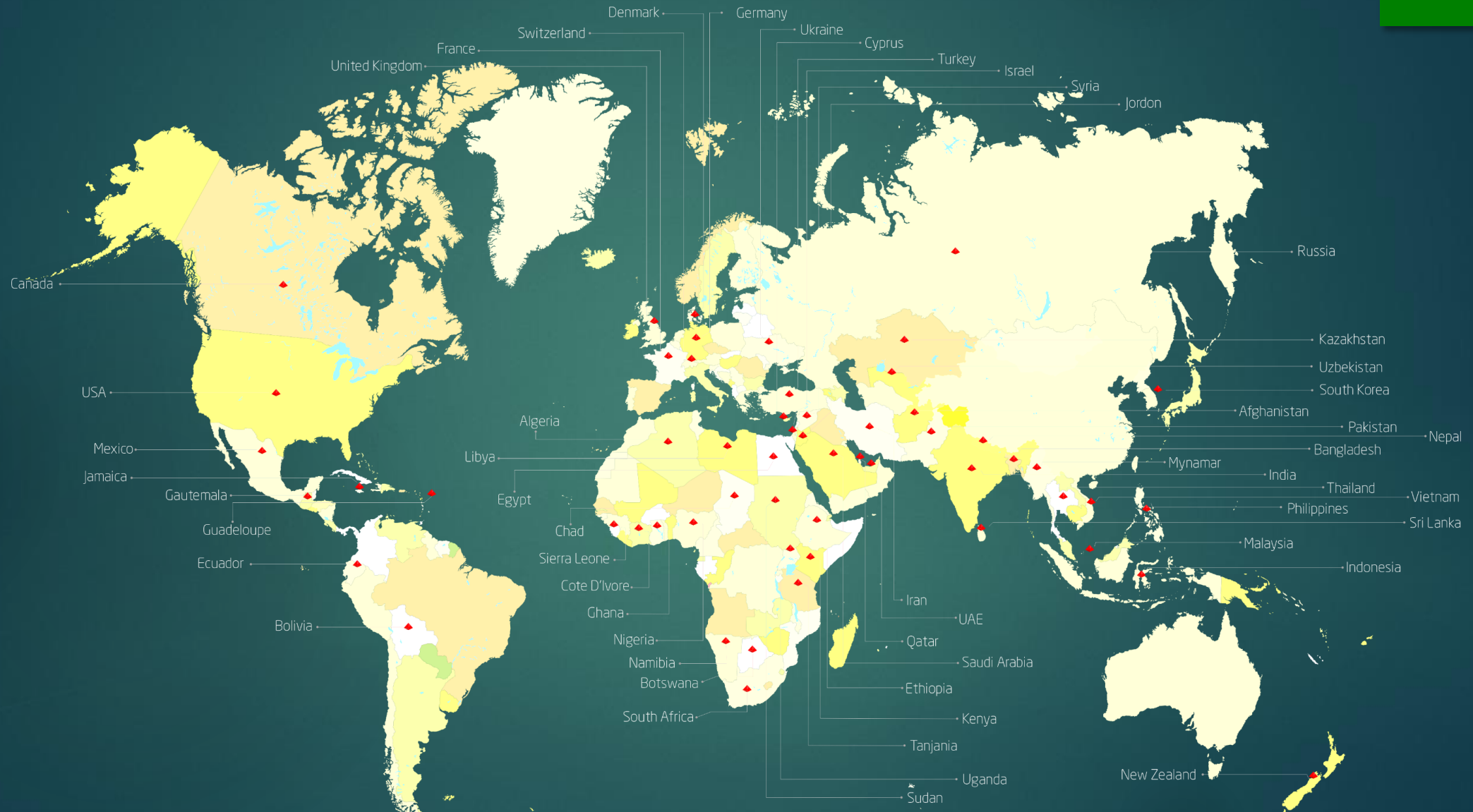
Spray Dryer with Dual Automizers





3D View of Milk Processing with Powder Plant

Our Global Presence





Thank you