ZLDS GURU

CHEMIN ENVIRO SYSTEMS PVT LTD

AN IMS CERTIFIED COMPANY

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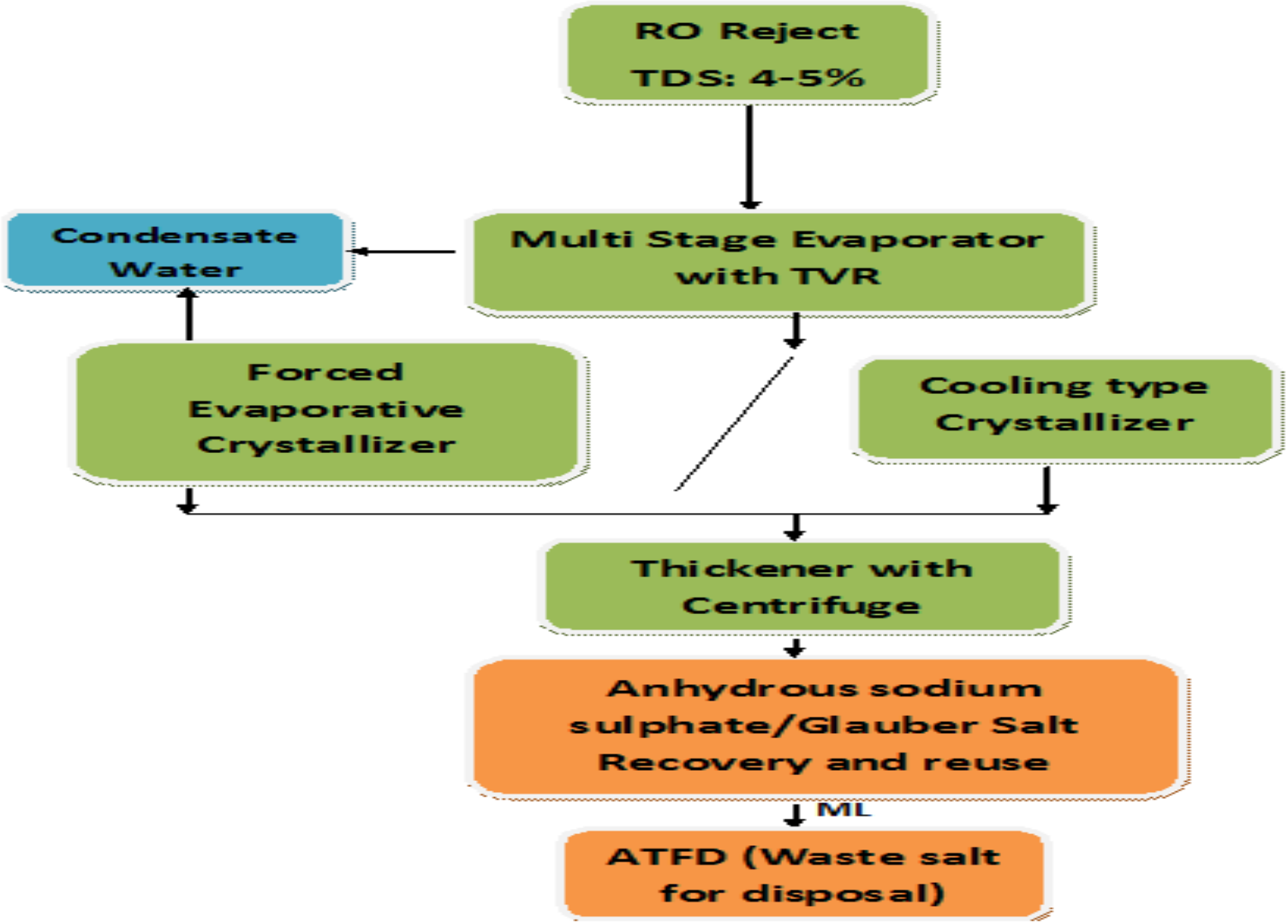
Welcomes You...

Reject Management Systems

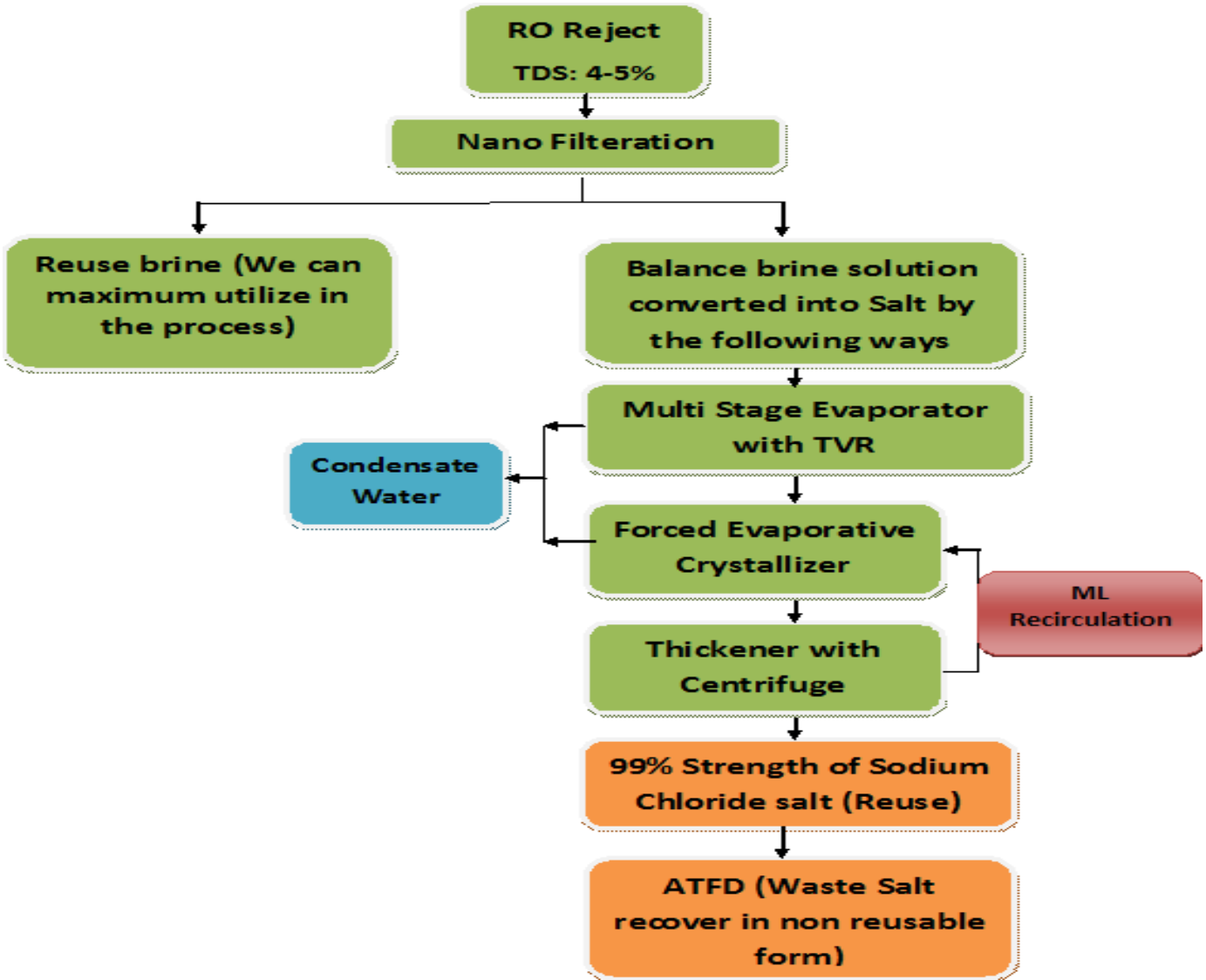
✓ **In Textile Industry, High TDS water from RO Reject or Direct Dye Bath can be processed in the following separation methods:**

- **Sodium Sulphate Concentration, Salt Recovery System and attain ZLD**
- **Sodium Chloride Concentration, Salt Recovery System and attain ZLD**
- **Sodium Sulphate & Sodium Chloride Concentration and Salt Recovery of both Sulphate & Chloride separately**

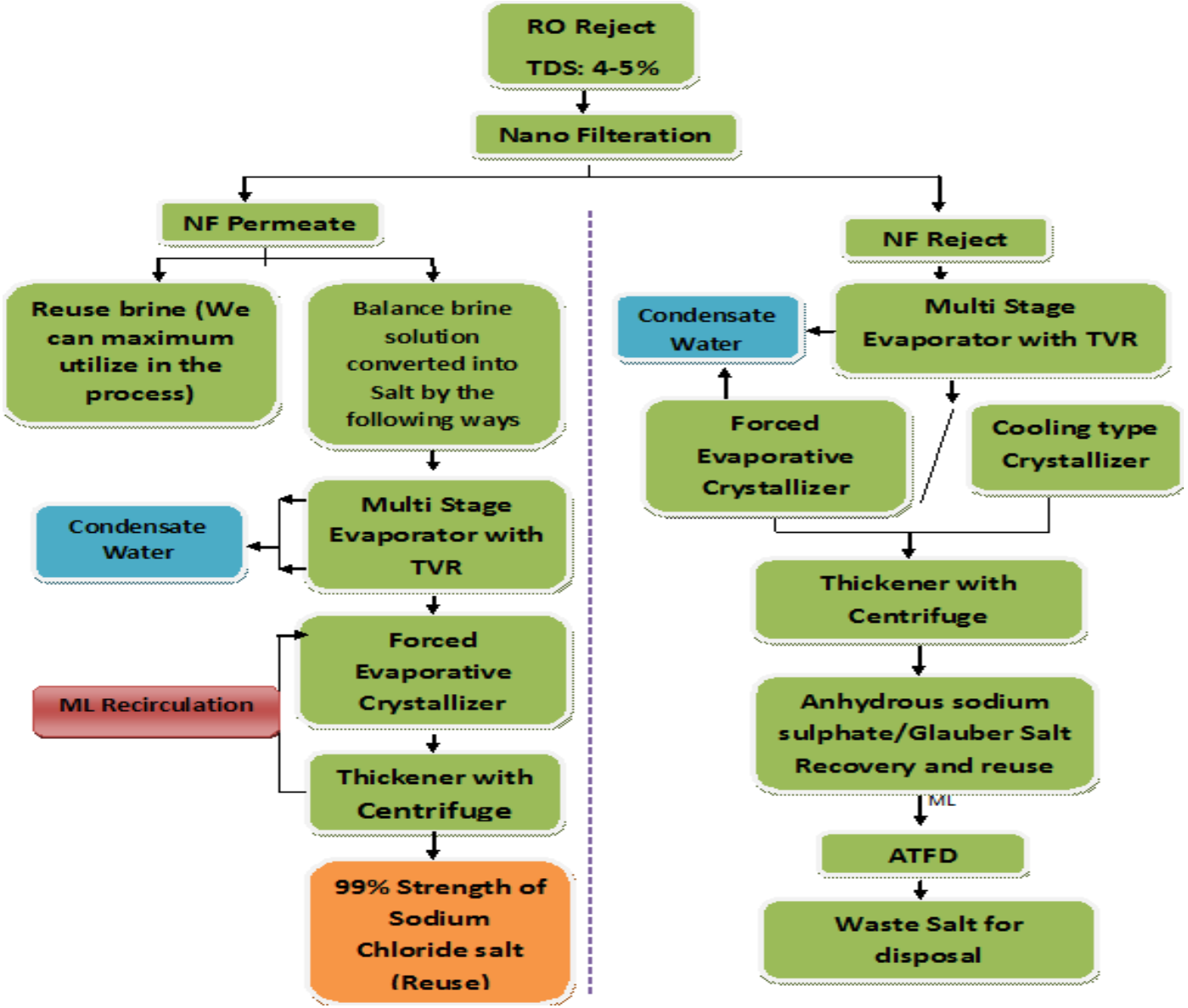
Method 1: Sodium Sulphate Concentration and Salt Recovery System



Method 2: Sodium Chloride Concentration and Salt Recovery System



Method 3: Sodium Sulphate & Sodium Chloride Concentration and both Sulphate & Chloride salts recovery separately



Important factors for Design the Evaporator

- To be analyzed Product Characteristics such as salt nature, Hardness, Silica, Foaming tendency, Organic Load etc.,
- Identifying the suitable Material of Construction
- To be calculated the required effective Vacuum
- To be designed Multiple Stage Evaporators with TVR to reduce steam consumption

Important Operating parameters

- Maintain the designed Vacuum
- To be provide Constant steam pressure at TVR
- To be maintained the Cooling water quantity and temperature as per design
- Should be avoided the recirculation of concentrate into the systems
- Cleaning frequency to be maintain as per regular intervals

Healthy – Operational and monitoring parameters

No of Stages	First Stage		Last Stage	
	Temp in ^{0}c.	Vacuum in mm of Hg	Temp in ^{0}c.	Vacuum in mm of Hg
Single Stage	60-65	500-550	.....	
Double Stage	65-70	450-500	40-45	650-680
Triple Stage	70-75	350-400	45-50	650-680
Four Stage	75-80	300-350	45-50	650-680
Five Stage	85-90	150-200	50-55	600-650

Points to remember in MEE

Feed water pH less than 6	Don’t run the system
Feed water pH adjust using HCL	Don’t use it
Feed water pH adjust using sulphuric acid	Yes it’s advisable
Seal water pump pressure less than 1 bar	Don’t run the system
Cooling water circulation to condenser temp. more than 48℃	It’s not advisable
Vacuum at first stage <100mm of Hg	Don’t run the system
Temp. at first stage >95℃	Don’t run the system

Maintain the designed water level in the system	Yes it's mandatory
If wet steam available at TVR	Yes It's not advisable
Get maximum efficiency, maintain the constant steam pressure at TVR	Yes it's mandatory
Recirculation of mother liquor to feed	Feed flow reduces and Chances of scaling more
Reject outlet gravity Exceed the design limit	Chances of scaling and chocking
If Cooling tower water parameters exceeds TDS >5000 ppm , TH >500ppm	Surface condenser get scaling frequently
During shutdown time flush with condensate water	Yes it's mandatory

During shutdown time maintain the system temp. <45℃	Yes it's mandatory
During shutdown time drain the concentrate solution from the system	Yes it's mandatory
System Cleaning by HCL	Chances of corrosion immediately and might be avoid
System Cleaning by Nitric acid, Sulphamic acid	Yes it's recommended
If PVA or any polimer based parameters present in the feed water	Chances of chocking immediately and might be avoid

Maintenance Schedule

S.No	Maintenance	Frequency
1.	Condensate water circulation for half an hour	Daily
2.	Check Seal water supply Inlet & Outlet valve	Daily
3.	Check the functions of Centrifugal Pumps	Weekly
4.	Check the cooling tower water parameter – Blow down water if necessary	Weekly
5.	Check the Functions of Gauges & Controls	Monthly
6.	Check the cooling tower Spray Nozzles	Monthly
7.	Hydraulic and Vacuum test	Monthly/whenever open the system

Key Features - ATFD

- ✓ Eliminating solar pan
- ✓ Output salt / sludge in baggable form (with 5% Moisture)
- ✓ No restriction in feed parameters (TDS, Hardness, Organic load, etc,.)
- ✓ 100% ZLD achieve, there is no any reject from the system
- ✓ No need of any chemical cleaning
- ✓ Low energy consumption
- ✓ High reliability
- ✓ Easy in operation

Points to remember in ATFD

Feed TDS nearer to be saturation	It's a energy economical
More Sludge in Feed	Chances of chocking in feed line
Lubrication needed in wear and tear parts	This is to be follow at regular intervals
Don't heat the system without feed water	Yes it's mandatory
Scrapping surface should be clean at frequent intervals	It will maintain the constant feed flow rate

THANK YOU