Heavy Oil Desalting
“Performance Issues”

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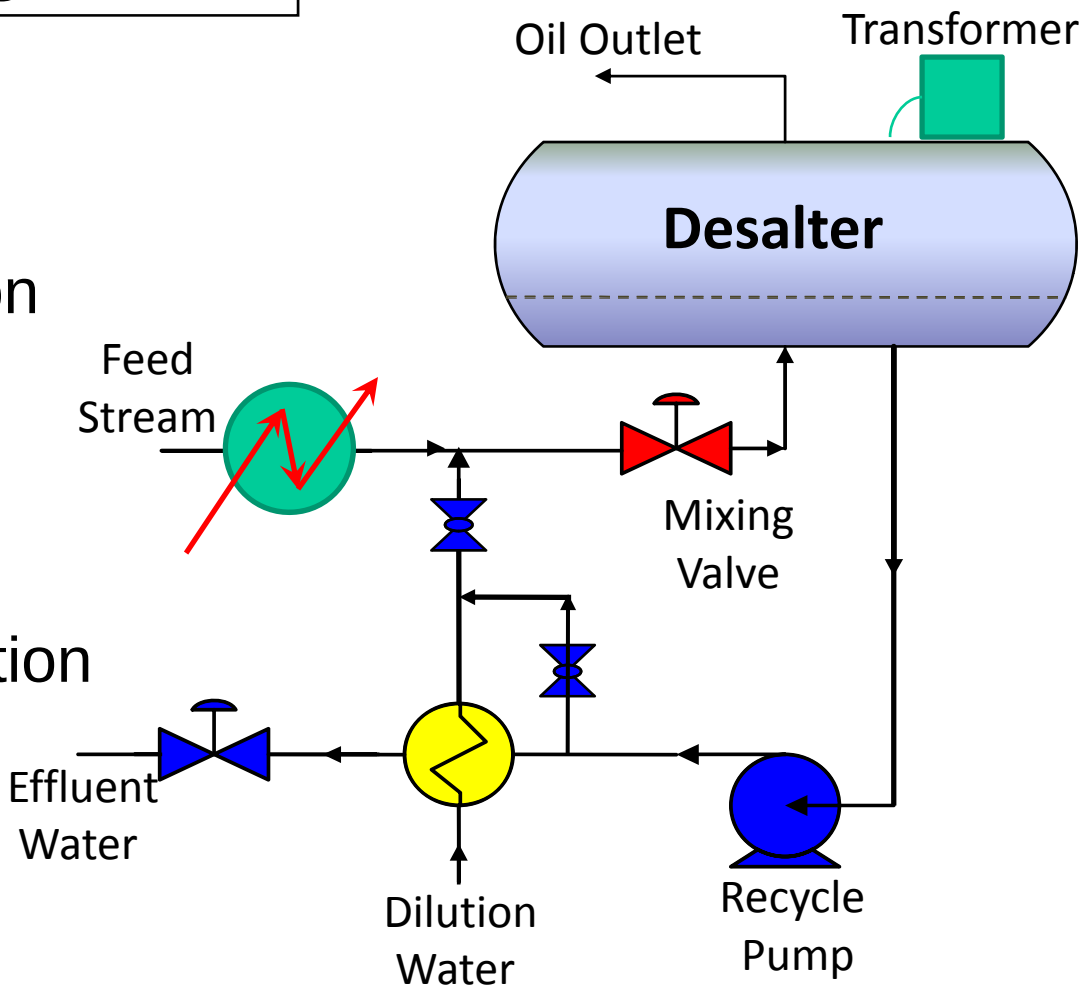
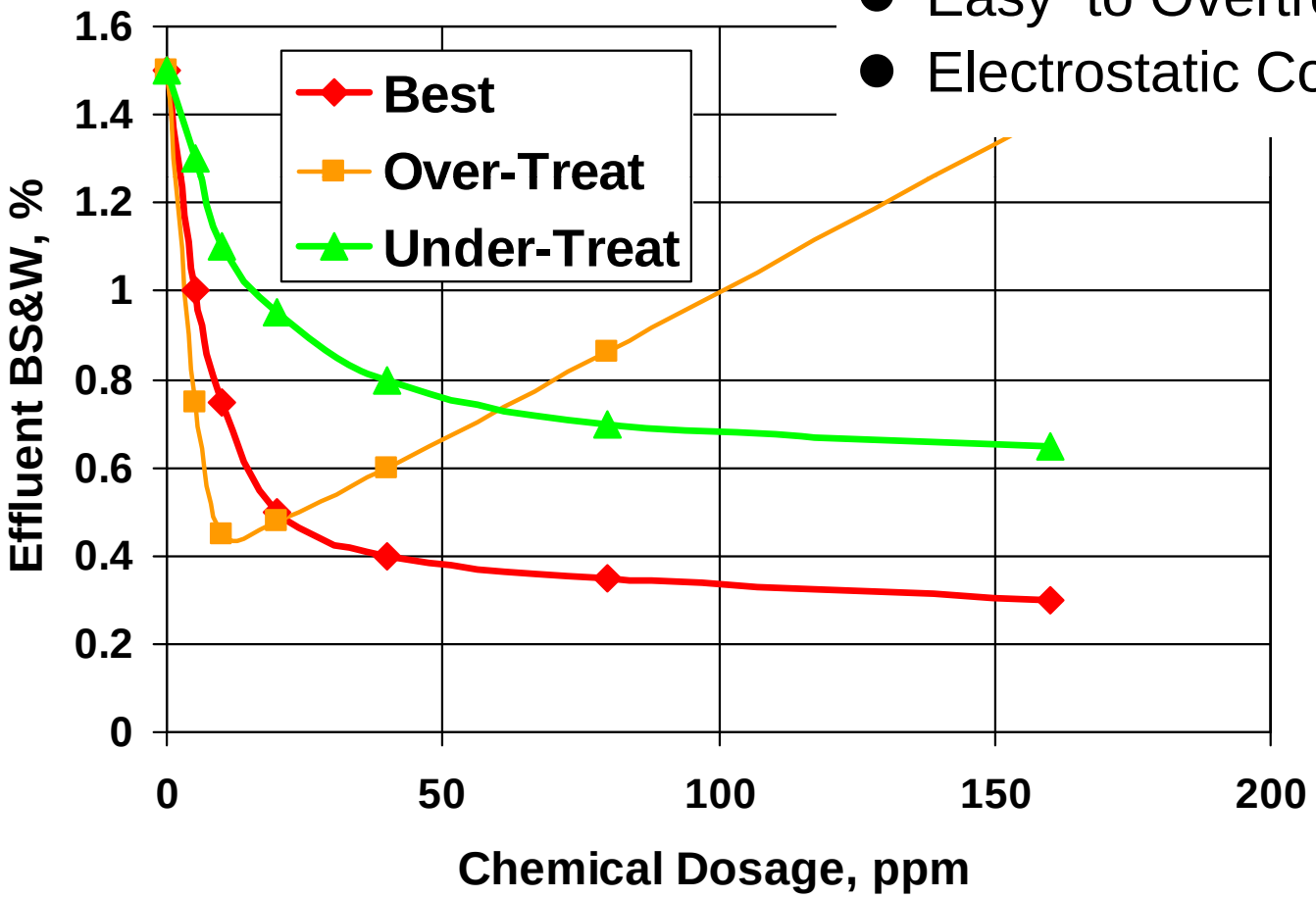
Desalting Steps
Desalter Flow Diagram

- Demulsifier Injection
- Process Heating
- Dilution Water Injection
- Mixing
- Interface Control
- Mud Wash
- Electrostatic Dehydration
- Effluent Water

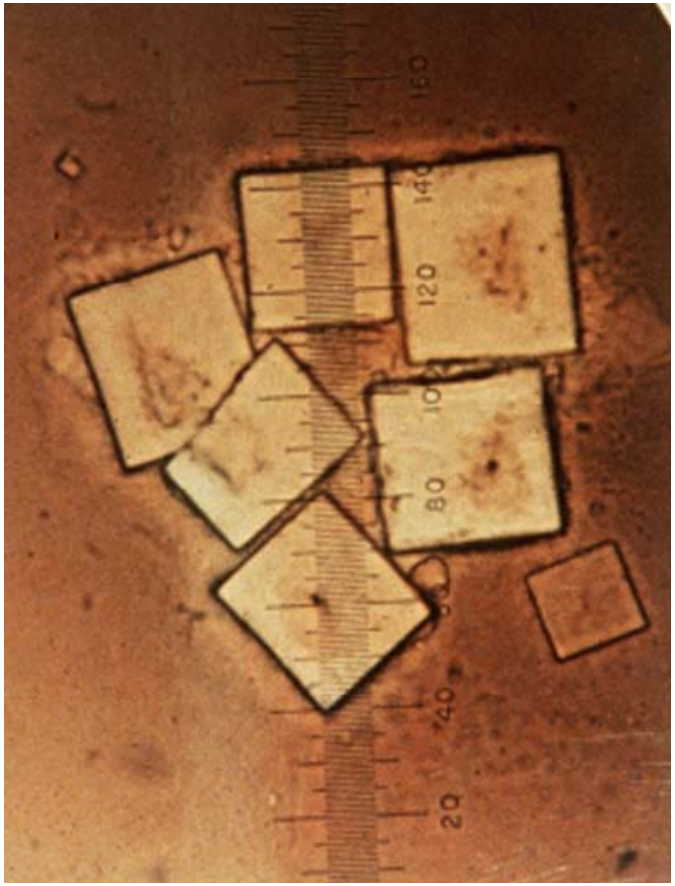


Demulsifiers

- Higher Field Dosages
- Increased Refinery dosage
- Reverse Emulsion Breakers
- Easy to Overtreat
- Electrostatic Compatibility



Process Heating



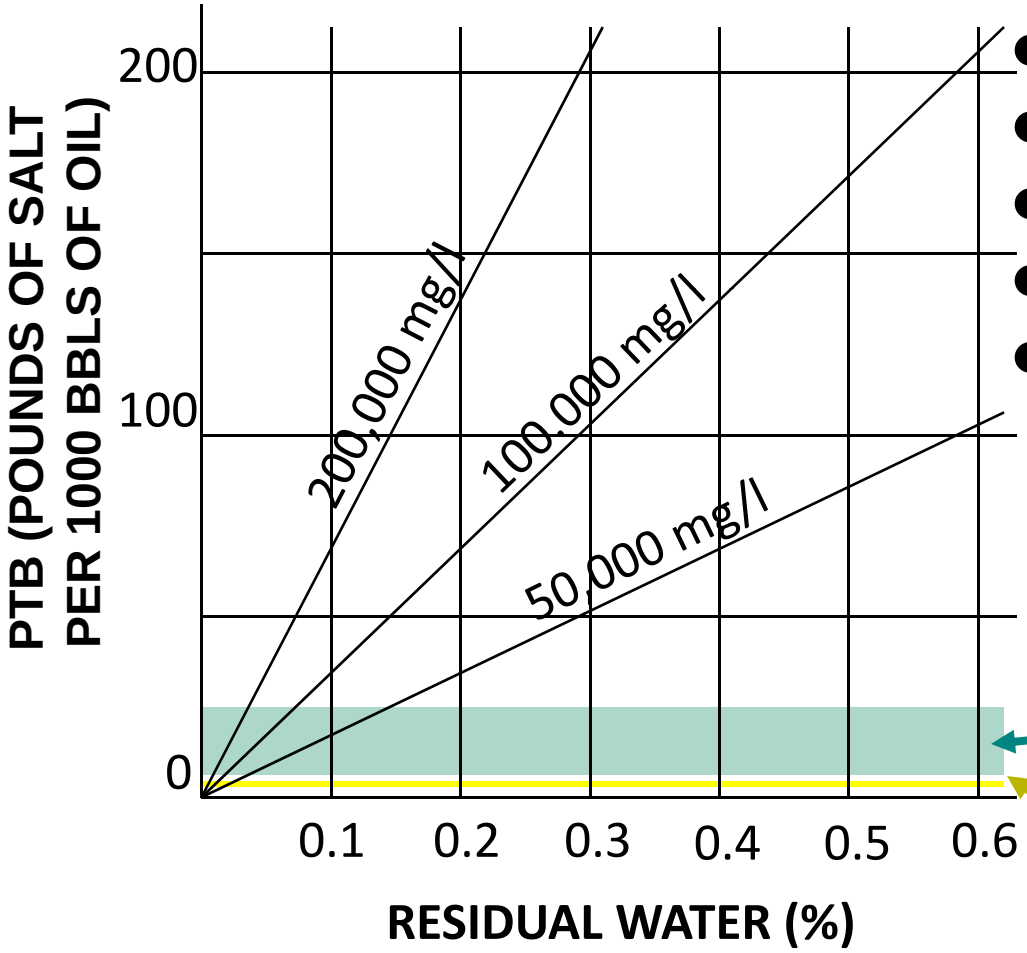
- Reduced heat transfer
- Increased temperature required
- More heat demand
- Higher exchanger fouling
- Potential for crystalline salts

Dilution Water

- Increased water demand
- More heat demand
- Recycle water can be used

Mix Technology	Electrostatic Technology	BS&W %	NaCl ptb
3 Static + Valve	Deep-field AC	0.6	2.2
3 Static + Valve	Dual Polarity	0.4	1.3
3 Static + Valve	Dual Frequency	0.15	0.5
Dynamic	Dual Frequency	0.3	1

Mixing



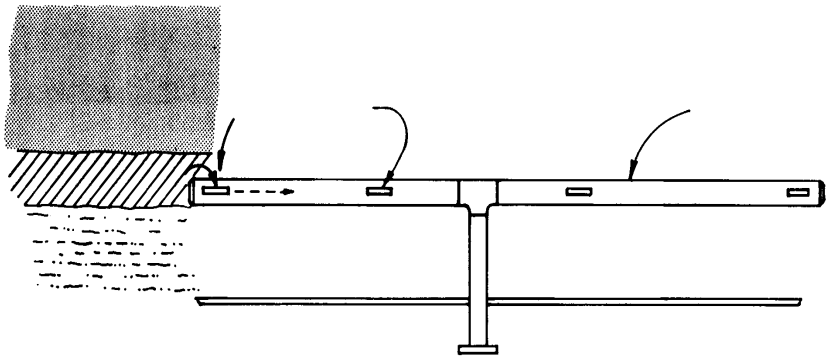
- Reduced mixing intensity
- Increased pressure drop
- Creates tighter emulsions
- Produces more interface rag
- Compromises electrostatic dehydration

TYPICAL FIELD REQUIREMENTS

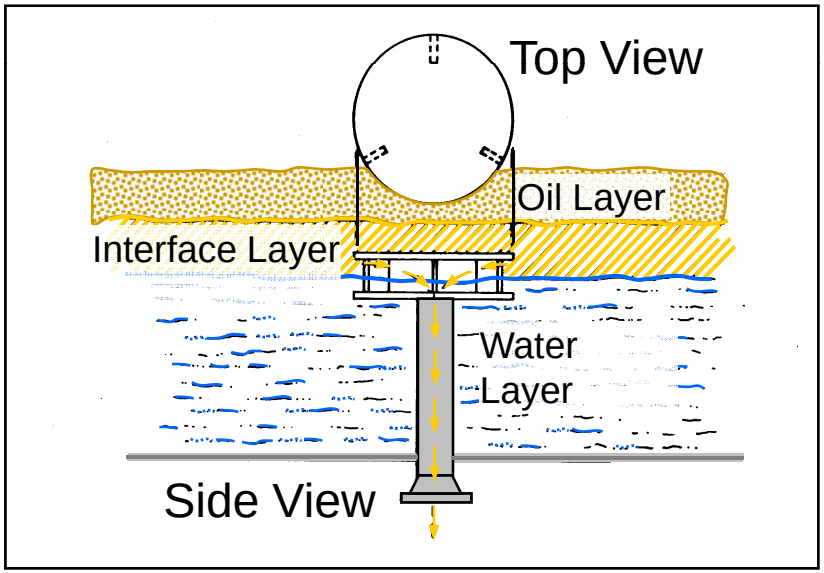
TYPICAL REFINERY REQUIREMENTS

Interface Control

- Interface formation up to 15% of charge
- Heavy solids loading
- Potential asphaltene
- Interface drains essential



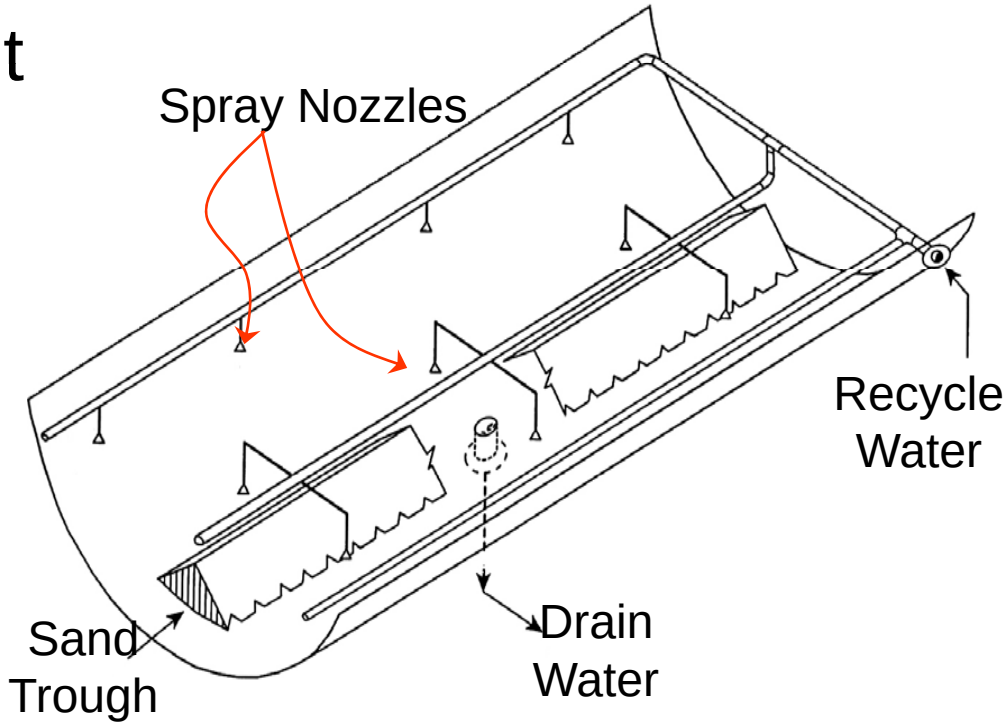
Pipe Header



Tool Stool Drain

Mud Washing

- Continuous preferred over intermittent
- Heavier loading to water plant
- Higher organic cont

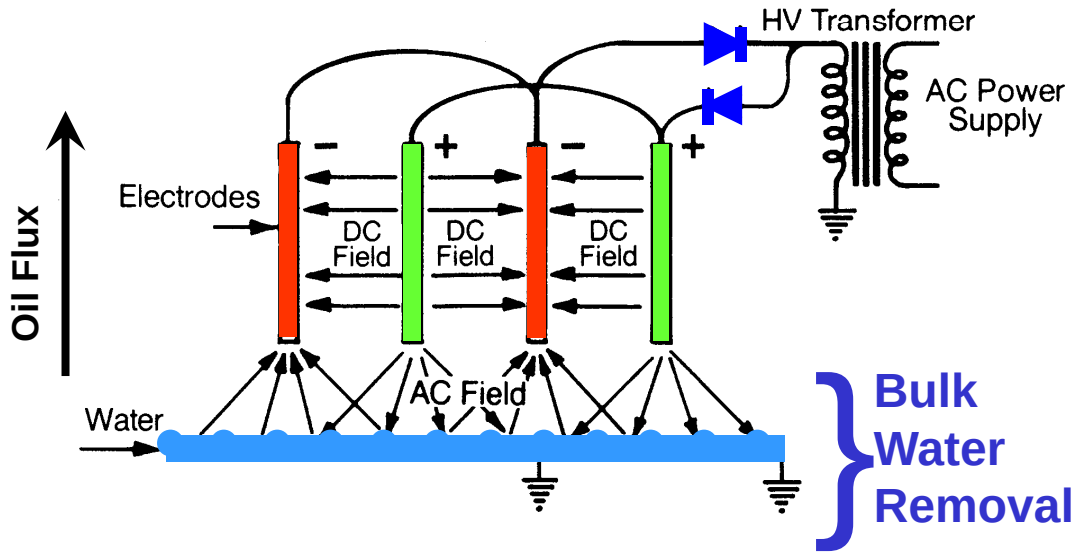


Electrostatic Dehydration

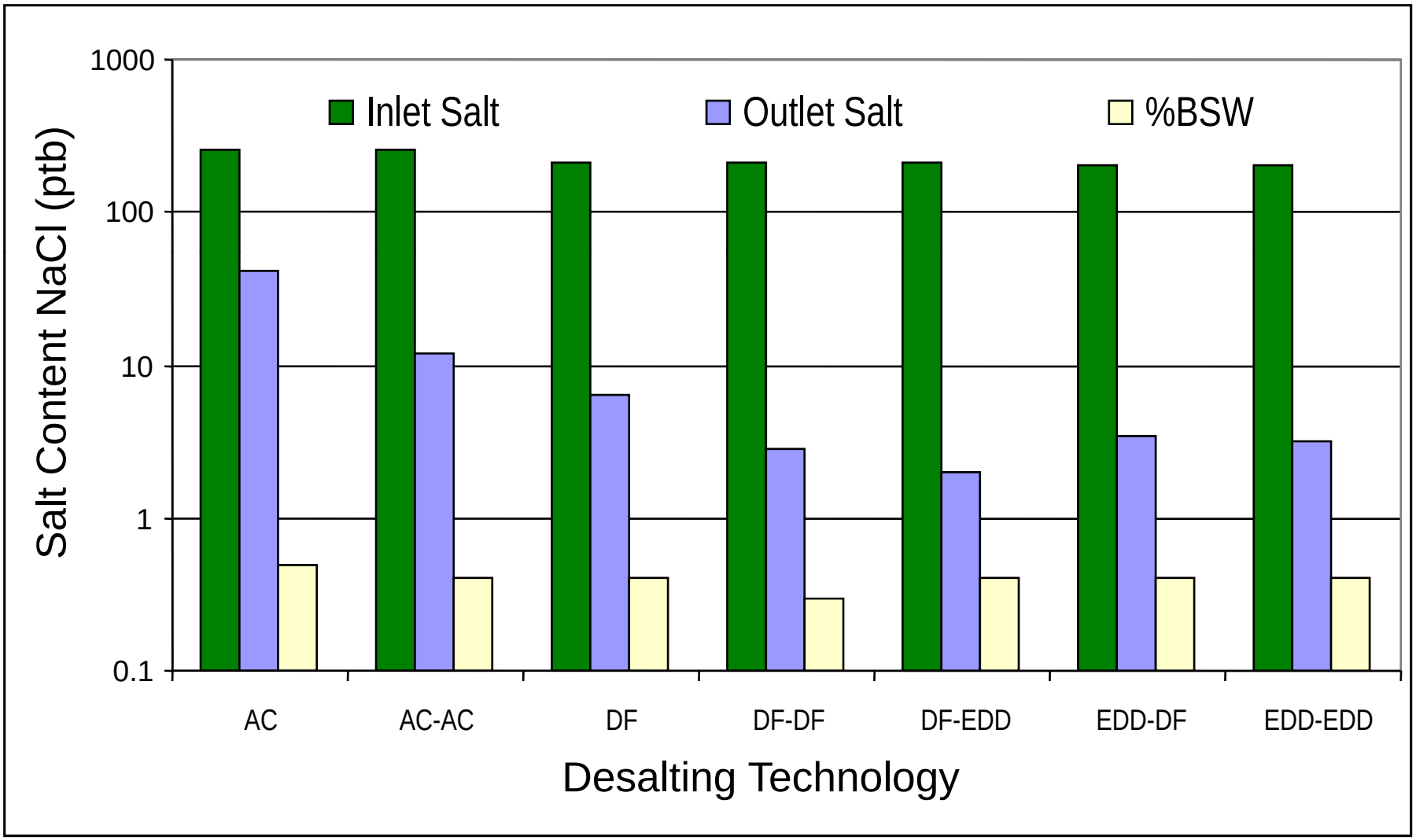
- Desalter capacity is reduced
- Slower water coalescence
- Hindered by filterable solids
- Needs viscosity between 5 and 10 cp.
- Lower density differential
- Slower water separation

AC/DC Electrostatic Field

- Dual Polarity®
- Modulated Dual Polarity ®
- Electro-Dynamic Desalter ®
- Dual Frequency ®



Desalting Technology



Effluent Water

- Heavy solids loading
- Heavy oil loading
- Slower rates in a Biotreating facility