



# ProSep

Product FAQ – Oil Technologies

### **What are the inlet BS&W content (inlet cut) ranges for the different process units typically found in a crude production train?**

Separators / Free Water Knockouts (FWKO): The range can vary from the high 90's to around 40%.

Thermal (mechanical or electrostatic) Treaters: These units can process up to 40% inlet cut. The heating section will reduce the water cut to manageable levels before the process enters the coalescing section of the unit.

Dehydrators / Desalters: 25% maximum due to possible short circuiting of the electrostatic system.

### **What is the difference between a dehydrator and a desalter?**

A desalter is a dehydrator except that water with a lower salt concentration than the produced water in the process stream is added directly upstream of its inlet to aid in the desalting process.

### **What are the typical gas, oil and water qualities that our process units can meet?**

Gas: 0.1 gal. / MMSCF based on  $\leq 10$  Micron liquid particles

Oil:

- Separators: Not defined per API 14J
- FWKO's: The amount of water content is dependent on the API gravity (high 30% to 5% or less). Only emulsified water is left in the process stream.
- Thermal Treaters, Dehydrators and Desalters: 1.0 to 0.1%

Effluent Water:

- Separators: Not defined per API 14J
- FWKO's: 2,000 to 1,000 ppm
- Thermal Treaters, Dehydrators and Desalters: 1,000 to 500 ppm

### **When is it better to use process units with an internal heat source (firtubes) versus an external heat source (fired heaters) with a separate process units?**

It is better to use an internal heat source when the heating section can match the coalescing section of a unit. In other words, when the required heat load does not enlarge the unit drastically or the when the units in a process train can be utilized to meet the total heat load. Otherwise, an external heat source is a better choice.

### **In heavy crude applications which parameter governs the equipment sizing; viscosity or density?**

Density drives equipment sizing more so than viscosity. The difference in densities between the liquids is the driving force for separation while the viscosity predicts the performance of the unit.

### **How are solids managed in our systems?**

Solids are managed through a system developed over 50 years of experience on heavy viscous

### **How does ProSep's horizontal flow with vertical electrostatic grids differ from upflow designs?**



The upflow design has a flow spreader located in the bottom of the vessel and distributes the process across the cross section of the vessel into horizontal grids before the process is collected in a collector header located in the top of the vessel. The vessel is required to be fluid packed (no gas phase) for this design. ProSep's horizontal flow is similar to separators in that the process flows longitudinally along the vessel. Multiple grids with distributor plates create plug flow through the electrostatic fields. Due to the horizontal flow mechanical coalescers can be added in combination with the electrostatic grids to meet varying process needs. This design allows the vessel to operate either fluid packed or gas packed.

#### **What is the typical turndown ration for our process units?**

We can offer two flow patterns to the client. End to End design which is the conventional design were an inlet is at one end and the outlets are at the other end of the vessel. This design provides a 4 to 1 turndown ratio. Double Ended design has two inlets, one at each end with the outlets located at the center of the vessel. This design provides an 8 to 1 turndown ratio

#### **How much pressure drop can be expected across our process units?**

The typical pressure drop across our vessels is around 1 psi.

#### **Does our equipment require chemicals in order to achieve the required performance?**

Yes, all the designs stated in item 1 above require some chemicals in order to meet the required outlet specifications.

#### **What is met by mixing efficiency in desalting systems?**

The mixing efficiency relates to how much water is added of lower salt content (dilution water) to the process stream containing produced water to reduce the overall salt concentration of the blended water in the process stream. ProSep's ProSalt Mixer due to its high efficiency requires less water to meet a particular concentration than standard static mixer or combination of static mixer and globe valve. The ProSalt Mixer produces a homogeneous mixing which translates into greater contact between the dilution water and produced water. Please see our ProSalt Mixer brochure for details.

