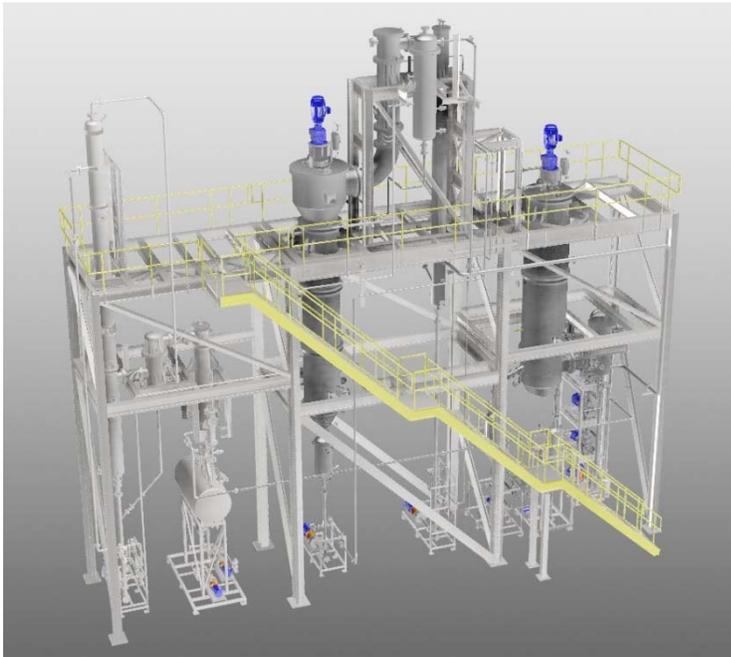


Evaporator Distillation Process



Intergulf's brand new state of the art evaporator system, located in LaPorte, Texas, is a 28,000 gallon per day process used to separate components from a broad range of feed streams based on boiling point difference. The three stage distillation process uses thermal fluid to heat feed streams at varying temperatures and under varying levels of vacuum to extract up to five product streams.

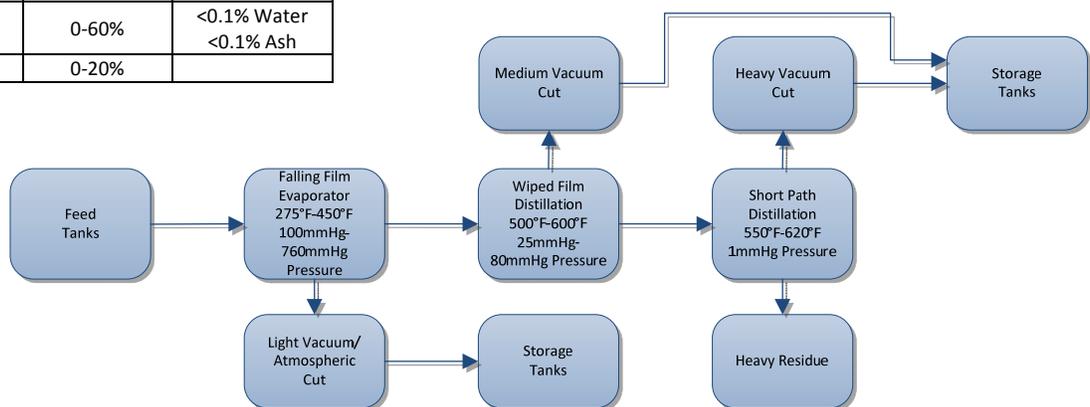
Prospective feed materials can be brought into the plant by truck and rail, and are sampled and tested using ASTM method D1160 prior to being accepted as a potential feed for the process. Sample results and customer input is used to determine process conditions, and to predict process yields

Process feed is first rough filtered prior to being sent to a pre-heater. The pre-heated feed is then sent to a single stage low vacuum Falling Film Evaporator (FFE). Water and low boiling components are heated,

evaporated overhead, and condensed. The condensate is sent to a separator tank where the mixture phase separates if water is present, and the products are sent to individual storage tanks. The remaining feed material is then pumped to a Wiped Film Evaporator (WFE) which is the second stage of the process. With the combination of higher temperature and vacuum, the WFE flashes lighter material overhead, and where it is condensed using cooling tower water. The condensed product is sent to storage tanks. Residual material from the bottom of the WFE is then pumped to the top of the next stage in the distillation process, the Short Path Distillation (SPD). This is the third and final stage of the process utilizing deep vacuum and high temperature. Light materials are flashed off and condensed overhead leaving a heavy residue draining from the bottom of the SPD. Overhead product and bottom residues are sent to their respective storage tanks.

Component	Feed Percentage	Finished Product Spec.
Water	0 -10%	
Light Vacuum/ Atmospheric Cut	0-10%	<0.1% Water
Medium Vacuum Cut	0-60%	<0.1% Water <0.1% Ash
Heavy Vacuum Cut	0-60%	<0.1% Water <0.1% Ash
Heavy Residue	0-20%	

This unique process has many distillation applications for products that require multiple cuts, high temperatures, and deep vacuum. The multiple stage distillation has the capability to handle some degree of water and solids unlike conventional distillation columns. For more information, contact an Intergulf sales representative at (281) 474-4210.



Intergulf Evaporator Distillation Process