



Pressure Reduction of D-1201 to Reduce Steam 17 Consumption

Bis-Phenol A (BPA) Plant



Technical group of BPA plant

Best Practice Sharing : Pressure Reduction of D-1201 to Reduce Steam 17 Consumption



Thitiwat C.
Leader

1. Creating the concept of Saving
2. Advising and Supporting
3. Coordinating with other departments



Peeradech T.
Asst. Leader



Tosak K.
Member

1. Collecting technical data
2. Preparing the presentation
3. Preparing plan of meeting
4. Analyzing data and cooperating with the people concerned



Jaturapat P.
Member



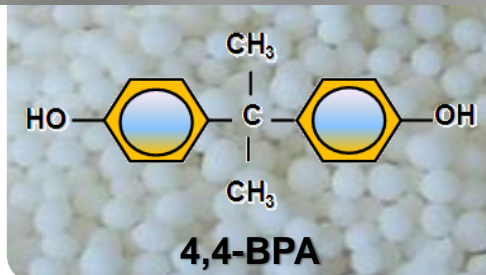
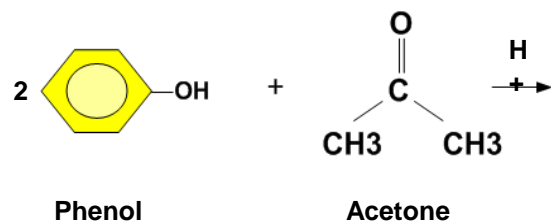
Danai L.
Member



Plant Overview



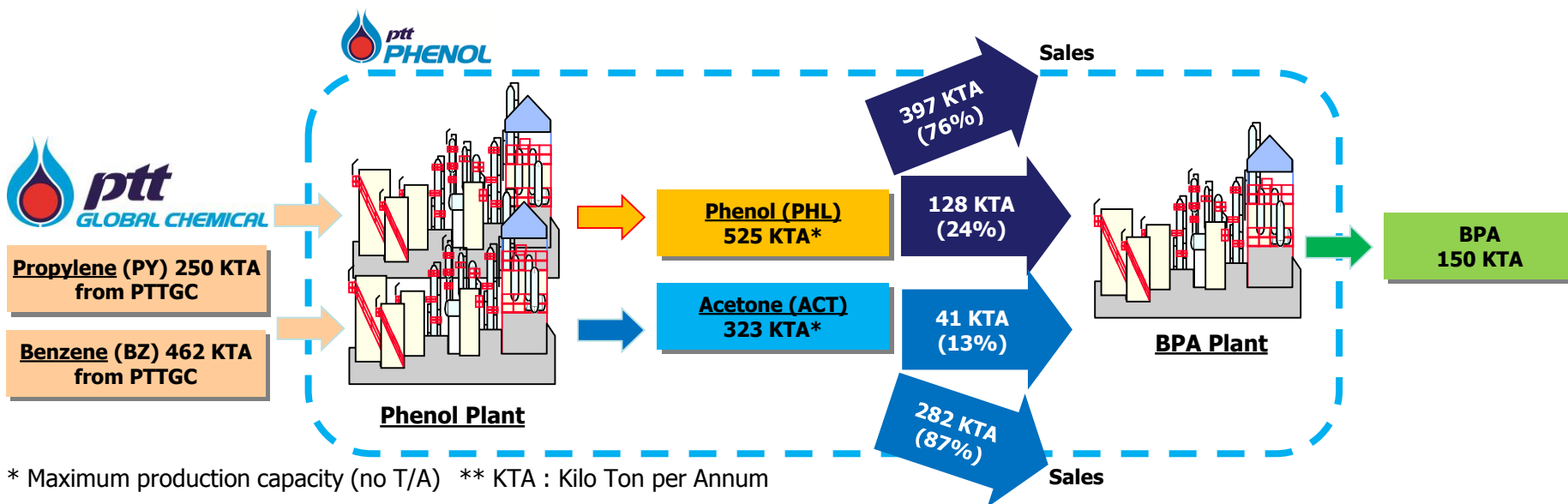
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+ H₂O
Water



	PH I	PH II	BPA
Licensors	UOP	UOP	Mitsubishi Chemical Corp. (MCC)
EPC Contractor	CTCI	POSCO	Toyo Thai Corp.
Commercial Operation	Mar 17, 2009	Jul 1, 2016	Apr 16, 2011

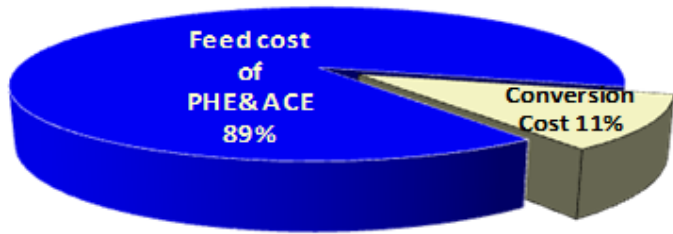


Cost structure of BPA Plant

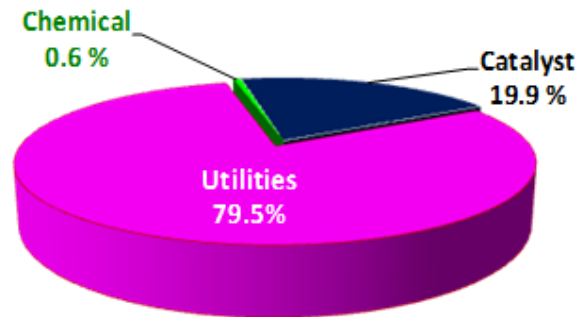
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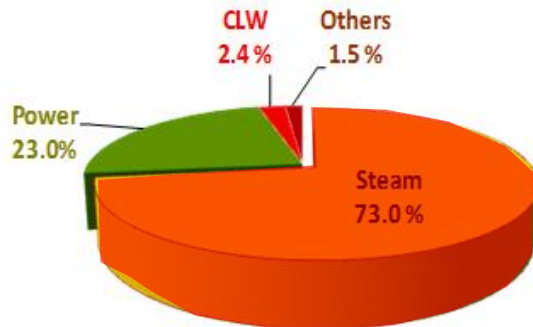
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BPA Production Cost



Conversion Cost



Utilities Cost

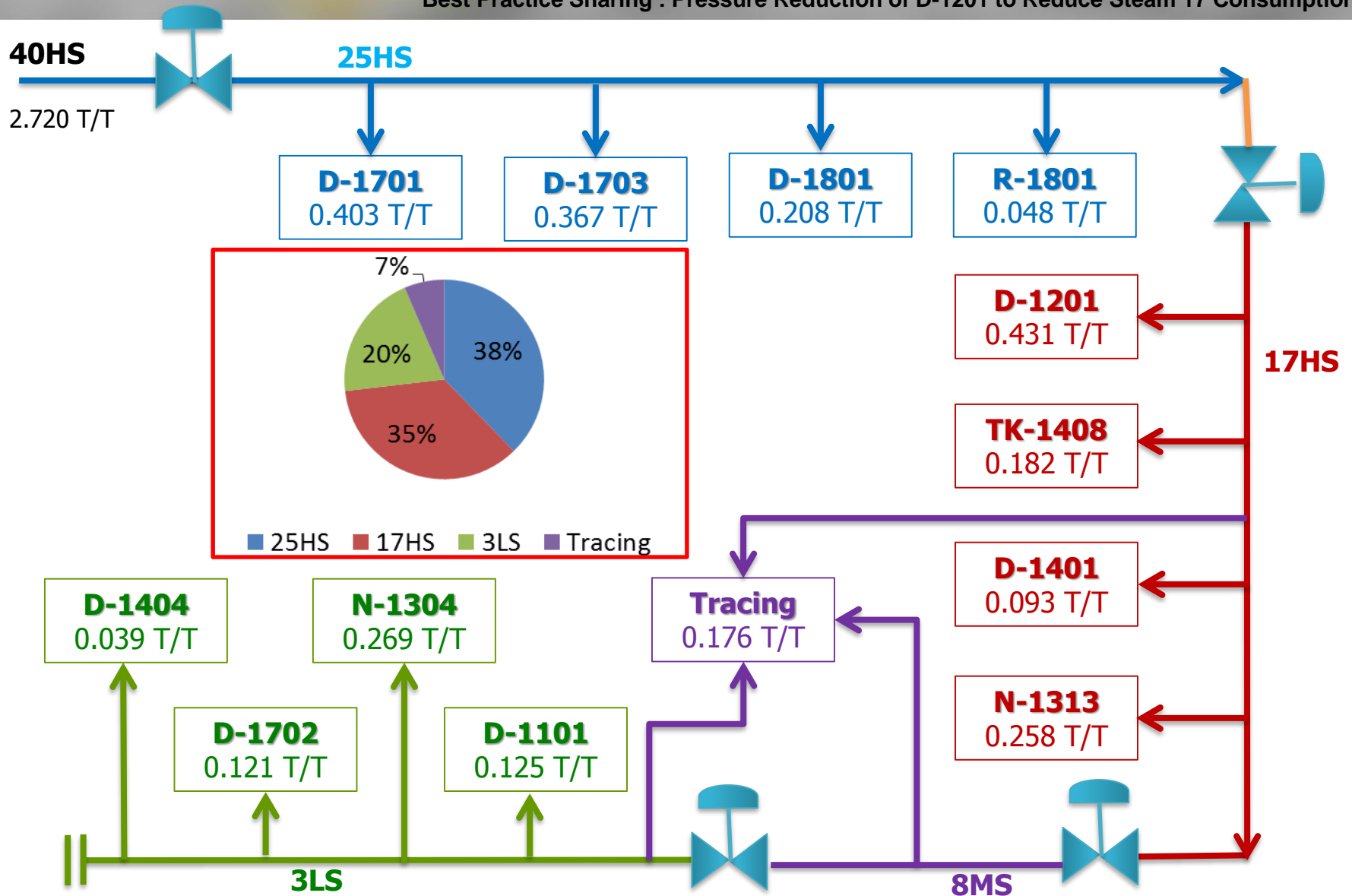


Steam mapping of BPA plant

5

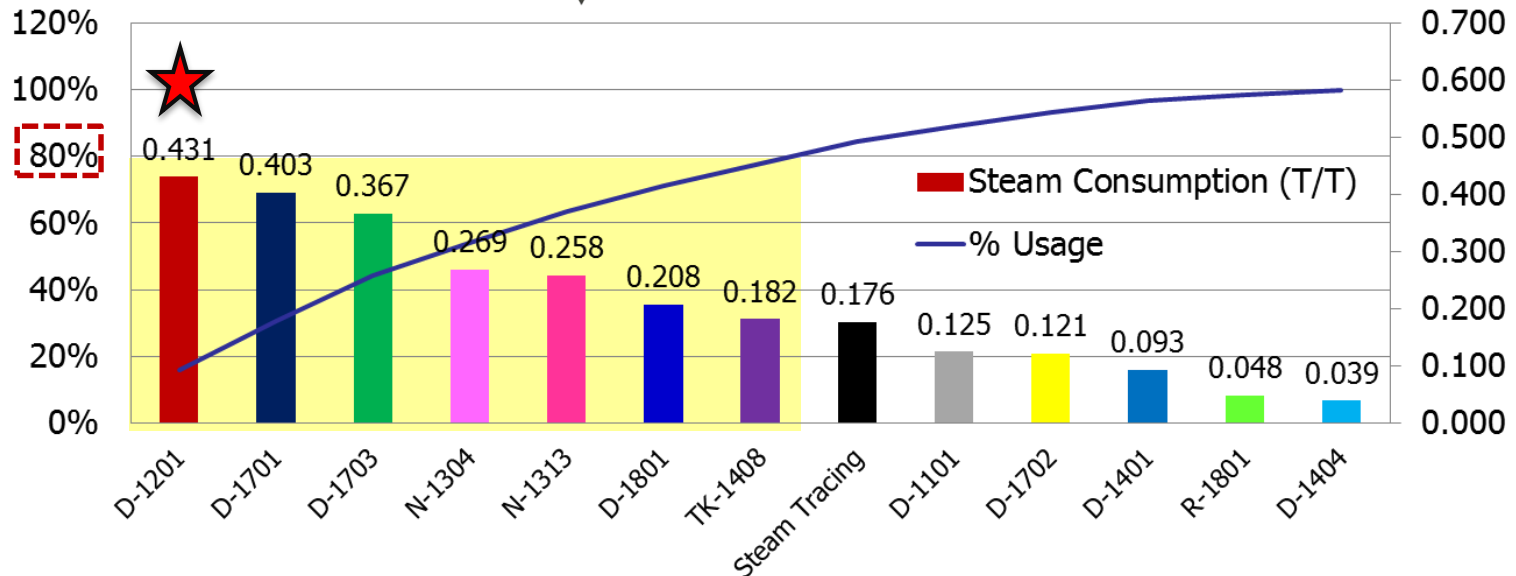
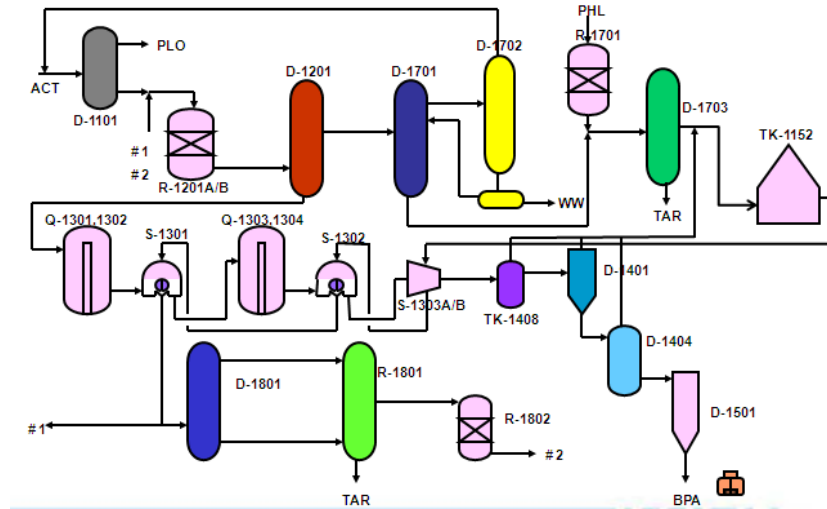


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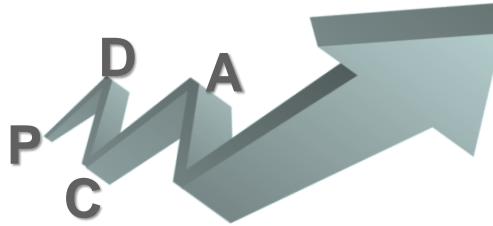
Steam consumption
each users
Year 2014



"The propose of Pareto Chart is to highlight the most important things"



"If you put a good person in a bad system, the system will win out most of the time"



Target !

Steam Reduction

5.5 %

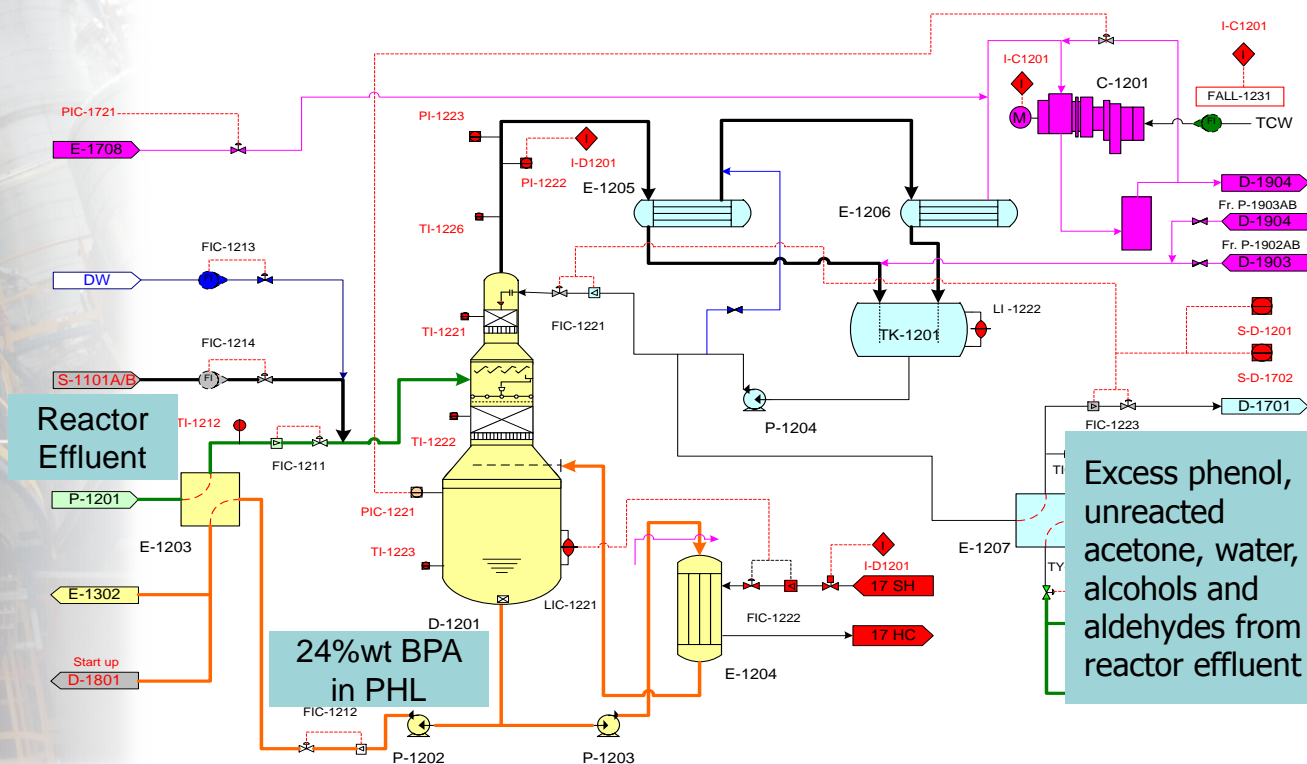
To reduce steam consumption via pressure reduction of D-1201

Type: Packed distillation column

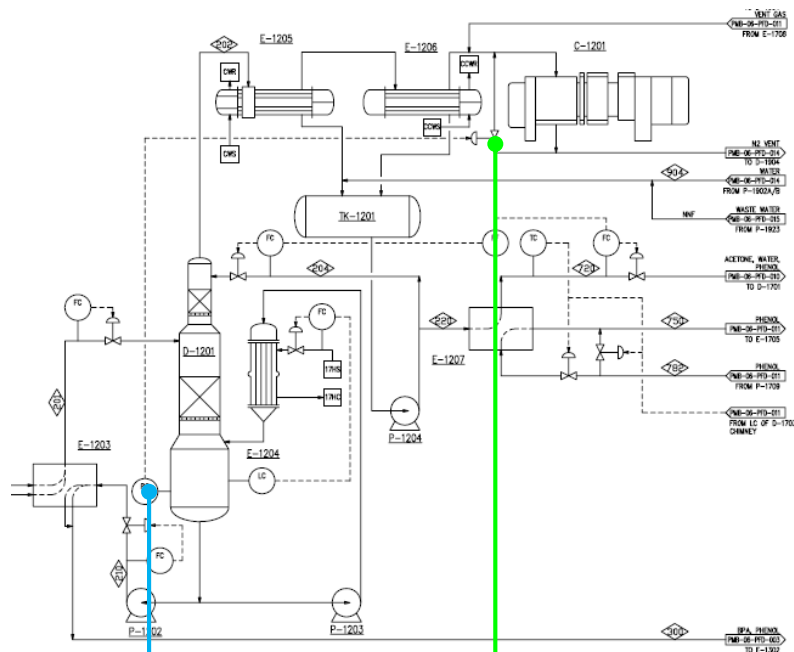
Operating Pressure: 19.7 kPaA

Operating Temp (Top/Btt): 111/137 °C

Load: Feed 160 ton/hr, Top 17 ton/hr, Btt 143 ton/hr



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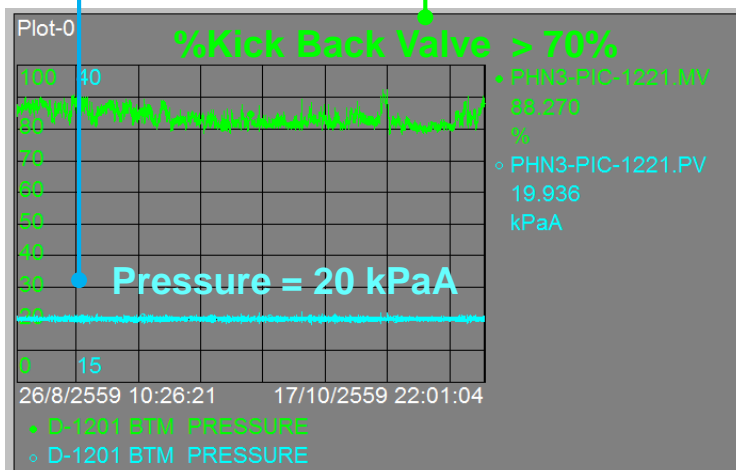
Dehydrator Column (D-1201) is currently operated at 19-20 kPaA as design value and the kick back valve is opened about 70-80%. From this percentage of the kick back valve, there are available room for decrease kick back valve for decrease pressure of the column to reduce steam consumption. Therefore, the optimum operating pressure will be determined.

Available room of kick back valve

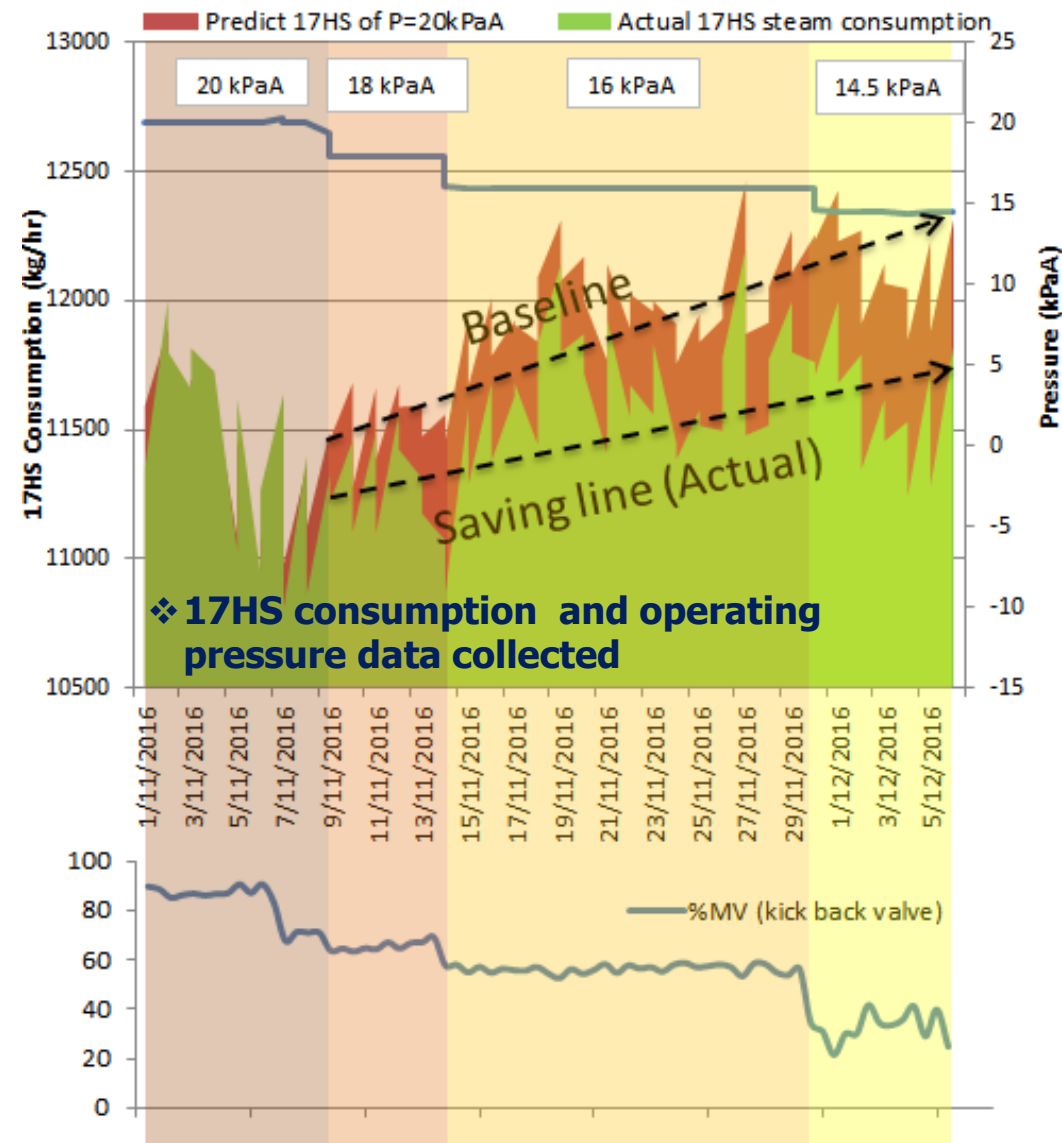
Availability for pressure (P) reduction

Lower operating P ->
Lower boiling point (T_b)

Reduce steam consumption



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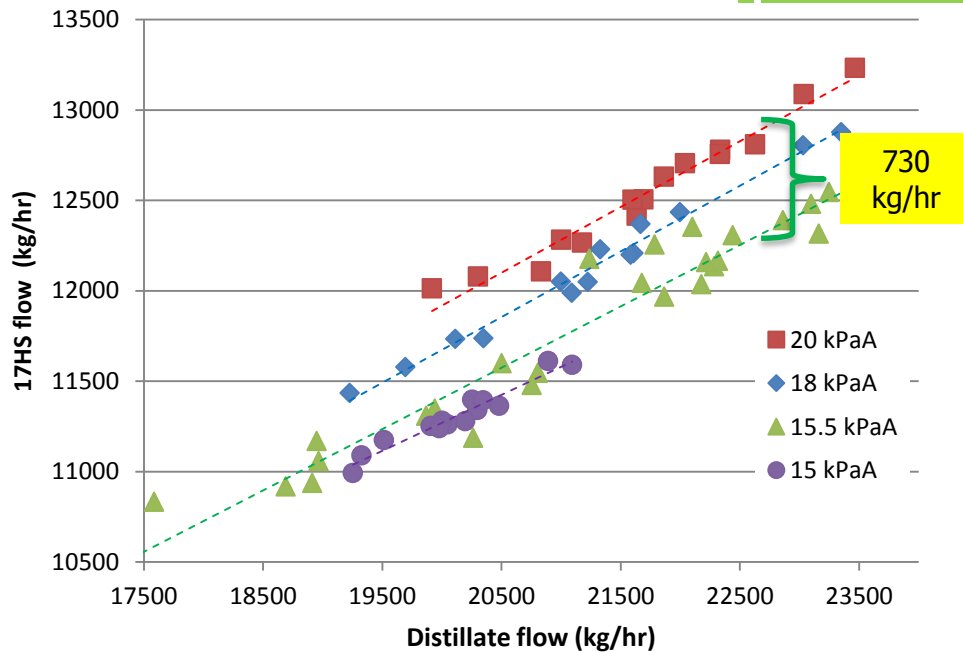
❖ **Table : Actual Temp. profile** for operating guideline at each operating pressure

Temp. Profile of D-1201		Monitor Range	Pressure of PIC-1221 (kPaA)			
			20	18	16	14.5
Top	TI-1226	+3 C	114.4	111.9	109.8	107.2
Upper	TI-1221	+3C	117.7	115.6	113.8	111.5
Mid	TI-1222	+1.5 C	133.9	131.0	127.8	125.1
Btt	TI-1223	+1.5 C	135.0	132.0	128.9	126.3

**The minimum reduced =
16-15 kPaA**

For P<15 kPaA, %Kick back valve trend lower than 30%MV and fluctuate to zero for high load.

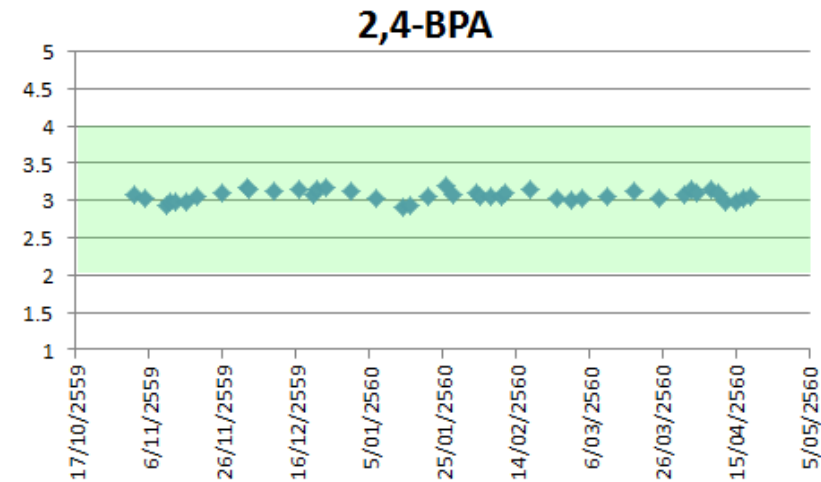
Saving



❖ 17HS consumption of each operating pressure with distillate flow

At P 15.5 kPaA
Cost saving ≈ 6 MB/yr
(5-6% reduction)

Quality



❖ 2,4-BPA content of bottom product

Controlled range of 2,4-BPA at btt product of D-1201 : 2 – 4 %wt

THANK YOU

LET'S START QUESTION AND ANSWER

