#1. Recommendation: Capacity Improvement and Pressure Drop Reduction in Caustic Scrubber

Process Data

- **Vapour Side:** Flue gas flow: 5,960 kg/hr | Temp: 70 °C | Pressure: 1.032 bar | Density: 1.192 kg/m³ | Viscosity: 0.018 cP
- **Liquid Side:** Caustic rate: 10,000 kg/hr | Concentration: 15% w/w | Density: 1,168 kg/m³ | Viscosity: 2.8 cP | Surface tension: 55 dyne/cm

Column Details

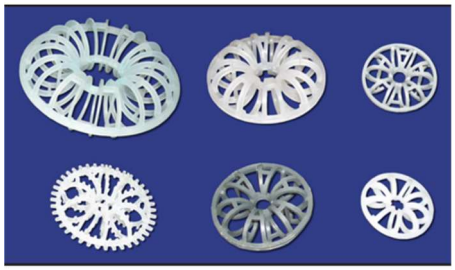
- Diameter: 800 mm | Packing height: 8,000 mm | Beds: 2 | MOC: PP + FRP
- **Initial Packing:** PP Pall Ring, 2.0”
- **Proposed Packing:** PP Tellerette, 2.0”

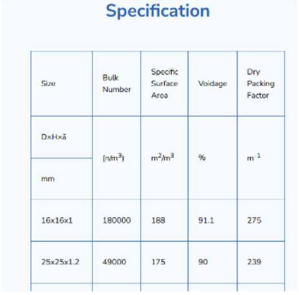
Current Hydraulics

- Operating at ~65% flooding capacity
- Pressure drop: 350 mmWC
- Specific liquid load: 1.70 $m^3/m^2 \cdot hr$ | F-Factor: 3.05 $Pa^{0.5}$

Observations

The column is limited by fixed dimensions and downstream equipment capacity, preventing an in vapour load.

PALL RING	TELLERETTE
	



Specification

Size	Bulk Number	Specific Surface Area	Voidage	Dry Packing Factor
D×H×δ mm	(n/m³)	m²/m³	%	m⁻¹
16×16×1	180000	188	91.1	275
25×25×1.2	49000	175	90	239

Physical & Chemical Properties						
Performance/Material	PE	PP	RPP	PVC	CPVC	PVDF
Density (g/cm3)	0.94-0.96	0.89-0.91	0.93-0.94	1.32-1.44	1.50-1.54	1.75-1.78
Working Temperature	≤90° C	≤100° C	≤120° C	≤60° C	≤90° C	≤150° C
Chemical Corrosion Resistance	Good	Good	Good	Good	Good	Good
Crush Strength (N/mm)	>6.0	>6.5	>7.0	>6.0	>8.0	>10.0