



BINA EPC Contractor Co.
(Executor of Oil, Gas, Petrochemical & Power Industries)

Toase-ehe Park Sanati Gohar Ofogh Petrochemical Co.

**CONCEPTUAL, BASIC and DETAIL DESIGN
ENGINEERING OF STYRENE PARK OFFSITE**

ENBR
TEKNOLOJI



Document Title: Equipment Data Sheet-Active Carbon Filter

Document No. : EI0127-HRC-VD-ME-DSH-001-R0

Rev.: R0

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STYRENE PARK OFFSITE

Document Title:

Equipment Data Sheet-Active Carbon Filter

R0	20/02/2024	Issued for Comment	M.Tavakoli	E.Malek	H.Keshmiri
Rev.	Issued Date	DESCRIPTION	PREPARED	CHECKED	APPROVED



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1	X						
2	X						
3	X						
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General

1	Items	QTY	Active Carbon Filter	2
2	Tags		PK0001-F1 , PK0002-F1	
3	Service		VOC abatement from styrene storage tank effluent	

Process Data

Item	Description	Unit	Value	Rev.
4	Max. Ambient Design Temperature.	°C	85	
5	Expected Extreme Temperature	°C	52	
6	Min. Ambient Temperature	°C	5	
7	Max. Relative Humidity	%	80	
8	Min. Relative Humidity	%	65	

Process Data

Item	Description	Unit	Value	Rev.
9	Type of Fluid		Air+Styrene (3.5 g/Nm3)	
10	Flow Rate (Nor/Max)	Nm3/hr	1080 / 1188 (Note 1)	
11	Working Temperature (Min/Max)	°C	5 / 52	
12	Working Pressure	barg	max 0.07	
13	Design Temperature	°C	85	
14	Design Pressure	barg	-0.1 ~ 0.2	
15	Viscosity (Min./Max)	cP	0.018 / 0.020	
16	Density (Min./Max)	Kg/m3	1.107 / 1.295	
17	Styrene Inlet concentration		3.5 g/Nm3	
18	Styrene Outlet concentration		< 50 mg/Nm3	
19	Dirty / Clean pressure drop	bar	0.03 / 0.02	
19	Insulation		No	

Mechanical Data

Item	Description	Unit	Value	Rev.
20	Shell Inside Diameter	mm	2100	
21	Shell Length (T.L. / T.L.)	mm	5300	
22	Thickness (SHELL / HEAD)	mm	8 / 4.8 Min. A.F.	
23	Corrosion allowance	mm	3.0	
24	Radiography (SHELL / HEAD)	%	85 / 85	
25	MDMT (Required)	°C	-5	
26	Hydrostatic Test Pressure	barg	Hold	
27	PWHT	-	No	
28	Impact test	-	No	
31	Activated Carbon Bed Height	m	4.5	
32	Painting		Acco. To Painting Spec.	
33	Empty Weight	Kg	~ 4800	
34	Operating Weight	Kg	~ 12350	



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Material

Item	Description	Value	Rev.
1	Shell & Head	SA 516 Gr.70	
2	Fittings	SA 234 GR.WPB	
3	Reinforcing Pad	SA 516 Gr.70	
4	Leg	SA 36	
5	Nozzle Neck	SA 106 Gr. B	
6	Forgings (including Flanges, etc)	SA 105	
7	Gasket	Spiral Wound (S.S.304/ Graphite)	
8	Media	Activated Carbon	
9	Removable / Welded Internals	SS304 / CS	
10	Stud Bolt & Nut (External)	SA 193 Gr.B7 & SA 194 Gr.2H	
11	Stud Bolt & Nut (Internal)	SA 193 Gr.B8 & SA 194 Gr.8	

Media

Item	Description	Value	Rev.
12	Type	Bed	
13	Material	Activated Carbon (Note 2)	
14	Shape Type / Dimension	Extrude / 5 mm dia.	
15	Media bulk density	450 kg/m3	
16	Bed Volume	15.6 m3	
17	Media Replacing Time	One year	

Nozzels

Item	Description	QTY	Size	Type	Rating	Face	SCH	Rev.
18	Vent	1	2"	S.O.	150	R.F.	Hold	
19	Drain	1	3"	S.O.	150	R.F.	Hold	
20	Gas inlet	1	6"	S.O.	150	R.F.	Hold	
21	Gas outlet	1	6"	S.O.	150	R.F.	Hold	
22	Utility Connection	1	2"	S.O.	150	R.F.	Hold	
23	MW	2	24"	S.O.	150	R.F.	Hold	

Accessories

Item	Description	Rev.
24	<input checked="" type="checkbox"/> Nameplate	
25	<input checked="" type="checkbox"/> Lifting Lug	
26	<input checked="" type="checkbox"/> Earth Lug	
27	<input checked="" type="checkbox"/> Ladder and Platform	
28	<input checked="" type="checkbox"/> Internals (Inlet distributor, bed supports)	
29	<input checked="" type="checkbox"/> Davit for manhole	

Notes

- 1- Feed stream is intermittent at loading time of upstream styrene storage tank.
- 2- Non-regenerable Carbon Active.