

ENGINEERING SERVICES DEPARTMENT
FLAME ARRESTER SPECIFICATION SHEET



Project	PTFE Filter Destruction Project		Unit Tag Number	Y83352		
Datasheet Doc. No.	ENS-FDP-SPE-24047		Revision	2.0		
Description	Flame arrester Y83352 is installed on the LPG gas supply line 15-833-LPVP-065 to the Plasma Reactor R82018 in the PTFE Filter Destruction Facility ^[1] , downstream of the pressure regulator PCV83346B. Its function is to allow flow of LPG but prevent the transmission of flame from a downstream source, in the event of ignition taking place.					
Plant Location	Necsa, Pelindaba, North-West Province					
Equipment Location	PTFE Filter Destruction Facility - Process area outside Laboratory-131, Building V-H2					
Safety Classification	SC-3(C) and Non-classified(N)					
Quality Classification	SC-3(C) and Non-classified(N)					
CYLINDER BANKS ^{Note 1}						
<input checked="" type="checkbox"/> Above ground	Diameter	Note 1	m	Design pressure	Note 1	kPa(g)
<input type="checkbox"/> Buried	Height	Note 1	m	Design vacuum	Note 1	kPa(g)
<input type="checkbox"/> Insulated	Wall thickness	Note 1	m	Pumping-in rate	Note 1	m ³ /h
<input type="checkbox"/> Ins. Thickness	Note 1		mm	Pumping-out rate at 25 °C and 500 kPa	0,162	m ³ /h
<input type="checkbox"/> Blanketed	Blanketing gas			Design standard	Note 1	
STORED PRODUCT						
Component Name	Formula	Vol%	Mass%	Flashpoint	Haz. Group	MESG Ex-Gr
LPG Gas	C3H8, C4H10, C4H8	>95%	>95%	-104	2,1	>0,75 N/A
PROCESS INFORMATION						
Design temperature	93 ^[3]	°C	Design pressure	20685 ^[3] and Note 4	kPa(g)	
Operating temperature	Ambient ^[4]	°C	Operating pressure	100 ^[5]	kPa(g)	
			Back pressure	N/A	kPa(g)	
INSTALLATION						
<input checked="" type="checkbox"/> In-line	<input checked="" type="checkbox"/> Horizontal	Distance to source of ignition	4	m		
<input type="checkbox"/> End-of line	<input type="checkbox"/> Vertical	<input type="checkbox"/> Top of Tank/vessel				
FUNCTION						
<input type="checkbox"/> Pressure	<input type="checkbox"/> Endurance burning proof	<input type="checkbox"/> Temperature monitored				
<input type="checkbox"/> Vacuum	<input type="checkbox"/> Short term burning proof	<input type="checkbox"/> Pressure monitored				
<input type="checkbox"/> Pressure & Vacuum	<input checked="" type="checkbox"/> Deflagration proof	<input type="checkbox"/> Bi-directional				
<input checked="" type="checkbox"/> Flame arrester	<input checked="" type="checkbox"/> Detonation proof					
FLAME ARRESTER DATA						
Size nominal	15 ^[5] Note 2	mm	Flow at 25°C and 100 kPa(g)	0,4 ^[4]	m ³ /h	Density 3,4 ^[5] kg/m ³
Pressure nominal	100 ^[5]		Inlet flange type	Screwed female BSPT		
Adjusted set pressure	Supplier to advise	kPa(g)	Outlet flange type	Screwed female BSPT		
Adjusted set vacuum	Supplier to advise	kPa(g)	Pressure drop	Supplier to advise ^{Note 3}	kPa(g)	
MATERIAL CONSTRUCTION FOR BODY/FLANGES						
Pressure carrying parts SS 304/304L Class 1500	Internals SS 304/304L Class 1500	Lining Carbon Steel				
End connection / Facing Threaded	Special drilling of flange connections Supplier to advise					
Paint finish Supplier to advise	Weather hood Supplier to advise			O-ring Seal Supplier to advise		
Inspection / Documentation						
<input checked="" type="checkbox"/> Material certificate	<input checked="" type="checkbox"/> Work certificate	<input checked="" type="checkbox"/> Performance certificate				
REFERENCE DRAWINGS AND DOCUMENTS						
[1] ENS-FDP-PID-24005, PTFE Filter Destruction System P&ID Diagram - Gas Supply System 833						
[2] ENS-OWPVR-FDM-24001, Uranium Contaminated Waste Oil Plasma Gasification Basic Engineering Design: PFD(B5) - Gas Supply System						
[3] MES-PIPE-SPE-0017, Piping Material Specification Line Class LPVP, May 2024						
[4] ENS-FDP-CLC-24014, Mass Balance Calculation for the PTFE Filter Destruction System						
[5] ENS-FDP-CLC-24004, PTFE Filter Destruction Piping System Design Calculations - Line Sizing						

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NOTES

Note 1: LPG is supplied from a cylinder bank containing 2 cascades, each with two 48 kg gas cylinders. The cylinder bank will be installed outside the laboratory area ^[2]. During operation, one cascade will be on-line, while the other is on standby. Each gas cylinder has a full pressure of 5 Bar(g) at 20°C.

Note 2: This is the size of the schedule 40 pipeline in which the flame arrester will be installed.

Note 3: Pressure drop across flame arrester to be minimized to facilitate control of gas supply pressure to downstream user.

Note 4: Supplier to advise if a flame arrester can be provided to meet the stipulated operating pressure, but not the design pressure. Alternative design pressures will be taken under consideration.

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