











<b>Owner:</b>  شرکت پتروشیمی پارس Pars Petrochemical Co. (پارس پتروشیمی)	<b>PARS PETROCHEMICAL COMPANY</b>						<b>Contractor:</b>  پناه صنعت پارت Panah Sanat Part  شرکت طرح و ساخت شاخ (مهری طرحهای صنایع نفت، گاز، پتروشیمی و نیرو)	
	<b>PROPANE DEHYDROGENATION (PDH) PROJECT</b>							
<b>MC:</b>  APG	<b>Duty Specification for Biocide Dosing Package (81-W-506)</b>							
<b>Document Number:</b>	Project Code	Sec.	Phase Code	Department	Doc. Type	Serial No.	<b>Rev: 06</b>	<b>Page: 1 of 6</b>
	<b>3981-50-DE-PR-DSP-019</b>							



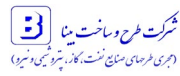

## Duty Specification for Biocide Dosing Package (81-W-506)

06	20-Oct-2025	Final Issue	M.Fallahi	M.Jamshidi	M.H.Eshraghi
05	25-Aug-2025	Issued For Approval	M.Fallahi	M.Jamshidi	M.H.Eshraghi
04	26-Feb-2025	Issued For Approval	M.Fallahi	M.Jamshidi	E.Shafaghathi
03	27-Jan-2025	Issued For Approval	M.Fallahi	M.Jamshidi	E.Shafaghathi
02	11-May-2024	Issued For Approval	M.Afsar	A.Hadipour	A.Aghaei
01	25-Dec-2023	Issued For Approval	M.Afsar	A.Hadipour	A.Aghaei
00	22-Nov-2023	Issued For Approval	F.Ebrahimi	A.Hadipour	A.Aghai
Rev.	Date	Purpose of Issue	Prepared	Checked	Approved





Class: 1

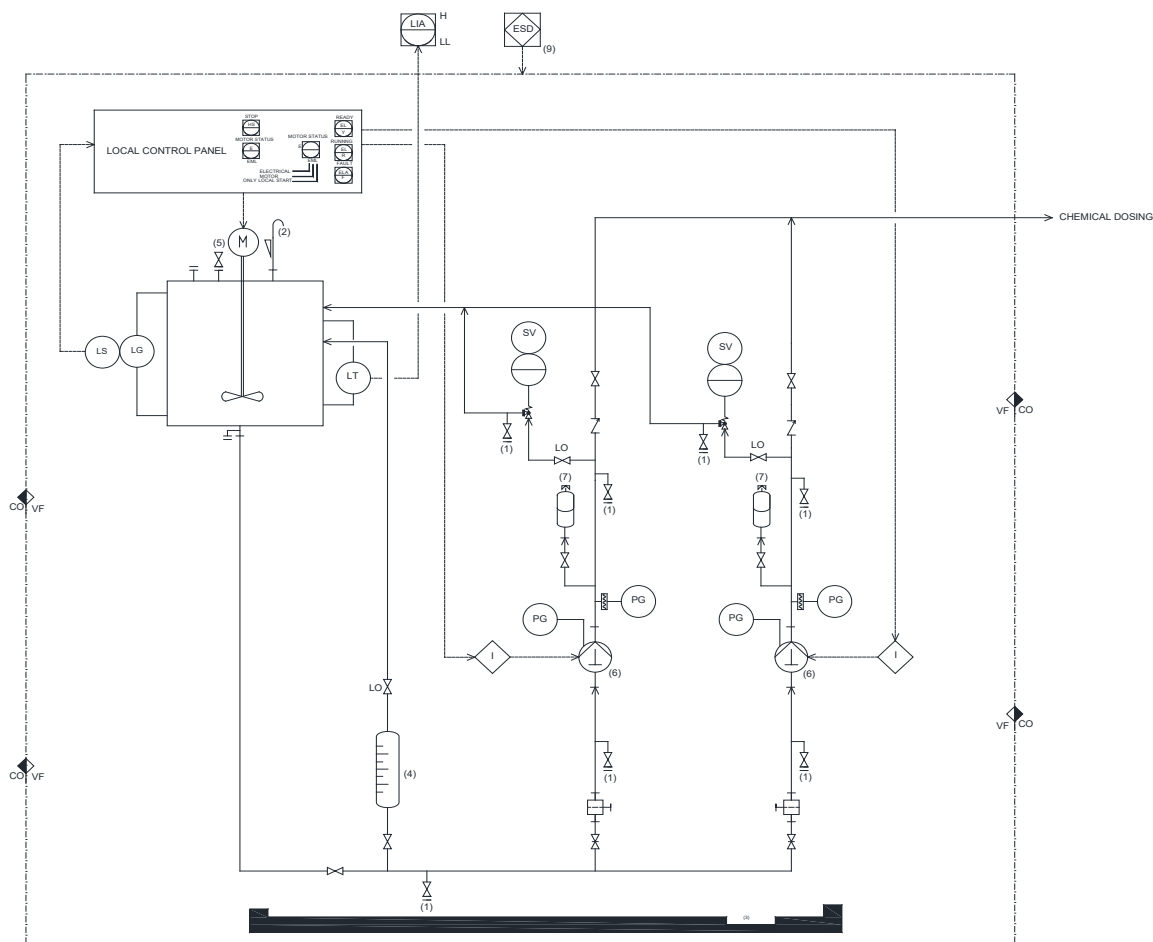
<b>Owner:</b> 		<b>PARS PETROCHEMICAL COMPANY</b> <b>PROPANE DEHYDROGENATION (PDH) PROJECT</b>						<b>Contractor:</b> 																	
<b>MC:</b> 		<b>Duty Specification for Biocide Dosing Package (81-W-506)</b>																							
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<b>TABULATION OF REVISED PAGES</b>																									
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	00	01	02	03	04	05	06		07	00	01	02	03	04	05		06	07	00	01	02	03	04	05	06
1	x	x	x	x	x	x	x		37								73								
2	x	x	x	x	x	x	x		38								74								
3	x	x		x		x			39								75								
4	x	x		x	x	x			40								76								
5	x	x		x	x	x			41								77								
6	x	x	x	x		x			42								78								
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OWNER:						<b>Pars Petrochemical Company</b> <b>PROPANE DEHYDROGENATION (PDH) PROJECT</b> <b>Duty Specification for Biocide Dosing Package</b> <b>(81-W-506)</b>		contractor:	
MC:									
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1	Note	<b>General Information</b>							Rev
2		<b>Project Description</b>							
3		Project Description							
4		Pars Petrochemical Company intends to build Propane Dehydrogenation (PDH) Plant for Producing Propylene as Product near Bushehr, Pars Petrochemical Company, Iran. EPC Contractor for PDH plant: Bina EPC Contractor-Panah Sanat Part Company. Main product is 600 KTY Propylene.							
5		The plant is to produce Propylene comprises of several main process units, including Feed preparation, Reaction Trains, Gas Compression, CO2 Removal, Separation and Fractionation.							
6									
7		<b>Injection Package Description</b>							
8		This document defines the process basic requirement for the design and supply of BIOCIDES Dosing Package for PDH. The Biocide Dosing Package has to be utilized in cooling water basin for protection against fouling biological fouling in order to avoid loss in heat transfer and to minimize the corrosion load imposed by slime, algae and other micro-organism growth.							
9		Chemical media will be stored in storage tank. The chemical storage tank shall have a minimum working capacity of 3 days based on the normal flow rate.							
10		Injection is ensured by metering pumps, which is stopped/protected by tank low low level (to be finalized by package vendor.)							
11		<b>Package Requirements</b>							
12		Scope of supply and work shall include the complete system consisting of mainly the equipment, machinery, piping, electrical, instrument etc. but not limited to following items. (see details in next pages)							
13		- One Storage /Dilution Vessel (with mechanical agitator in case chemicals are supplied as solid or dilution is required): included in package Sec. 81-W-506.							
14		- Two Sets of Dosing Pumps: included in package Sec. 81-W-506 with discharge pulsation dampeners.							
15		- Each pump shall operate at all flow rates between 10 and 100% of design capacity							
16		- The injection pumps shall be design for 200% of the normal flow.							
17		- Connecting piping valves and accessories.							
18		- Required instrumentation and control for safe operation.							
19		- Discharge pulsation dampener for each pump individually.							
20		- One set of calibration pot (common for both pumps).							
21		- The vendor shall provide a skid mounted injection package Including above mentioned items to make sure package operates safely							
22		and efficiently. This skid shall have proper facilities for maintenance, operation and easy transportation.							
23		NOTE: one common plant air driven portable loading pump shall be provided to transfer chemicals from barrels to tank.							
24		<b>Package type A: Package type A is considered standalone package unit with no (or very limited) interface with DCS, ESD and F&amp;G systems. (4)</b>							
25									
26									



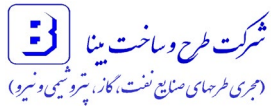
OWNER:		<div style="text-align: center;"> <b>Pars Petrochemical Company</b>  <b>PROPANE DEHYDROGENATION (PDH) PROJECT</b> </div>						contractor:	
									
MC:		<div style="text-align: center;"> <b>Duty Specification for Biocide Dosing Package (81-W-506)</b> </div>							
		Project code	Sec.	Phase Code	Department	Doc Type	Serial No.		
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1	Note											Rev		
2		Item No. 81-W-506				Service of Unit BIOCID Dosing PACKAGE								
3		No. Required	Working	1	Standby	0	Total	1	Operation Continuous					
4		Injection System for Cooling Tower Package												
5		Liquid Injected Biocide												
6														
7		<b>INJECTION LIQUID</b>												
8		Liquid NaClO (1)				Temperature Ambient C								
9		Injec. Flow	I/h	Nor.	150 (1)	Rated	300 (1)	Specific Gravity Kg/Lit 1 ± 0.1 (1), (14)						
10		Cooling Water Flow Rate to be Treat 30000 (1) m3/h				Dosage (1)		Viscosity (1) centipoise						
11		Make Up Solvent N/A m3/h				Vapour Pressure (1)								
12		Pressure Required at Injection Point 0 Bar(g)				Corrosive/Erosive Fluid		Yes / No (1)						
13						Hazardous/Flammable/Toxic		Yes / No / Yes (1)						
14		<b>INJECTION PUMP</b>						<b>SOLUTION TANK</b>						
15		Item No.				Item No.				No. Required 1				
16		Service Biocide Dosing Pump				Service Biocide Dosing Tank								
17		No. Required	Working	1	Standby	1								
18		Flow Nor.	150 (1)	I/h	Storage Time		Day	3	(28)					
19		Flow Rated	300 (1)	I/h	Capacity		m3	12	(1) (28)					
20		Press. At Discharge	3 Bar(g)	Design Pressure		Bar(g)	ATM+Full of Liquid							
21		Press. At Suction	ATM Bar(g)	Design Temp.		C	65 (12)							
22		Type Metering Pump				Operating Press.		Bar(g)	Atm.					
23		Cylinder/Case Plastic Material (7)				Operating Temp.		C	Amb.					
24		Plunger/Int				Type		(3)						
25		Diaphragm				Size		mm	(3)					
26		BHP (3) kW				Thickness		mm	(3)					
27						Buffer Tank Volume		m3	N/A					
28		Capacity Control Mode Manual				Material		CPVC						
29		Capacity Control range % 10-100				FALSE		<input checked="" type="checkbox"/> Level Gauge	<input type="checkbox"/> Measuring Cup					
30		Capacity Control Type/Signal Local /				<input type="checkbox"/> Baffles		<input type="checkbox"/> Level Switch	<input type="checkbox"/> Inner Basket					
31		Capacity Control Stroke Adjustment				<input type="checkbox"/> Floating Cover		<input type="checkbox"/> Steam Bubbling	<input checked="" type="checkbox"/> Level Transmitter					
32		Relief Valve Set. barg 4.5				<input type="checkbox"/> Steam Heater		<input type="checkbox"/> Electrical Heater						
32		Design Temp.	C	65 (12)		Design Pressure		Bar(g)	4.5					
33		<b>AGITATOR</b>												
34		Agitator Required	Yes (1)	Item No.				Service Biocide Solution Tank Mixer						
35		No. Req'd.	1	Mat.				HDPE						
36		TRUE Mechanical				TRUE								
37		<b>ACCESSORIES (See sheet 5/6)</b>												
38		<input checked="" type="checkbox"/> Strainers	<input checked="" type="checkbox"/> Relief Valves	<input checked="" type="checkbox"/> Pulsation Dampener	<input checked="" type="checkbox"/> Calibration Pot	<input checked="" type="checkbox"/> Pump Pressure Gauge								
39		<input type="checkbox"/> Sample Connection	FALSE											
40		<b>INSTALLATION</b>												
41		Location	Under Shelter (1)	Insulation Required		No (1)	Steam / Electrical Tracing		No /	(1)				
42		Heating Cond.	Unheated (1)	Winterization Required		No	Tropicalization Required		Yes					
43						NACE Requirement		NO						
44		Site AMB. Temp.	Min.	5	Max.	48	C							
45														

<b>OWNER:</b>  <b>PGPIC</b> شرکت پتروشیمی پارس (سهامی عام) <b>Pars Petrochemical Co.</b>	<b>Pars Petrochemical Company</b> <b>PROPANE DEHYDROGENATION (PDH) PROJECT</b> <b>Duty Specification for Biocide Dosing Package</b> <b>(81-W-506)</b>						<b>contractor:</b>  <b>پناه صنعت پارت</b> Panah Sanat Part  <b>شرکت طرح و ساخت مینا</b> (مجری طرحهای صنایع نفت، گاز، پتروشیمی و نیرو)	
<b>MC:</b>  <b>APG</b>	Project code	Sec.	Phase Code	Department	Doc Type	Serial No.	06	
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- Notes:
- 1) Low point drain.
  - 2) Package is located in safe area.
  - 3) Drain and catch tub.
  - 4) Calibration device with scale.
  - 5) Filling.
  - 6) Dosing pump with manual stroke adjustment and membrane break indicator.
  - 7) Screwed connection.
  - 8) One common portable loading pump shall be provided by vendor.
  - 9) In case of plant shut down (If Required).

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		Project code	Sec.	Phase Code	Department	Doc Type	Serial No.	
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1	Note							
2	Notes							
3		<p>1) To be finalized according to chemical Vendor's information.</p> <p>2) DELETED</p> <p>3) To be specified by package vendor.</p> <p>4) Package type A is considered standalone package unit with no (or very limited) interface with DCS, ESD and F&amp;G systems. For more details refer to : General Specification For Package Unit Control System "3981-00-BA-IN-SPC-021".</p> <p>5) Injection point: Cooling Tower Basin. however its allowable to be recommended by the vendor.</p> <p>6) Vessel elevation to be specified by vendor based on pump NPSH and piping requirement.</p> <p>7) Minimum requirement.</p> <p>8) For site condition and available utilities, refer to Process Design Basis (3981-00-BA-PR-BOD-008) and Site condition(3981-00-BA-PR-SPC-003)</p> <p>9) For package battery limit refer to: PID NO. 3981-50-DE-PR-PID-002~004.</p> <p>10) All equipments,line instruments shown within package limit are required as minimum and to be finalized By package vendor.</p> <p>11) Pulsation dampener for pump suction shall be considered based on vendor recommendation.</p> <p>12) In case of considering shelter for package.</p> <p>13) DELETED</p> <p>14) At amb. temp.</p> <p>15) The dosing will be adjusted by means of the variable stroke adjustment either manually or automatically by signal from DCS.</p> <p>16) Besides a stirrer, the tank must be provided with inlets for filling of chemicals and water (if required).</p> <p>17) Stroke shall be capable of being changed manually even during operation.</p> <p>18) All the measures for seasonal condition changes shall be foreseen by vendor, taking into account the severe climatic conditions,</p> <p>19) All the requirements for start-up or shut down (if any), to be advised by vendor</p> <p>20) DELETED</p> <p>21) DELETED</p> <p>22) Equipment and machinery shall be provided so that the unit can operate for at least three years without major overhaul or inspection.</p> <p>23) Block and bypass valves shall be provided for all control valves unless limited and restricted by Process nature and safety requirements.</p> <p>24) Materials of construction and corrosion allowances shall be considered for a minimum of 25years depreciation of the Sec.</p> <p>25) DELETED</p> <p>26) LT is required for solution tank</p> <p>27) DELETED</p> <p>28)To be confirmed by vendor,considering that minimum working capacity of 3 days based on the normal flow rate.</p>						
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