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| Owner: | | PARS PETROCHEMICAL COMPANY | | | | | | Contractor: | |
| | | PROPANE DEHYDROGENATION (PDH) PROJECT | | | | | | | |
| | | Duty Specification for Dispersant Inhibitor Dosing Package (81-W-504) | | | | | | | |
| MC: | | | | | | | | | |
| Document Number: | | Project Code | Sec. | Phase Code | Department | Doc. Type | Serial No. | Rev.: | Page |
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Duty Specification for Dispersant Inhibitor Dosing Package (81-W-504)

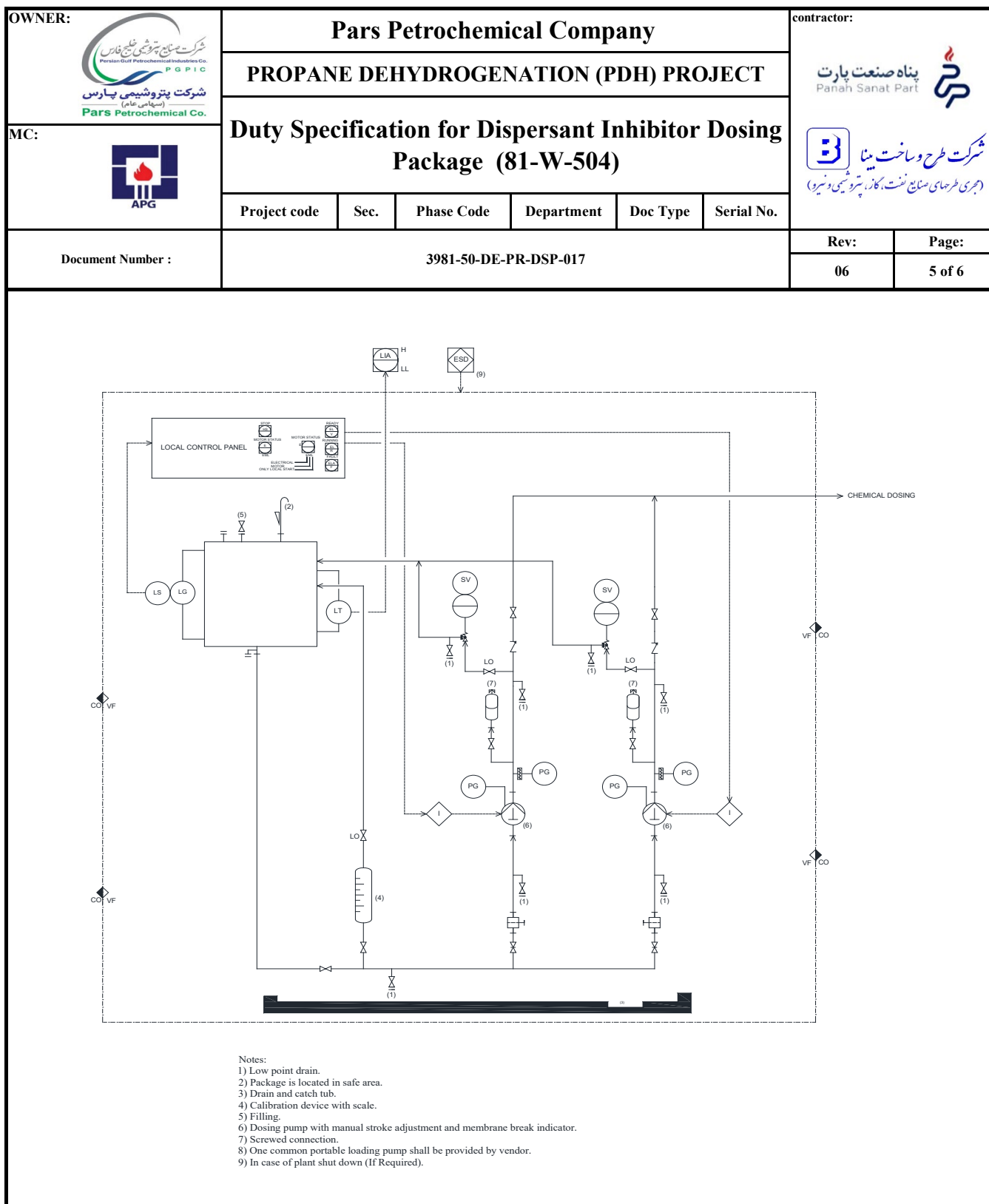
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|------|-----------|---------------------|------------|------------|---------------|
| 06 | 20-Oct-25 | Final Issue | M.Fallahi | M.Jamshidi | M.H.Eshraghi |
| 05 | 25-Aug-25 | Issued For Approval | M.Fallahi | M.Jamshidi | M.H.Eshraghi |
| 04 | 26-Feb-25 | Issued For Approval | M.Fallahi | M.Jamshidi | E.Shafaghathi |
| 03 | 27-Jan-25 | Issued For Approval | M.Fallahi | M.Jamshidi | E.Shafaghathi |
| 02 | 11-May-24 | Issued For Approval | M.Afsar | A.Hadipour | A.Aghaei |
| 01 | 25-Dec-23 | Issued For Approval | M.Afsar | A.Hadipour | A.Aghaei |
| 00 | 22-Nov-23 | Issued For Approval | F.Ebrahimi | A.Hadipour | D.Mirblouki |
| Rev. | Date | Purpose of Issue | Prepared | Checked | Approved |




Class: 1

| OWNER:  MC:  | Pars Petrochemical Company | | | | | contractor:  | | | | | | | | | | | | | | | | | | | | |
|--|--|------|------------|------------|----------|---|--------|----|------|----------|----|----|----|----|----|----|-----|------|----------|----|----|----|----|----|----|----|
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| 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 | | | 41 | | | | | | | | 77 | | | | | | | | | |
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|-------------------|------|---|--|--|--|--|---|--------|
| OWNER: | |  Pars Petrochemical Company PROPANE DEHYDROGENATION (PDH) PROJECT Duty Specification for Dispersant Inhibitor Dosing Package (81-W-504) | | | | | contractor: | |
| MC: | |  | | | | |  | |
| Document Number : | | 3981-50-DE-PR-DSP-017 | | | | | Rev: | Page: |
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| 1 | Note | General Information | | | | | | Rev |
| 2 | | Project Description | | | | | | |
| 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. EPCC 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 | | Injection Package Description | | | | | | |
| 8 | | This document defines the process basic requirement for the design and supply of Dispersant Dosing Package for PDH. The Dispersant Dosing Package has to be utilized in cooling water basin for prevention of both scale and sludge formation in a cooling system. Scale control has become increasingly important in higher alkalinity floating pH water treatment programs. The dispersant chemicals cause the formation rate in any type of solid particles becomes very slowly. | | | | | | |
| 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 | | Package Requirements | | | | | | |
| 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 unit 81-W-504. | | | | | | |
| 14 | | - Two Sets of Dosing Pumps: included in package unit 81-W-504 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 | | Package type A: Package type A is considered standalone package unit with no (or very limited) interface with DCS, ESD and F&G systems. (4) | | | | | | |
| 25 | | | | | | | | |
| 26 | | | | | | | | |

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| | | Duty Specification for Dispersant Inhibitor Dosing Package (81-W-504) | | | | | | | | |
| | | Project code | Sec. | Phase Code | Department | Doc Type | Serial No. | | | |
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| Document Number : | | | | | | | | | | |
| 1 | NOTE | | | | | | | | | Rev |
| 2 | Item No. 81-W-504 | | | | | | Service of Unit Dispersant Injection Package | | | |
| 3 | No. Required Working 1 Standby 0 Total 1 | | | | | | Operation Continuous | | | |
| 4 | Injection System for Cooling Tower Package | | | | | | | | | |
| 5 | Liquid Injected Dispersant | | | | | | | | | |
| 6 | INJECTION LIQUID | | | | | | | | | |
| 7 | Liquid NALCO 3DT190 (1) | | | | | | Temperature Ambient C | | | |
| 8 | Injec. Flow l/h Nor. 9 (1) Rated 18 (1) | | | | | | Specific Gravity Kg/Lit 1 ± 0.1 (1), (14) | | | |
| 9 | Flow Rate to be Treated 30000 m3/h | | | | | | Dosage (1) Viscosity (1) centipoise | | | |
| 10 | Make Up Solvent N/A m3/h | | | | | | Vapour Pressure (1) | | | |
| 11 | Pressure Required at Injection Point 0 Bar(g) | | | | | | Corrosive/Erosive Fluid Yes / No (1) | | | |
| 12 | | | | | | | Hazardous/Flammable/Toxic Yes / No / Yes (1) | | | |
| 13 | INJECTION PUMP SOLUTION TANK | | | | | | | | | |
| 14 | Item No. | | | | | | Item No. | | No. Required 1 | |
| 15 | Service Dispersant Injection Pump | | | | | | Service Dispersant Tank | | | |
| 16 | No. Required Working 1 Standby 1 | | | | | | | | | |
| 17 | Flow Nor. 9 (1) l/h | | | | | | Storage Time Day 3 | | (28) | |
| 18 | Flow Rated 18 (1) l/h | | | | | | Capacity m3 1 | | (28) | |
| 19 | Press. At Discharge 3 Bar(g) | | | | | | Design Pressure Bar(g) | | ATM+Full of Liquid | |
| 20 | Press. At Suction ATM Bar(g) | | | | | | Design Temp. C | | 65 (12) | |
| 21 | Type Metering Pump | | | | | | Operating Press. Bar(g) | | Atm. | |
| 22 | Cylinder/Case Plastic Material (7) | | | | | | Operating Temp. C | | Amb. | |
| 23 | Plunger/Int | | | | | | Type | | (3) | |
| 24 | Diaphragm | | | | | | Size mm | | (3) | |
| 25 | BHP (3) kW | | | | | | Thickness mm | | (3) | |
| 26 | | | | | | | Buffer Tank Volume m3 | | | |
| 27 | Capacity Control Mode Manual | | | | | | Material | | PE/PP/PVC | |
| 28 | Capacity Control range % 10-100 | | | | | | Accessories <input checked="" type="checkbox"/> Level Gauge <input type="checkbox"/> Measuring Cup | | | |
| 29 | Capacity Control Type/Signal Local / | | | | | | <input type="checkbox"/> Baffles <input type="checkbox"/> Level Switch <input type="checkbox"/> Inner Basket | | | |
| 30 | Capacity Control Stroke Adjustment | | | | | | <input type="checkbox"/> Floating Cover <input type="checkbox"/> Steam Bubbling <input checked="" type="checkbox"/> Level Transmitter | | | |
| 31 | 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 | AGITATOR | | | | | | | | | |
| 34 | Agitator Required No (1) ^Item No. | | | | | | Service | | | |
| 35 | No. Req'd. | | | | | | Mat. | | | |
| 36 | Type | | | | | | | | | |
| 37 | ACCESSORIES (See sheet 5/6) | | | | | | | | | |
| 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 TRUE TRUE TRUE TRUE | | | | | | | | | |
| 40 | INSTALLATION | | | | | | | | | |
| 41 | Location Under Shelter (1) Insulation Required No (1) Steam / Electrical Tracing No / 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 | | | | | | | | | | |



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| MC: | |  Duty Specification for Dispersant Inhibitor Dosing Package (81-W-504) | | | | |  | | |
| | | Project code | Sec. | Phase Code | Department | Doc Type | Serial No. | | |
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| 1 | Note | | | | | | | | Rev |
| 2 | | Notes | | | | | | | |
| 3 | | 1) To be finalized according to chemical Vendor's information. | | | | | | | |
| 4 | | 2) DELETED | | | | | | | |
| 5 | | 3) To be specified by package vendor. | | | | | | | |
| 6 | | 4) Package type A is considered standalone package unit with no (or very limited) interface with DCS, ESD and F&G systems. For more details refer to : General Specification For Package Unit Control System "3981-00-BA-IN-SPC-021". | | | | | | | |
| 7 | | 5) Injection point: Cooling Tower Basin. however its allowable to be recommended by the vendor. | | | | | | | |
| 8 | | 6) Vessel elevation to be specified by vendor based on pump NPSH and piping requirement. | | | | | | | |
| 9 | | 7) Minimum requirement. | | | | | | | |
| 10 | | 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) | | | | | | | |
| 11 | | 9) For package battery limit refer to: PID NO. 3981-50-DE-PR-PID-002~004. | | | | | | | |
| 12 | | 10) All equipments,line instruments shown within package limit are required as minimum and to be finalized By package vendor. | | | | | | | |
| 13 | | 11) Pulsation dampener for pump suction shall be considered based on vendor recommendation. | | | | | | | |
| 14 | | 12) In case of considering shelter for package. | | | | | | | |
| 15 | | 13) DELETED | | | | | | | |
| 16 | | 14) At amb. temp. | | | | | | | |
| 17 | | 15) The dosing will be adjusted by means of the variable stroke adjustment either manually or automatically by signal from DCS. | | | | | | | |
| 18 | | 16) Besides a stirrer, the tank must be provided with inlets for filling of chemicals and water (if required). | | | | | | | |
| 19 | | 17) Stroke shall be capable of being changed manually even during operation. | | | | | | | |
| 20 | | 18) All the measures for seasonal condition changes shall be foreseen by vendor, taking into account the severe climatic conditions. | | | | | | | |
| 21 | | 19) All the requirements for start-up or shut down (if any), to be advised by vendor. | | | | | | | |
| 22 | | 20) DELETED | | | | | | | |
| | | 21) DELETED | | | | | | | |
| | | 22) Equipment and machinery shall be provided so that the unit can operate for at least three years without major overhaul or inspection. | | | | | | | |
| | | 23) Block and bypass valves shall be provided for all control valves unless limited and restricted by Process nature and safety requirements. | | | | | | | |
| | | 24) Materials of construction and corrosion allowances shall be considered for a minimum of 25 years depreciation of the unit | | | | | | | |
| | | 25) DELETED | | | | | | | |
| | | 26) LT is required for solution tank | | | | | | | |
| | | 27) DELETED | | | | | | | |
| | | 28)To be confirmed by vendor,considering that minimum working capacity of 3 days based on the normal flow rate. | | | | | | | |