## ENGINEERING SERVICES DEPARTMENT

## PRESSURE CONTROL VALVE SPECIFICATION SHEET

| | | | |
|---|---|---|---|
| **Project** | PTFE Filter Destruction Project | **Unit Tag Number** | PV82014D |
| **Datasheet Document No.** | ENS-FDP-SPE-24029 | **Revision** | 1.0 |
| **Description** | Pressure control valve PV82014D is installed on the outlet of the Quench H82019 in the PTFE Filter Destruction Facility to maintain the pressure in the upstream Depolymerisation Reactor R82014 at a constant value of -5 kPa(g) | | |
| **Plant Location** | Necsa, Pelindaba, North-West Province | | |
| **Equipment Location** | PTFE Filter Destruction Facility - Inside the Secondary Enclosure Y82020 in Laboratory-131, Building V-H2 | | |
| **Controlling instrument No.** | DPT82014D / PICA82014D | | |
| **Safety Classification** | SC-2(C) and SC-3(N) | | |
| **Quality Classification** | SC-2(C) and SC-3(N) | | |
| **Fluid** | Process gas. Composition (mole fraction): O2 (0,056), N2 (0,12), H2O (0,013), CO2 (0,372), HF (0,439), UF6 (0,0012) [2] | | |
| **Fluid state** | Gas | | |

### FLUID PROPERTIES

| | | |
|---|---|---|
| **Mass flow rate** [2] | **kg/h** | 28 |
| **Volume flow rate** [3] | **$m^3/h$** | 29 |
| **Inlet temperature** [5] | **°C** | 35 |
| **Inlet pressure** [4] | **kPa (g)** | -6 |
| **Outlet pressure** [3] | **kPa (g)** | -8,17 |
| **Pressure drop** [3] | **kPa** | 2,7 |
| **Cv-value** [3] | | 6,85 |
| **Inlet density** [4] | **$kg/m^3$** | 0,981 |
| **Viscosity** [3] | **Pa.s** | 1,50E-05 |
| **Specific heat capacity (Cp)** [5] | **kJ/kg.K** | 1,06 |
| **Specific heat capacity (Cv)** Note 1 | **kJ/kg.K** | 0,78 |

### MECHANICAL PROPERTIES

| | |
|---|---|
| **Pipeline Size** | 25 NB, Sch 40 |
| **Process Connections** | Class 150, RF, SS, ASTM A182-F304/304L, ASME B16,5 if flanged (Supplier to advise further) |
| **Valve Rating** | 150# |
| **Gasket (if flanged)** | Class 150, 1/16" thick flexible graphite w/ 304 or 316 SS corrugated insert, ASME B16.21 |
| **Bolting (if flanged)** | ASTM A193, Gr B7 stud w/ 2 heavy hex nuts ASTM A194, Gr 2H |
| **Material of Construction** | |
| **Wetted parts** | 304/304L Stainless Steel |
| **Non-wetted parts** | Supplier to advise |
| **Valve Type** | Globe valve |
| **Valve fail position** | Fail open (FO) |
| **Control characteristics** | Linear |
| **Limit switches** | Supplier to advise |

### INTERLOCKS

N/A

### REFERENCE DRAWINGS AND DOCUMENTS

[1] ENS-FDP-PID-24002, PTFE Filter Destruction Reactor System PID

[2] ENS-FDP-CLC-24014, Mass Balance Calculation for the PTFE Filter Destruction System

[3] ENS-FDP-REP-24035, Sizing of Pressure Control Valve PV82014D and Analytical Control Valve AV83345F

[4] ENS-FDP-CLC-24019, Pressure Balance across the PTFE Filter Destruction System

[5] ENS-FDP-CLC-24014, Energy Balance Calculation for the PTFE Destruction System

### NOTES

Note 1: $C_p/C_v$=k, gas mixture specific heat ratio k sourced from [4]

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**RESTRICTED**