SECTION - C

TECHNICAL SPECIFICATIONS OF STORES AND DRAWINGS.

Technical Specifications for Supply of detector / analyser for H2O, N2, Hydrocarbon and oil aerosol in Helium (He) gas

Specification	IPR Requirement
Application of process gas or sample gas	Helium (He)
Type of Oil for oil aerosole measurement	Breox B35 Oil
Impurities to be measure in gas	H2O, N2, Hydrocarbon and oil aerosole
Measurement range	1-100 ppm by volume H2O 1-100 ppm by volume N2 1-30 ppm by volume Hydrocarbon 1-250 ppb oil aerosole It should show values for each impurities separately
Principle of Measurement	Optical absorption spectroscopy
Resolution	<= 1% of full scale of range
Accuracy	<= 2% of full scale of range
Sensitivity	Better than <= 2% of full scale of range
Operating temperature	Room temperature (~300K)
Operating pressure	0.5 – 15 bar gauge
Flow regulator with valve for flow control	Should be provided
Carrier gas	No carrier gas will be allowed. Direct measurement from process gas flow
Sample flow rate	As per analyser requirement
Power supply available at IPR	230V ±10%, 50 Hz ± 3% Hz
Mounting	Bench / Table
Type of flow (Intermittent or continuous)	Continuous type flow
Read out, Signal output and Alarm	1) Display of measured value at the analyser 2) Four active analog output signal 4 – 20 mA provided for H2O, N2, Hydrocarbon and oil aerosole respectively. 3) Out of range alarm should be provided for each impurity measurement.
Optional requirements (If standard analyser does not include)	1) Mandatory spares required for 5 years of operation. For each spare part provide price separately with item detail as an optional budgetary offer.
Predispatch inspection or Factory acceptance Test	1) IPR representative(s) will do pre-dispatch inspection (PDI) of individual component and complete system and final factory acceptance tests at vendor's site. 2) The vendor shall detail out the tests to be performed at vendor's site and submit the same for approval by purchaser. The following tests shall be carried out at vendor's site but not limited to following: a. To witness functional test of Analyser as per IPR specs

	b. To witness test run demo of the Analyser at service conditions c. Check of bill of material, Physical dimensions, and spares as per PO d. Verification of calibration and test report and documents e. Do Calibration of detector / Analyser with different standard impurities. f. Operation of detector / analyser for sample gas measurement.
Final acceptance Test at IPR site	1) The system shall be safely delivered by vendor at IPR , Gandhinagar, Gujarat, INDIA 2) The vendor shall install and commission the complete system at IPR. 3) Vendor shall bring or arrange special tools and tackle required for installation and commissioning. 4) Tubing required from IPR system to analyzer / detector should be in IPR scope and vendor should provide specification of tubing. 5) Analyser will be accepted after the successful operation with accurate result of analyser using sample gas of known impurity. 6) A methodical teaching / hands on training should be provided at IPR to cover all aspects of installation, operation, maintenance and typical analysis of results and operation of analyser.
Document to be submitted by Vendor	1) Detail Technical specification of analyser. 2) Engineering information like dimensions of important parts, electrical wiring diagrams and tubing diagrams. 3) Operation, maintenance and troubleshooting manual related to entire system in hard copy as well as soft copy. 4) Manual for the software.
Warranty	Calibration warranty for at least one year and warranty of hardware of analyser at least one year after final installation and commissioning at IPR.
Delivery period	12 weeks after PO

COMPLIANCE TABLE

Technical Compliance form of detector / analyser for H2O, N2, Hydrocarbon and oil aerosol in Helium (He) gas

Specification	IPR Requirement	Vendor's Specification
Application of process gas or sample gas	Helium (He)	
Type of Oil for oil aerosole measurement	Breox B35 Oil	
Impurities to be measure in gas	H2O, N2, Hydrocarbon and oil aerosole	
Measurement range	1-100 ppm by volume H2O 1-100 ppm by volume N2 1-30 ppm by volume Hydrocarbon 1-250 ppb oil aerosole It should show values for each impurities separately	
Principle of Measurement	Optical absorption	
Resolution	<= 1% of full scale of range	
Accuracy	<= 2% of full scale of range	
Sensitivity	Better than <= 2% of full scale of range	
Operating temperature	Room temperature (~300K)	
Operating pressure	0.5 – 15 bar (gauge)	
Flow regulator with valve for flow control	Should be provided	
Carrier gas	No carrier gas. Direct measurement from process gas flow	
Sample flow rate	As per analyser requirement	
Power supply available at IPR	230V ±10%, 50 Hz ± 3% Hz	
Mounting	Bench / Table	
Type of flow (Intermittent or continuous)	Continuous type flow	
Read out, Signal output and Alarm	1) Display of measured value at the analyser 2) Four active analog output signal 4 – 20 mA provided for H2O, N2, Hydrocarbon and oil aerosole respectively. 3) Out of range alarm should be provided for each impurity measurement.	

Authorized Signatory

Official seal

Date :-