CSIR - NATIONAL PHYSICAL LABORATORY
Dr. K. S. Krishnan Marg,
New Delhi – 110012 (INDIA)

Contact: 011 4560 8624
Email: sr.cosp@nplindia.org
purchase-so1@nplindia.org

From: Director, CSIR-NPL
Tender No. 14-VI/GAB(1125)23PB/T-135 Dated: 29.11.2023

CORRIGENDUM

With reference to NPL's Global Tender ID: **2023_CSIR_732719_1**, Pre-Bid Conference (PBC) was concluded on 07.11.2023 for "Flash Point Determination and Density Meter Equipment". Consequent upon the outcome of PBC, **some changes have been made in the technical specification of captioned tender. Revised specifications are as follows:**

I. FLASH POINT INSTRUMENT

A. TECHNICAL SPECIFICATION FOR AUTOMATIC FLASH POINT APPARATUS (PMCC) (As per the test method ASTM D 93(procedure A, B, C), ISO 2719 & IP 34, ISO 15267)

S. No.	Revised Technical Specification
1	The apparatus should be a fully automatic microprocessor-controlled standalone unit, fully conforming to test methods ASTM D 93 (Procedures A, B &C), ISO 2719, IP 34, JIS K 2265-3, ISO 15267.
2	Measuring range: Ambient to 370°C
3	Test Mode: Selection of test modes for covering the above test methods and Special Search mode for unknown samples
4	Sample Temperature measurement by PT 100 Stainless Steel sheathed, supplied with a calibration certificate as per ISO/IEC 17025:2017. The resolution should be as per the test method requirements.
5	The instrument should have a programmable heating rate as per the test method and should have the facility to test for unknown samples to determine the expected flash point.
6	Automatic stirrer with the selectable speeds 100 and 250 rpm as per the test method requirements & should have auto stopping of stirring while removing the cup after testing, so the spillage of the sample from the stirrer blade onto the instrument is avoided.
7	Ignition Source: Gas Ignition with automatic lighting and Electric Ignition, interchangeable.
8	A test cup with a handle should be supplied to facilitate easy removal/handling of hot samples.
9	Cooling by built-in forced air
10	Built-in sensor for automatic Barometric pressure correction according to Test methods.
11	The apparatus should have a single lift arm for changing samples. Disconnection of cup cover by simple push-button operation.

12	The apparatus should have provisions of fire containment system for initiating inert gas purge to extinguish the fire once detected
13	Should have a thermal flash point detection system that can detect flash points of all types of samples.
14	The temperature probe, flash detector etc., should be available as separate components for easy replacement of the individual part instead of the complete block.
15	Laptop configuration: RAM: 16 GM HDD: 512 GB SSD/Window 11 Processor: Intel Core i7-1355 U Display: Should not be 14"/36 cm, colored touch screen. With 2 years On-site warranty. a) Data Storage: should store a minimum of 200 test results b) Should transmit results to an external computer, network or LIMS c) Data input/output via RS 232 C and facility to transfer results to LIMS. d) The apparatus should have USB memory stick for results import to an Excel sheet,
16	Safety Feature: Equipment should have error message flash and buzzer, if: a. Expected Flash Point + 20°C or 370°C is reached. b. Temperature sensor found to be defective. c. Flash detector found to be defective d. The Thermo fuse is blown e. The electrical Igniter is blown f. Test arm/ cover not set in place. g. Stirring motor stopped h. Controller Computer runaway (error on display) i. The unit should be provided with a built-in fire sensor for automatic fire detection with an alarm and built-in fire extinguishing system with external inert gas activation.
17	General Terms and Conditions: • The equipment to be configured for **230 ± 10V 50 Hz** operation. • The Vendor should provide the following with Instrument a. Operating & Maintenance manual.(English) b. Detailed list of all spare parts • Onsite Installation, commissioning and training (2 days) and after-sales service to be provided.
18	Vendor should provide spare availability certificate for 8 years after completion of standard warranty of 2 years.
19	Warranty of the machine should be provided for 2 years
20	Vendor has to arrange an on-site demonstration of their quoted instrument at NPL site or at near by customer place to comply the above-asked specification. Based on performance evaluation of the bid will be done.

B. SPECIFICATION OF AUTOMATED ABEL FLASH POINT TESTER/INSTRUMENT

S. No.	Revised Technical Specification
1	Automated Flash Point Tester ABEL for Petroleum Products
2	All-in-one microprocessor controlled, compact design and energy efficient
3	TEST METHOD: ISO 13736/ IP170, ISO 1516, ISO 1523
4	TEST MODE : IP170, ISO13736 (normal + special + rapid) and user custom
5	MEASURING RANGE : -30°C to 110°C, vendor has to provide a suitable chiller circulator to

	maintain -30°C (Operating Temperature).
6	HEATING AND COOLING: By Peltier and with the help of a chiller bath for sub-ambient temperatures.
7	Laptop configuration: RAM: 16 GM HDD: 512 GB SSD/Window 11 Processor: Intel Core i7-1355 U Display: Should not be 14"/36 cm, colored touch screen. With 2 year On-site warranty.
8	BATH : Metal Block
9	TEMPERATURE SENSOR : PT-100 in stainless steel sheath
10	FLASH DETECTOR : should be CRC Thermocouple
11	IGNITION SOURCE : Gas ignition with automatic lighting or electric ignition. Interchangeable
12	SAMPLE COOLING / HEATING : By Peltier device
13	BAROMETRIC CORRECTION : Automatic correction by built in barometric pressure sensor
14	CALIBRATION : By standard calibrated thermometers by the operator
15	I/O Port : RS-232C – 1 channel or more and USB 1 or more channel
16	SECURITY: Password protection available for protection against inadvertent change of parameters
17	MEMORY: Data storage upto 200 test results.
18	**SAFETY MECHANISM** : Auto shut off when problem occurs and buzzer and display in case: (a) EFP+10°C or 70°C (ISO13736) 110° (ISO1516, ISO1523) is reached (b) temperature sensor is found defective. (c) flash detector is found defective, (d) thermofuse is blown, (e) electric Igniter is blown, (f) test cover is not set in place, (g) control computer disappears (no display) (h) The unit should be provided with built in fire sensor for automatic fire detection and fire containment system with external inert gas activation
19	**GENERAL :** The equipment to be configured for **230 ± 10V 50 Hz** operation. The Vendor should provide the following with the Instrument Operating & Maintenance manual.(English) Detailed list of all spare parts
20	Vendor should provide essential spare parts and consumables for 8 years after the warranty expiry for trouble-free operation.
21	Installation, commissioning, and training for 2 days shall be provided by the Supplier.
22	Vendor should supply suitable chiller circulator to maintain the operating temperature -30°C.
23	The warranty should be applicable on all the supplied instruments and electronic accessories which are required to run the machine.
24	Vendor should provide spare availability certificate for 8 years after completion of standard warranty of 2 years.
25	Vendor has to arrange on-site demonstration of the quoted instrument at NPL site or at nearby customer place to comply the above asked specification. Based on performance evaluation of the bid will be done.

II. Specifications for High-Performance Density Meter

S. No.	Required Technical Specification
1	For determination of Density, Sp Gravity, and Concentration of liquids and gases. **Measuring Performance:** ➢ Method: Oscillating U Tube method ➢ Integrated reference cell oscillator in the same thermostat unit as the main U-tube for best compensation performance. ➢ Instrument to display density multiparameter (Viscosity corrected and Viscosity non-corrected), Apparent Density Brass, Apparent Density, Concentration of Acid & Alkali & Turbidity & Viscosity with additional module
2	**Performance Specifications:** Density Measuring Range : (0 to 3) gm/cm^3 Density Resolution : 0.000 001 g/cm^3 or better Density Accuracy : 0.000005 g/cm^3 Density Repeatability : 0.000 001 g/ cm^3 or better
3	**Temperature Range : (0 to 100) °C** Temperature Accuracy : 0.01 °C or better Temperature Repeatability : 0.001 °C or better
4	**Pressure Range : (0 to 10) bar** Minimum sample volume : 1 mL or less Minimum measuring time : 40 s or less The instrument should be equipped with a preinstalled built-in auto sample handling unit for single measurements. After the measurement, the measuring cell of the density meter should be automatically cleaned.
5	**Essential Features:**
6	The instrument to be able to automatically detect filling errors or gas bubbles in the filled-in sample alerting the operator of potential measurement deviations and documenting the incident.
7	The Density meter should have a Minimum sample volume 2 ml with high pressure up to 10 bar (145 psi) absolute pressure & protection to aggressive mediums chemical resistance protection should be quoted.
8	The instrument should display live images of the complete U-Tube Sensor and the entire filled-in sample including the bow of the U-Tube & images of the complete U-Tube should be stored inbuilt memory for later review and verification.
9	The pictures from the U-Tube should also be printed directly onto the measurement report.
10	It should have a built-in ambient pressure sensor for exact density adjustments.
11	It should do automatic full-range viscosity correction, thereby eliminating the need for using viscosity standards for calibration.
12	Instrument to have colored 25cm ior more size touch-screen and additional controls via soft keys for harsh environments and handling.
13	The instrument has an automatic temperature scan facility to conduct serial measurements automatically at pre-defined temperature points.
14	Only one single adjustment for the whole temperature range should be necessary, thereby avoiding drifts due to temperature changes and quick performance of measurements without multi-temperature adjustments.
15	The Density meter must be upgradable to the integrated Turbidity module for the turbidity measurement and Micro viscometer module for viscosity measurement based on the Rolling Ball principle.
16	Instrument Internal storage/memory should be 10,000 measuring values with camera images with the creation of the user functions and methods should be possible with a

	Density meter.5xUSB, Ethernet, CAN, RS232 communication interface and data export in PDF, TXT and XLS formats along with built-in statistical functions.
17	Full GMP/GLP compliance with password protection and user login with optional facility for in-house ISO 17025 calibration for Traceability of measured data to a certified standard
18	Manufacturers have previously supplied to recognized Indian institutions, research, and academic and has a successful & proven record of machine performance related the application.
19	The warranty of the device should be provided 2 years.
20	A minimum 8 years of the necessary spare should be quoted for the density meter & its accessories for successful operation after the expiry of the 2-years warranty period.
21	Vendor has to arrange on-site demonstration of the quoted instrument at NPL site or at nearby customer place to comply the above asked specification. Based on performance evaluation of the bid will be done.

Therefore, following extension in due date of submission & date of opening of the said tender may be read exactly as follows:

Due date & time of tender submission
For : 28.11.2023 up to 3:00 PM (IST)
Read as: 12.12.2023 up to 3:00 PM (IST)

Date & Time of Tender Opening
For : 29.11.2023 at 3:00 PM (IST)
Read as: 13.12.2023 at 3:00 PM (IST)

All other terms & conditions of said tender will remain the same.

29/11
Sr. Controller of Stores & Purchase

Minutes of Pre-bid Meeting (PBC): Flashpoint determination and density meter instrument

Pre-bid conference (PBC) meeting to purchase Flashpoint determination and density meter instrument with file no. 14-VI/GAB(1125)23PB was held in the 2nd-floor conference room main building on 07/11/2023 at 3:00 PM to finalize the technical specifications under the BND project (MLP-190932).

The following members have attended the meeting:

S No.	Name	Designation	
1.	Dr. G. A. Basheed	Sr. Scientist, NPL	Indentor
2.	Dr Goutam Mandal	Sr. Pr. Scientist	Domain Expert
3.	Dr. Suraj Khanna	Sr. Pr. Scientist, NPL	Member
4.	Dr. T. K. Mandal	Chief Scientist, NPL	Member
5.	Dr. H. K. Singh	Chief Scientist	Chairman

The meeting was conducted as per the scheduled program. The indenter has apprised all the members about the required specifications for procuring the Flashpoint determination and density meter instrument.

In the meeting, the following representatives have attended

1. Mr. Rajeev Sharma, M/s. Anton Paar India Pvt. Ltd (Flash Point)
   Mr. Amit Tripathi M/s. Anton Paar India Pvt. Ltd (Density meter)
2. Mr. V. Srinivasan, M/s. Labcon Scientific Instruments Pvt. Ltd. (Flash Point)

A detailed discussion went on to make the equipment versatile for its proper utility, and the inputs/queries taken from the respective representatives and discussed amongst the members. The final technical specifications were framed and finalized as mentioned in Annexure-B.