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ECAE		TLD/F6.05-5	
九十卯史	Ethiopian Conformity Assessment Enterprise	Copy No:	Rev No:
NIV P			0
	Specification	Page No:	Effective date:
		1 of 1	1-Sep-19
Laboratory:	Biochemical Testing Laboratory Directorate, Microbiological Laboratory		
Address:	P.O. Box: 11145, Woreda 6, Bole Sub-City, Addis Ababa, Ethiopia, St. Line 1: B74-1376 Bole	Audit	English
	Phone: +251 (0)11-830 2477, +251 (0)116 51 81 95, Fax:+251 (0)11-646 9720	Language	
	Web-site: www.eca-e.com, E-Mail: info-bctl@eca-e.com		
Prepared By	Zerihun Abebe,	Signature	
Approved By	Abel Anberbir	Signature	
Contract Ref		Year	2023

Lot -1: Description: - Those categories of instruments are listed under similar LOT due to specific scope of products testing instruments, which is <u>dedicated for quality control and quality assurance of petroleum and petroleum products</u> at laboratory level.

Petrolium Testing Equipments								
	ECAE Specification	Bidder Name:					•	ote on Scoring (C =
				Bidder Offer				C = Not Comply)
Category of specification	Items and Specification	Specification/Requirement	Lead Time ( days)	Warranty	Part Number/ Evidence (for applicable & critical component)	Bidder Remark	Evaluation	Remark
Item. 01.01	Automatic Freezing Point Analyzer with built-in cooling system							
1. Description/Scope	Measure up to -100°C (-148°F) without the need of an external cooling bath. The unique patented detection cell provides ultra-high accuracy with unmatched precision, while maintaining its compact footprint used for the determination of the temperature below which solid hydrocarbon crystals may form in aviation turbine fuels. Compliant with ASTM D7153, IP529, DEF STAN 91-91 and Correlation to ASTM D2386, IP 16, ISO 3013, JIS K2276							
	Compact design with built-in cooling system and self-contained cleaning							
	With new touch-screen and advanced electronics							
	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer							
2. Unique Identification feature	official web page to cross check with the brochure provided							
	2.2. Country of origin shall be declared							
3. Status of the Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared							
4. Quantity	2 Sets							
5. Test Method and Verification Standards	Compliant with ASTM D7153, IP529, DEF STAN 91-91 Correlation to ASTM D2386, IP 16, ISO 3013, JIS K2276							
6. Technical Specification								
Temperature Range	Down to -100°C (-148ºF)							
Cooling System	Internal							
Internal Memory	200 test runs							
нмі/ммі	7.4" color touch-screen							
Detection	Optical, patented							
Out put	Output 2x USB, 1x Serial, 1x Ethernet							
Operator Time	0.5 minute per test							
Test Duration	15 minutes							
Sample Volume	10 ml, including volume for cleaning							
Sample Injection	Disposable 10- or 20-ml syringe							
Cleaning	Self-cleaning operation, no cleaning required							
Calibration	Automatic calibration routine for temperature measurement. 10°C interval probe correction capabilities. Programmable calibration frequency. Calibration ticket printing.							
PC Networking	IRIS software							
Data Management	Test progress & graphic, self-diagnosis tools, quality features							
Printing	Network printer (one printer for multiple analyzers)							
Data Storage	50 complete test reports stored locally, unlimited with P							

Ī	handle. Due seekele selikasking Quality seekel instrument seeseskan	1	1		
Software features	handle: - Run controls, calibration, Quality control, instrument parameters,				
	result and report				
Safety					
6.1. Electrical and Power requirement	220±10V, 50/60 Hz, 200W				
6.2. Dimensions	(W x D x H) in cm= 25x60x25 +/- 20%				
6.3. Weight	30kg, maximum				
	Freezing point Certified reference solutions for quality control purpose,				
6.4 Spare parts/Accessories	certificate value: -50°C, applicable for ASTM D2386, ISO 3013, Quantity: 4x225 ml				
	Detector Spare, Quantity= 1				
	Glass Container spare with tubing quantity=1				
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.				
Certificate/ and Document	With certificate of distilled water by the equipment				
Continuately und Document	7.2. The bidder shall submit the documents includes, but not limited,				
	maintenance and user manual, brochure of the machine, application notes and certificates				
	7.3. The bidder shall submit the following, but not limited to, authenticated				
	Testimonial/ Credential/ Certificate/				
	7.3.1. The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning).				
	7.3.2. In the warranty period, the bidder should declare the frequency of the machine preventive maintenance service.				
	7.3.3 In the warranty period, the bidder should declare to provide the spare parts free of charge.				
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive or compliance equivalent international directives				
	7.3.5 The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning). In the warranty period, the bidder should declare the frequency of the machine service and spare parts free of charge, after.				
	7.3.6 The bidder shall declare to provide installation and Training for appropriate Period at least for 3 analysts. In addition, the declaration shall indicate SOP (standard operating procedure) that clearly indicate how to operate, troubleshooting, monitoring of functional units and consumables).				
	7.3.7 Evidence on the equipment compliance with applicable health and safety regulations and standards.				
	7.3.8 Willingness of the principal to provide the spares in future at least for ten years (based on client request)				
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in				
	8.2 Appropriate shock watch label should be in placed in the package				
Item. 01.02	Automatic closed-cup flash point tester				
1. Description/Scope	Automatic high-precision flash point testing in the petroleum, chemical, and fragrance industries, and for test laboratories, measuring range 20 °C to 410 °C, integrated fire-extinguishing system  Saves you time due to fast turn-around time between samples with Maximum				
2 Hatana Idaakii aki a f	safety, low operating costs, high degree of automation  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer				
2. Unique Identification feature	official web page to cross check with the brochure provided				
	2.2. Country of origin shall be declared				
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
4. Quantity	1 Sets				
To Quantity	12 3013		1		

Soc 279, jis X 2265-A, B, and iP 34   Soc 279, jis X 2265-A, B, and	I	for determining the flesh point according to ASTM DO2 Methods A. R.+ C. EN		ı	I	<u> </u>
International Control of the Control	5.Test Method & Verification Standards	for determining the flash point according to ASTM D93 Methods A, B + C, EN				
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any starter Automate Letter or start metabal are not option to got to 2007 ppm  Automatic Letter or start metabal are not option to 1907 ppm  All controls and the composition of the start power will automate power or management of the control of	Heating system	9				
Authorition pains.  Author		Rugged metal and intelligent Pt100 probe with built-in calibration, 12				
Description processes   Description   Desc	Temperature measurement	calibration points				
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Software pressure amount members for automatic correction of facility pasts, with mobile collections produced in temperature of the pressure amount of the press	Ignition source					
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memory, pressure anisis % ph. Np. Sp. by myre, pol, memory (ren')  Interpolate detection system  For solar touchoosen, plythamment colar mout, but code reader  For solar touchoosen, plythamment colar mout, but code reader  A literation land Power requirement  2.15 May 100 40 40 40 40 40 40 40 40 40 40 40 40 4		Built-in sensor for automatic correction of flash point, with inbuilt calibration				
In contrainer   From the toucher even, alphanument data input, but code reader   Interfect and Power requirement   226-107, 5950-112,	Barometric pressure sensor					
In contrainer   From the toucher even, alphanument data input, but code reader   Interfect and Power requirement   226-107, 5950-112,	Floring a single distriction of the second	The second flowly we have able to				
Letterial and Power requirement  2. Dimensions  (W. 19 11) Approx.4800 mm. 4400 mm and a begin of 350 mm r/- 2005  3. Sweght  3. Dive 20th  A Spering parts/Accessories  A Spering parts/Acces		·				
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2. Dimensions   Wit 9 H   Agronout-800 mare of a languing of 750 mm of 720		220±10V F0/60 Hz				
3.1 Weight   10 to 200g, maximum   2.5 Agene parts/Accessories   2.5 Agene parts/Accessories   3.5 Agene parts/Accessories						
As pare parts/Accessories Application set ASTM 093, 507219, Quantity 1 set After complete California or Astmit Complete California or Astmit Complete California or Astmit Complete California or Cali						
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machine preventive maintenance service.  7.3.3 In the warranty period, the bidder should declare to provide the spare parts free of charge.  7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive compliance or equivalent international directives  7.3.5 The bidder must declare to provide at least 2-year warranty part the warranty card (commissioning). In the warranty period, the bidder should declare the frequency of the machine service and spare parts free of charge, after.  7.3.6 The bidder shall declare to provide installation and Training for appropriate Period at least for 3 analysts. In addition, the declaration shall indicate SOP (standard operating procedure) that clearly indicate how to operate, troubleshooting, monitoring of functional units and consumables).  7.3.7 Evidence on the equipment compliance with applicable health and safety regulations and standards.  7.3.8 Willingness of the principal to provide the spares in future at least for ten years (based on client request)  8.1 Instrument shall be packed using over load and over travel protection built in						
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7.3.8 Willingness of the principal to provide the spares in future at least for ten years (based on client request)  8.1 Instrument shall be packed using over load and over travel protection built in						
years (based on client request)  5. Packaging  8.1 Instrument shall be packed using over load and over travel protection built in		6				
	9 Packaging	8.1 Instrument shall be nacked using over load and over travel protection built in				
8.2 Appropriate shock watch label should be in placed in the package	o. r ackagnig					
		8.2 Appropriate shock watch label should be in placed in the package				

Item. 01.03	Automated Vapor Pressure Apparatus				
	Covers procedure for the determination of vapor pressure of gasoline, volatile				
	crude oil, and other volatile petroleum products. The Reid method is particularly				
1. Description/Scope	suitable for determination of vapor pressure of crude oil for transportation,				
	storage and general handling purpose. The instrument directly measures the				
	Reid vapor pressure				
	without correlation or calculation.				
	Suited for testing viscous and difficult products. User-friendly interface				 
	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer				
2. Unique Identification feature	official web page to cross check with the brochure provided				
	2.2. Country of origin shall be declared				
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
4. Quantity	1 Sets				
- Quantity					
5.Test Method & Verification Standards	Comply ASTM D 323, D4953, ISO 3007, IP 69				
Reported results	Reported Results: REID or TVP				
	Bath: 37.8°C (100°F) or 50.0°C				
	Pressure range: Up to 250 kPa				
	Resolution: 0,1 kPa				
	Test time: Less than 15 minutes typical				
	Interface:8' full-color touch screen				
	Language: English				
	Results storage: Database, USB stick, LAN				
	Communication: 2 x USB 2.0, Ethernet port				
	Printing: Graphic printer				
	Bath: Stainless steel bath with capacity of 31 Liters				
Safety					
6.1. Electrical and Power requirement	220±10V, 50/60 Hz, consumption 2kW			 	
6.2. Dimensions	(W x D x H) 720 x 440 x 460 mm +/- 20%				
6.3. Weight	70kg, maximum				
6.4 Spare parts/Accessories					
	Printer 112mm 230V 50/60Hz				
6.4.1 Printer	Industrial thermal printer. Delivered pre-configured, with cable, adapter and 10				
	paper rolls				
	Including: a digital manometer, manual pressure pump, a manual vacuum				
6.4.2 Calibration Pressure Kit 220V 50/60Hz	pump, a connection pipe with quick connector, a connection pipe to be				
	connected on the rear panel, a carrying case and a traceable calibration certificate				
6.4.3 Filling Device	Filling device (ASTM D323 A.1.8)			1	
6.4.4 caps	Set of 2 caps (for ASTM D4953 method)				
6.4.5 Brass complete REID test vessel	Stainless steel complete REID test vessel				
	Stainless steel Complete Relo less vessel  Stainless steel Vapor chamber with fast coupling				
6.4.6 Brass Vapor chamber with fast coupling	(Supplied with sealing O-rings)				
6.4.7 Brass Liquid chamber 1 opening with fast coupling	Stainless steel Liquid chamber 1 opening with fast coupling				
6.4.8 Brass Pressure link with flexible tube and	Stainless steel pressure link with flexible tube and quick connector				
quick connector					
6.4.9 O rings	O-Ring Seals (pack of 10)				
6.4.10 printer paper	Set of 10 printer paper rolls 112mm				
6.4.11 Connector	Quick connector for pressure link (Quantity 2)				
6.4.12 Flexible hose	Flexible pressure hose D6 mm 1 meter (Quantity 3)	`			
6.4.13 Thermometer	Thermometer ASTM 18C (Quantity 2)				
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.				
Certificate/ and Document					

	7.2. The bidder shall submit the documents includes, but not limited,				
	maintenance and user manual, brochure of the machine, application notes and				
	certificates				
	7.3. The bidder shall submit the following, but not limited to, authenticated		İ		
	Testimonial/ Credential/ Certificate/				
	7.3.1. The bidder must declare to provide at least 2-year warranty after the				
	warranty card (commissioning).				
	, ( 5)				
	7.3.2. In the warranty period, the bidder should declare the frequency of the				
	machine preventive maintenance service.				
	7.3.3 In the warranty period, the bidder should declare to provide the spare				
	parts free of charge.				
	72.4.4. 14.1: 0: 1: 2005/4250 0 1 1: 1 1 1 5 1: 5 05				
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE				
	machinery directive compliance or equivalent international directives				
	7.3.5 The bidder must declare to provide at least 2-year warranty after the				
	warranty card (commissioning). In the warranty period, the bidder should				
	declare the frequency of the machine service and spare parts free of charge,				
	after.				
	7.3.6 The bidder shall declare to provide installation and Training for				
	appropriate Period at least for 3 analysts. In addition, the declaration shall	]			
	indicate SOP (standard operating procedure) that clearly indicate how to				
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	operate, troubleshooting, monitoring of functional units and consumables).				
	7.3.7 Evidence on the equipment compliance with applicable health and safety	1			
	regulations and standards.				
	7.3.8 Willingness of the principal to provide the spares in future at least for ten				
	years (based on client request)				
	years (based on client request)				
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in				
	8.2 Appropriate shock watch label should be in placed in the package				
Item. 01.04	8.2 Appropriate shock watch label should be in placed in the package  Automatic Distillation tester				
	11 1				
item. 01.04  1. Description/Scope	Automatic Distillation tester				
	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products				
	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products  Unknown sample test with Automatic residual and loss calculation				
	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products  Unknown sample test with Automatic residual and loss calculation  Easy operation and the Software can remotely troubleshoot				
	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products  Unknown sample test with Automatic residual and loss calculation  Easy operation and the Software can remotely troubleshoot  One-button Start. Automatically completes sample distillation testing, saves,				
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1. Description/Scope	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products  Unknown sample test with Automatic residual and loss calculation  Easy operation and the Software can remotely troubleshoot  One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided				
1. Description/Scope	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer				
Description/Scope      Unique Identification feature	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared				
Description/Scope      Unique Identification feature  3. Status of Instrument	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
Description/Scope      Unique Identification feature	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument  4. Quantity	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
Description/Scope      Unique Identification feature  3. Status of Instrument	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
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1. Description/Scope  2. Unique Identification feature  3. Status of Instrument  4. Quantity  5. Test Method & Verification Standards	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002,				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument  4. Quantity	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument  4. Quantity  5. Test Method & Verification Standards  6. Technical Specification	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument  4. Quantity  5. Test Method & Verification Standards	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078 With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument  4. Quantity  5. Test Method & Verification Standards  6. Technical Specification	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards 6. Technical Specification Steam temperature Range: 0 - 450°C	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078 With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument  4. Quantity  5. Test Method & Verification Standards  6. Technical Specification	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards 6. Technical Specification Steam temperature Range: 0 - 450°C	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate				
2. Unique Identification feature  3. Status of Instrument 4. Quantity  5. Test Method & Verification Standards  6. Technical Specification Steam temperature Range: 0 - 450°C  vapor temperature	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078 With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate  Optical measuring system compatible with samples producing smoke in the				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards 6. Technical Specification Steam temperature Range: 0 - 450°C	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate  Optical measuring system compatible with samples producing smoke in the receiver with self-positioning heater lift; range 0 to 103% charge volume;				
2. Unique Identification feature  3. Status of Instrument 4. Quantity  5. Test Method & Verification Standards  6. Technical Specification Steam temperature Range: 0 - 450°C  vapor temperature	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078 With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate  Optical measuring system compatible with samples producing smoke in the				
2. Unique Identification feature  3. Status of Instrument 4. Quantity 5. Test Method & Verification Standards 6. Technical Specification Steam temperature Range: 0 - 450°C  vapor temperature	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate  Optical measuring system compatible with samples producing smoke in the receiver with self-positioning heater lift; range 0 to 103% charge volume;				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument 4. Quantity 5. Test Method & Verification Standards 6. Technical Specification Steam temperature Range: 0 - 450°C  vapor temperature sample volume	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C  accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID  detection; calibration history; optional calibration certificate  Optical measuring system compatible with samples producing smoke in the receiver with self-positioning heater lift; range 0 to 103% charge volume; resolution: 0.03ml, accuracy: ± 0.1ml				
1. Description/Scope  2. Unique Identification feature  3. Status of Instrument 4. Quantity 5. Test Method & Verification Standards 6. Technical Specification Steam temperature Range: 0 - 450°C  vapor temperature  sample volume  ambient pressure	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate  Optical measuring system compatible with samples producing smoke in the receiver with self-positioning heater lift; range 0 to 103% charge volume; resolution: 0.03ml, accuracy: ± 0.1ml  Built-in pressure sensor, range to 70 to 110 kPa A (500 to 800 mmHg)  Detector for heater base plate type, Detector for vapor probe and centering				
2. Unique Identification feature  3. Status of Instrument 4. Quantity 5. Test Method & Verification Standards 6. Technical Specification Steam temperature Range: 0 - 450°C  vapor temperature sample volume	Automatic Distillation tester  For testing different types of samples such as gasoline, kerosene, diesel, organic solvents, and benzene products Unknown sample test with Automatic residual and loss calculation Easy operation and the Software can remotely troubleshoot One-button Start. Automatically completes sample distillation testing, saves, prints, or uploads the measurement result data.  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  ASTM D86, ASTM D850, EN ISO 3405, IP 123 and 195, DIN 51 751, NF M07-002, GB/T 6536, GB/T 3146.1, ASTM D1078  With built in Ticket printer, automatic heater base plate detection and reduction of VOC emission and with crude oil testing capability.  0 - 450°C accuracy Pt 100 IEC 751 probe Class A  Built in calibration memory with 10-point calibration table and automatic probe ID detection; calibration history; optional calibration certificate  Optical measuring system compatible with samples producing smoke in the receiver with self-positioning heater lift; range 0 to 103% charge volume; resolution: 0.03ml, accuracy: ± 0.1ml  Built-in pressure sensor, range to 70 to 110 kPa A (500 to 800 mmHg)				

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	Run Control						
Software features	Results, Calibration, Instrument Parameters						
	Reports, Quality Control, Method Definition						
	Specs Definition, Test Start, Results Evaluation						
	3 USB for external printer, barcode reader and memory stick; RS232C serial port						
Connectivity	for LIMS connection; Ethernet RJ45 port for LIMS connection and unit						
	networking;						
	Connection to external PC and printer with Software and license						
Operating Requirements	Temperature 10 to 35°C (50 to 95°F); relative humidity up to 80% at 35°C (95°F)						
	Multi Voltage 100 to 240V; 1400 W						
Results storage	1000 result data or expand storage capacity as needed.						
Safety	Built in fire extinguisher with 2 fire sensors						
6.1. Electrical and Power requirement	220±10V, 50/60 Hz, Total Power < 1200W						
6.2. Dimensions	4cm W * 57cm D * 65cm H +/-20%						
6.3. Weight	70kg, maximum						
6.4 Spare parts/Accessories							
	Measuring Cylinder 100ml with brass base, QTY 2						
	• Flask 125ml , QTY 2						
	Vapor Probe Stopper for 100ml, 125ml and 250ml flask QTY 2 for each		1	1			
	Vapor Probe wire guide, QTY 2						
	Vapor Probe holder, QTY 2						
	Heater Base Plate 50 mm opening, QTY 2						
	Heater Base Plate 38 mm opening, QTY 2						
	Silicone hose for flask connection, QTY, 10 m						
	Rubber Cap for Measuring Cylinder, QTY 2						
	Condenser Cleaner, QTY 2						
	Receiver Chamber Liquid Vessel, QTY 2						
	Hose connection piece, QTY 2						
	Set of hexagonal wrenches, QTY 1						
7. Authenticated Testimonial/ Credential/ Certificate/ and Document	7.1. User/Technical/Maintenance manuals to be supplied in English.With certificate of distilled water by the equipment						
	7.2. The bidder shall submit the documents includes, but not limited, maintenance and user manual, brochure of the machine, application notes and						
	7 11						
	certificates						
	7.3. The bidder shall submit the following, but not limited to, authenticated						
	Testimonial/ Credential/ Certificate/						
	7.3.1. The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning).						
	7.3.2. In the warranty period, the bidder should declare the frequency of the						
	machine preventive maintenance service.				1		
	7.3.3 In the warranty period, the bidder should declare to provide the spare						
	parts free of charge.				1		
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive compliance or equivalent international directives						
	7.3.5 The bidder must declare to provide at least 2-year warranty after the		1	1			
	warranty card (commissioning). In the warranty period, the bidder should						
	declare the frequency of the machine service and spare parts free of charge, after.						
	7.3.6 The bidder shall declare to provide installation and Training for						
	appropriate Period at least for 3 analysts. In addition, the declaration shall						
	indicate SOP (standard operating procedure) that clearly indicate how to						
	operate, troubleshooting, monitoring of functional units and consumables).		ļ	ļ			
	7.3.7 Evidence on the equipment compliance with applicable health and safety						
	regulations and standards.	<u> </u>	1	1			

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	7.3.8 Willingness of the principal to provide the spares in future at least for ten years (based on client request)						
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in						
	8.2 Appropriate shock watch label should be in placed in the package						
9. Delivery Schedule	9.1 Not more than three to four months from the time of the order placement						
Item. 01.05	Copper Strip Corrosion - Test Tube Bath						
1. Description/Scope	The Copper Strip Tarnish Test assesses the relative degree of corrosivity of petroleum products, including aviation fuels, automotive gasoline, natural gasoline, solvents, kerosene, diesel fuel, distillate fuel oil, lubricating oil and other products. A polished copper strip is immersed in 30mL of sample at elevated temperature. After the test period, the strip is examined for evidence of corrosion and a classification number from 1-4 is assigned based on a comparison with the ASTM Copper Strip Corrosion Standards. For aviation fuels and natural gasoline, the sample tube is placed inside a stainless-steel pressure vessel during testing.						
2. Unique Identification feature	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided						
	2.2. Country of origin shall be declared						
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared						
4. Quantity	1 Sets						
5.Test Method & Verification Standards	conforms to the specifications of: ASTM D130, D6074, D6158; FSPT DT-28-65; IP 154; ISO 2160; DIN 51759; FTM 791-5325; NF M 07-015						
6. Technical Specification							
Capacity:	17 test tubes						
Maximum Temperature:	190°C (374°F)						
Temperature Control Stability:	±1°C (±2°F)						
Heater Range:	0-750W						
Bath Medium:	5-gal (18.9L) water or high temperature heater transfer fluid						
Safety							
6.1. Electrical and Power requirement	220±10V, 50/60 Hz, Single Phase, 4A						
6.2. Dimensions	(W x D x H) in cm: (39x32x36) +/-20%						
6.3. Weight	20kg, maximum						
6.4 Spare parts/Accessories	test Pressure Vessel Rack Quantity 2						
	Rack, 4-Pressure Vessel, 8- Tube, Quantity 2						
	Rack, 6-Pressure Vessel, 6-Tube, Quantity 2						
	Copper Test Strip - 12.5x1.5-3.0mm x 75mm to ASTM specifications, Quantity 2						
	Test Tube - 25 x 150mm, Quantity 2 pack						
	Viewing Test Tube - Protects copper strip during inspection or storage, Quantity 2						
	ASTM Copper Strip Corrosion Standards - Colored reproductions of tarnished strips encased in a plastic plaque, Quantity = $\bf 1$						
	Silicon Carbide Paper, FEPA Grade, 220 grit - For polishing of copper strips prior to testing - Pack of 50 sheets, Quantity 1						
	Silicon Carbide Grain, FEPA grade, 150 grit - For final polishing of copper strips prior to testing - 1 lb. package Quantity = 1						
	250-000-12F ASTM 12F Thermometer. Range: -5 to +215°F						
	Polishing Vise - Holds copper strip firmly in place without marring the edges. Stainless steel, mounted on a composition base, Quantity = 1						
	Multi-Strip Polishing Vise, capable of holding four strips at a time Quantity = 1						
	250-000-12C ASTM 12C Thermometer. Range: -20 to +102°C						
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.						
Certificate/ and Document	With certificate of distilled water by the equipment						

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	7.2. The bidder shall submit the documents includes, but not limited,				
	maintenance and user manual, brochure of the machine, application notes and				
	certificates				
	7.3. The bidder shall submit the following, but not limited to, authenticated Testimonial/ Credential/ Certificate/				
	7.3.1. The bidder must declare to provide at least 2-year warranty after the				
	warranty card (commissioning).				
	7.3.2. In the warranty period, the bidder should declare the frequency of the				
	machine preventive maintenance service.				
	7.3.3 In the warranty period, the bidder should declare to provide the spare				
	parts free of charge.				
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE				
	machinery directive compliance or equivalent international directives				
	7.3.5 The bidder must declare to provide at least 2-year warranty after the				
	warranty card (commissioning). In the warranty period, the bidder should				
	declare the frequency of the machine service and spare parts free of charge,				
	after.				
	7.3.6 The bidder shall declare to provide installation and Training for				
	appropriate Period at least for 3 analysts. In addition, the declaration shall				
	indicate SOP (standard operating procedure) that clearly indicate how to				
	operate, troubleshooting, monitoring of functional units and consumables).				
	7.3.7 Evidence on the equipment compliance with applicable health and safety				
	regulations and standards.				
	7.3.8 Willingness of the principal to provide the spares in future at least for ten				
	years (based on client request)				
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in				
	8.2 Appropriate shock watch label should be in placed in the package				
Item. 01.06	Automatic Cloud and Pour Point Analyzer				
	petroleum products behave at low temperatures. The test specimen is cooled at				
	a specified rate and measured periodically. The highest temperature at which a				
1. Description/Scope	cloud is first detected at the bottom of the test jar is recorded as the cloud				
	point. The lowest temperature at which movement of the specimen is detected				
	is recorded as the name point				
	Fully Automatic determination of cloud point by Optical Detection,				
	determination of pour point via the Automatic Tilt Method				
2. Unique Identification feature	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer				
2. Onique identification reactive	official web page to cross check with the brochure provided				
	2.2. Country of origin shall be declared				
2 Chatus of Instrument					
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared	 	 		
4. Quantity	1 Sets		 	 	
	Conforms to the specifications of: ASTM D5771, D5950				
5.Test Method & Verification Standards	Excellent Correlation to: ASTM D97, D2500, D5853, D6074, D6158; ISO 3015,				
	3016; IP 15, 219; DIN 51597; FTM 791-201; NF T 60-105; JIS K2269				
6. Technical Specification					
	High Performance				
	Wireless Cloud Point Head				
	Wireless Pour Point Head				
	Integrated Cooling System				
-	Automatic Calibration by means of 10-point RTD Calibration,				
	Sample Calibration, and Jacket Calibration Cloud Point: Optical Detection				
Detection:	Pour Point: Optical Detection Pour Point: Automatic Tilting				
Cooling:	Internal Cooling System				
	(-105 °C to +50 °C)/ (-157 °F to +122 °F)				
Temperature Range:	Temperature Accuracy: ± 0.1 °C				
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Tilt Interval:	1 °C or 3 °C as per test method (User defined for custom method 1 °C to 5 °C)					
Display:	10.4" Color Touch Screen					
Password Protection:	Multi-level password capability					
T 11 0 115 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1	1. Cloud Point CRM @ -5°C, that meets ASTM D2500, ISO 3015, Quantity 255ml					
Traceable Certified reference material for Cloud	X3					
and pour point	2. Pour Point CRM @ -15 and -25°C, that meets ASTM D97and ISO 3016,					
Industrial Touch Screen User Interface	Quantity 255ml x3 for each  10.4-inch Integrated Color Touch Screen					
industrial rouch screen oser interface	Standard test methods are pre-programmed or user-defined test programs can					
	be created					
Software Capabilities, USB & Network Connections	Clear graph of temperature vs. time for sample and bath temperatures					
	Results can be easily searched, viewed on screen, printed, and exported to LIMS					
	4 USB interfaces					
	Internet (Ethernet) Line					
	3 Point Electronics Calibration					
Automated Calibration Features	10 Point RTD Offset Calibration					
	Jacket Calibration					
Safety						
6.1. Electrical and Power requirement	220±10V, 50/60 Hz, Single phase					
6.2. Dimensions	W x D x H, in.(cm): (30x68x40), +/-20%					
6.3. Weight	45kg, maximum					
6.4 Spare parts/Accessories	test jar (Quantity 3), and cork (Quantity 3)					
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.					
Certificate/ and Document	With certificate of distilled water by the equipment					
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.					
Certificate/ and Document	With certificate of distilled water by the equipement					
	7.2. The bidder shall submit the documents includes, but not limited, maintenance and user manual, brochure of the machine, application notes and certificates					
	7.3. The bidder shall submit the following, but not limited to, authenticated Testimonial/ Credential/ Certificate/					
	7.3.1. The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning).					
	7.3.2. In the warranty period, the bidder should declare the frequency of the machine preventive maintenance service.					
	7.3.3 In the warranty period, the bidder should declare to provide the spare parts free of charge.					
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive compliance or equivalent international directives					
	7.3.5 The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning). In the warranty period, the bidder should declare the frequency of the machine service and spare parts free of charge, after.					
	7.3.6 The bidder shall declare to provide installation and Training for appropriate Period at least for 3 analysts. In addition, the declaration shall indicate SOP (standard operating procedure) that clearly indicate how to operate, troubleshooting, monitoring of functional units and consumables).			_		
	7.3.7 Evidence on the equipment compliance with applicable health and safety regulations and standards.		_			
	7.3.8 Willingness of the principal to provide the spares in future at least for ten years (based on client request)					
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8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in						
	8.2 Appropriate shock watch label should be in placed in the package						
Item. 01.07	Say bolt and Say bolt Wax Chromometers						
item 01.07							
	The Say bolt Color test is used for quality control and product identification						
	purposes on refined products having an ASTM Color of 0.5 or less. Products in						
1. Description/Scope	this range include undyed motor and aviation gasolines, jet propulsion fuels,						
1. Description/scope	naphtha, kerosene and petroleum waxes. The Say bolt Chromometer measures color by comparing a column of sample against standard color discs. The Say						
	bolt Wax Chromometer measures color of non-fluid waxes by heating the						
	samples during the test.						
	Conforms to ASTM D156, ASTM D6045 and related Programmable Settings,						
	Touch Screen Technology, On-Screen Warning System, Easy storage and sharing of results, Single Scale Measurement						
	or results, single scale ivieasurement						
2. Unique Identification feature	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer						
- on que lacinimation reataire	official web page to cross check with the brochure provided						
	2.2. Country of origin shall be declared						
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared						
4. Quantity	1 Sets				ļ		
	Conforms to the specifications of: ASTM D156; DIN 51411; FTM 791-101; NF M						
5.Test Method & Verification Standards	07-003						
6. Technical Specification							
Color Type	Transparent						
Display	Size: 3.5 inch; Resolution: 320 x 240; Color: 24 Bit (True Color)						
Interfaces	USB						
Internal Storage	> 20,000 readings						
	USB 2.0 (mini-USB plug)						
Power Supply	4 batteries (AA)						
Portability	Portable						
Fortability	2 x W100 OG 50mm glass cells						
	2 x W100 OG 50mm glass cells						
	2 x W100 50mm plastic cells						
	2 x glass reference standards						
	2 x 60 mL liquid reference standards (with minimum 2 Years expiry date when						
	deliver)						
	Pot of 4 x AA batteries						
Safety		·					-
6.1. Electrical and Power requirement	220±10V, 50/60 Hz, Single Phase, 5.3A						
6.2. Dimensions	106 x 57 x 210 mm, +/-10%						
6.3. Weight	5 kg max						
6.4 Spare parts/Accessories/ consumables	2 x glass reference standards						
	2 x 60 mL liquid reference standards (with minimum 2 Years expiry date when deliver)				1		
	uenver)						
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.				1		
Certificate/ and Document	With certificate of distilled water by the equipment						
	7.2. The bidder shall submit the documents includes, but not limited,				-		
	maintenance and user manual, brochure of the machine, application notes and				1		
	certificates						
					1		
	7.3. The bidder shall submit the following, but not limited to, authenticated				1		
	Testimonial/ Credential/ Certificate/				<u> </u>	 	
	7.3.1. The bidder must declare to provide at least 2-year warranty after the						_
	warranty card (commissioning).						

	7.3.2. In the warranty period, the bidder should declare the frequency of the					
	machine preventive maintenance service.					
	7.3.3 In the warranty period, the bidder should declare to provide the spare					
	parts free of charge.					
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE					
	machinery directive compliance or equivalent international directives					
	7.3.5 The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning). In the warranty period, the bidder should					
	declare the frequency of the machine service and spare parts free of charge,					
	after.					
	7.3.6 The bidder shall declare to provide installation and Training for					
	appropriate Period at least for 3 analysts. In addition, the declaration shall					
	indicate SOP (standard operating procedure) that clearly indicate how to					
	operate, troubleshooting, monitoring of functional units and consumables).					
	7.3.7 Evidence on the equipment compliance with applicable health and safety					
	regulations and standards.  7.3.8 Willingness of the principal to provide the spares in future at least for ten			-	-	
	years (based on client request)					
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in		 			
	8.2 Appropriate shock watch label should be in placed in the package					
Item. 01.08	Automatic micro-Carbon Residue Tester					
	provides safe measurements of petroleum products with a tendency to					
1. Description/Scope	thermally degrade and form coke under high temperature pyrolyzing conditions.					
	SIMPLE AND EASY: The gravity seal lid is designed to give a perfect sealing and				+	
	it's very easy to manipulate					
	Accommodates sample sizes from 0.1 to 2 grams (depending on carbon residue					
1	content.					
	Accommodates up to 12 samples simultaneously, enhancing laboratory's test					
	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.					
	Accommodates up to 12 samples simultaneously, enhancing laboratory's test					
	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy					
2. Unique Identification feature	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer					
2. Unique Identification feature	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided					
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Unique Identification feature     Status of Instrument	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided					
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3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared  It shall be new (Refurbished equipment will not be accepted)/ shall be declared					
3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards 6. Technical Specification	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared  It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  IN COMPLIANCE: ASTM D4530, IP 398, ISO 10370, GB/T 17144, JIS K2270					
3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards 6. Technical Specification Oven Capacity	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared  It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  IN COMPLIANCE: ASTM D4530, IP 398, ISO 10370, GB/T 17144, JIS K2270  600 ml (approximately)					
3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards 6. Technical Specification Oven Capacity Temperature Range	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared  It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  IN COMPLIANCE: ASTM D4530, IP 398, ISO 10370, GB/T 17144, JIS K2270  600 ml (approximately)  Ambient to 775°C					
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3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards 6. Technical Specification Oven Capacity Temperature Range Time Control Overnight Test Mode	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared  It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  IN COMPLIANCE: ASTM D4530, IP 398, ISO 10370, GB/T 17144, JIS K2270  600 ml (approximately)  Ambient to 775°C  Multiple programmable steps  Continues nitrogen flow for up to 16 hours after cool-down  Close proximity to hood for vapor exhaust; access to analytical balance 0.1 mg accuracy  DATA ACCESS on LED readout for easy viewing  Safety High temperature limit-switch with auto shut down and audible alarm;					
3. Status of Instrument 4. Quantity 5.Test Method & Verification Standards 6. Technical Specification Oven Capacity Temperature Range Time Control Overnight Test Mode	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared  It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  IN COMPLIANCE: ASTM D4530, IP 398, ISO 10370, GB/T 17144, JIS K2270  600 ml (approximately)  Ambient to 775°C  Multiple programmable steps  Continues nitrogen flow for up to 16 hours after cool-down  Close proximity to hood for vapor exhaust; access to analytical balance 0.1 mg accuracy  DATA ACCESS on LED readout for easy viewing  Safety High temperature limit-switch with auto shut down and audible alarm; test won't start in over-temperature state.					
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3. Status of Instrument 4. Quantity 5. Test Method & Verification Standards 6. Technical Specification Oven Capacity Temperature Range Time Control Overnight Test Mode  Displays test status	Accommodates up to 12 samples simultaneously, enhancing laboratory's test productivity.  Allows standard sample to be run with every test for verification of test accuracy  2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided  2.2. Country of origin shall be declared  It shall be new (Refurbished equipment will not be accepted)/ shall be declared  1 Sets  IN COMPLIANCE: ASTM D4530, IP 398, ISO 10370, GB/T 17144, JIS K2270  600 ml (approximately)  Ambient to 775°C  Multiple programmable steps  Continues nitrogen flow for up to 16 hours after cool-down  Close proximity to hood for vapor exhaust; access to analytical balance 0.1 mg accuracy  DATA ACCESS on LED readout for easy viewing  Safety High temperature limit-switch with auto shut down and audible alarm; test won't start in over-temperature state.  Automatic flow control with internal pressure regulator to maintain constant					

La Talif Arm), book of 344  5. Filtering accosines - Only - 2 sets  1. Low Carbon 12, 0.375. Cerbon, Quantity 3 sock  2. Low Carbon 12, 0.375. Cerbon, Quantity 3 sock  3. Medium Carbon, 32, 0.375. Cerbon, Quantity 3 sock  3. Medium Carbon, 32, 0.375. Cerbon, Quantity 3 sock  4. Lings Carbon, 22, 1.355. Cerbon, Quantity 3 sock  4. Lings Carbon, 22, 1.355. Cerbon, Quantity 3 sock  4. Lings Carbon, 22, 1.355. Cerbon, Quantity 3 sock  5. Consumables: Carbon Residue Reference Samples: C.13-8-00, QV - 11.  5. Consumables: Carbon Residue Reference Samples: C.13-8-00, QV - 11.  5. Consumables: Carbon Residue Reference Samples: C.13-8-00, QV - 11.  6. COND Disease. Heatering oil, light, Diseas flace, Cas oil - C.9/1 It from each  7. Authenticated Testimonial/ Credential/  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of fasilide water by the equipment of English.  Whin. Certificate of Carbon Carb						
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S. Fifting accessories - Typ. 2 cets  1. Loca Carbon #2, 2-8K carbon, Quantity 2 pack  2. Loca Carbon #2, 2-8K carbon, Quantity 3 pack  3. Medium Carbon, Libia Carbon, Quantity 3 pack  4. Medium Carbon, Libia Carbon, Quantity 3 pack  5. Carbon Residue Reference  4. Medium Carbon, Libia Carbon, Quantity 3 pack  6. CRMD Diesels: Heating oil, light; Dieself fuel; Cas oil - Cyty 1 from each  7. Authenticated Testimonial/ Credential/  6. CRMD Diesels: Heating oil, light; Dieself fuel; Cas oil - Cyty 1 from each  7. The bidder phall sobmit the occurrents includes by one relimited  7. The bidder shall sobmit the occurrents includes by one relimited  7. The bidder shall sobmit the occurrents includes by one relimited to authenticated  7. The bidder shall sobmit the occurrents includes by one relimited to authenticated  7. The bidder shall sobmit the following but not limited to, authenticated  7. The bidder shall sobmit the following but not limited to, authenticated  7. The bidder shall sobmit the following but not limited to, authenticated  7. The bidder shall sobmit the following but not limited to, authenticated  7. The bidder shall sobmit the bidder should declare the frequency of the machine, profronte maintenance arranger of the machine, profronte maintenance arranger of the machine profronte the profess the declare to provide the sparse profronte the profess that are a start of the machine profronte the proff of a test of the profronte that are a constrained of the prof	6.4 Spare parts/Accessories					
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years (based on client request)  8. Packaging  8.1 Instrument shall be packed using over load and over travel protection built in		regulations and standards.				
8.2 Appropriate shock watch label should be in placed in the package	8. Packaging					
		8.2 Appropriate shock watch label should be in placed in the package				

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Item. 01.09	Portable Fuel Analyzer for Gasoline,							
	Diesel, Jet Fuel and Biofuel Blends							
	A high speed, compact and robust FTIR							
	fuel analyzer for the comprehensive and automatic measurement of gasoline,							
1. Description/Scope	jet and diesel fuels. The analyzer is configured to measure more than 100 fuel							
	parameters and components for fuel blending, for							
	quality inspection and to check compliance with fuel specifications							
	Fuel analyzers allow a comprehensive analysis on fuel quality. Octane Number,							
	Octane Boosters, MMT, Benzene, Oxygenates, Aromatics, Cetane Number,							
	<u> </u>							
	Cetane Improver, Density, Distillation and Vapor Pressure are analyzed within							
	minutes. Compliance with Oxygen, Benzene, Ethanol or FAME limits can be							
	assessed easily, fuel contamination and adulteration is readily identified.							
2. Unique Identification feature	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer							
- omque ruemanom reuture	official web page to cross check with the brochure provided							
	2.2. Country of origin shall be declared							
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared							
4. Quantity	1 Sets							
	ASTM D7153, D5845, D6277, D7777, D7806; EN 238, EN 14078; ISO 15212							
5.Test Method & Verification Standards	Property Prediction Based on: ASTM D56/D3828, D86, D323, D445, D613,							
3. Test Wethou & Vermeation Standards	D1319, D1322, D1840, D2386/ D2699, D2700, D3948, D5191, D6371, D6378,							
	D6379; ISO 3405, 5163, 5164, 5165; EN 13016;							
	Portable FT-IR Fuel Analyzer							
	Laser- and Temperature Regulated System							
6. Technical Specification	Superior Resolution							
•	Advanced Chemometrics     10" Full Color Touch Screen							
	Full Network and LIMS Integration							
	100+ Fuel Parameters Analyzer:							
	Oxygenates (ASTM D5845)							
	Aromatics, PNA and Benzene (D6277, EN 238)							
	Biodiesel (FAME) Content (EN 14078, D7806)							
	Octane Booster and Cetane Improver							
	-							
	• Anilines							
Scope of measurements	Total Aromatics, Olefins, Saturates, Oxygen     Octane Number: RON, MON, AKI							
	Octane Number: RON, MON, AKI							
	Cetane Number, Cetane Index							
	Distillation and Vapor Pressure							
	Drivability, Vapor Lock and VOC Analysis							
	Built-In Temperature Regulated Density							
	Jet Fuel: Flash-, Smoke-, Freezing Point, etc.							
temperature Stability	±0.1°C (±0.2°F							
Sample Volume	Less than 25 mL							
Scanning Time	80s (Multiple Scans)							
Spectrometer	Temperature and Laser Regulated, 2+1 Cell-FTIR							
Density Measurement	Temperature Regulated Oscillating U-Tube Cell							
Units of Measurement	v%, m%						-	
	·							
70+ Gasoline Parameters with measuring Range	RON :70 - 110							
	MON: 65-105					-		
	AKI:67-107							
	Distillation: IBP, T10, T50, T90, FBP							
	Evaporation: E70, E100, E150 (°C), E200, E300 (°F)							
	RVP & DVPE:40 - 105 kPa							
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	Density: 0 - 3 g/cm3					
	Precision (Density): r s.d. = ± 0.0005 g/cm3					
	Drivability Index					
	VOC Emissions Calculator					
	Vapor Lock Index (VLI)					
	Unlimited User-Defined Parameters					
Aromatics measuring range	Benzene: 0 - 10 m%					
	Toluene: 0 - 20 m%					
	m-Xylene: 0 - 20 m%					
	o-Xylene: 0 - 20 m%					
	p-Xylene:0 - 20 m%					
	Ethyl benzene:0 - 20 m%					
	Propyl benzene0 - 20 m%					
	Mesitylene0 - 20 m%					
	Durene: 0 - 20 m%					
	Pseudocumene:0 - 20 m%					
	2-/3-/4-Ethyl toluene:0 - 20 m%					
	Other Aromatics:0 - 20 m%					
Oxygenates measuring Range	MTBE, TAME, ETBE, DIPE, Iso-propanol, other oxygenates; 0 - 20 m% for each					
	Methanol: 0 - 15 m%					
	0 - 40 m%				-	
	2-Butanol, tert-Butanol, Acetone: 0 - 25 m% for each				-	
	Sec-Butyl acetate, Iso-Butyl acetate, Dimethyl carbonate, Dimethoxymethane: 0 - 10 m% for each					
Octane Boosters Measuring range	MMT/CMT (mg/l): 0 - 10,000					
	Manganese (MMT): 0-2500					
	DCPD: 0 - 15 m%					
	Nitromethane: 0 - 9 m%					
Others measuring range	Cyclohexane: 0 - 100 m%					
Anilines Measuring range	Aniline, N-Me-Aniline, N, N-Dimethylaniline, m-Methylaniline, o-Methylaniline,					
	p-Methylaniline: 0 - 5 m% for each					
Total Parameters measuring Range	Total Oxygen: 0 - 12 m%					
	Total Aromatics: 0 - 80 m%					
	Total Olefins: 0 - 80 m%					
	Di-Olefins: 0 - 20 m%					
	Total Aniline: 0 - 5 m%					
	Total Esters: 0 - 5 m%					
20+ Diesel Parameters measuring ranges	Cetane Number: 20 - 80					
	Cetane Index: 20 - 80					
	Kinematic Viscosity @40°C: 0 - 10 mm2/s					
	Dynamic Viscosity @40°C: 0 - 10 mPas					
	CFPP: -50°C to +20°C					
	Distillation / Recovery: IBP, T10/50/65/85/90/95, FBP, R250, R350					
	Density: 0 - 3 g/cm3 (r s.d. = ± 0.0005 g/cm3)					
Components Measuring range	Total Aromatics: 0 - 80 m%					
	Poly Nuclear Aromatics: 0 - 50 m%					
	Cetane Improver: EHN, IPN: 0 - 10,000 ppm					
	Biodiesel (FAME, FAEE): 0 - 40 v%					
15+ Jet Fuel Parameters properties measuring range	Flashpoint: -20°C to +100 °C					
	Freezing Point: -80°C to +20 °C					
	Kinematic Viscosity @ -20°C: 0 - 10 mm²/s					
	Distillation: IBP, T10/ 50/90/95, FBP, E10/50, R200					
	Smoke Point: 0 - 1000 mm					
	Total Aromatics: 0 - 40 m%					
	Naphthalene: 0 - 5m%					
	MSEP: 60 - 100 %					
	Density: 0 - 3 g/cm3 (rs.d.= 0.0005 g/cm3)					
	Biodiesel (FAME): 0 - 0.12 m%					
	Diodicaci (1 Aivie). 0 - 0.12 111/0	<u> </u>		l	l	

Display	Biodiesel (FAME): 0 - 0.12 m%				
Interfaces	2x USB, 2x LAN				
interraces					
	works with the following OS: Microsoft® Windows® 10, 64 bits, SP1 or higher.				
	RAM: 4 GB, 64 bit				
Software	CPU: min. i5, 4th generation, 1 GHz				
	Free disk space: 1 TB				
	Display: optimal is Full-HD (1920 x 1080)				
Safety					
	220±10V, 50/60 Hz, 130 W (field application with DC adaptor for 12 V vehicle				
6.1. Electrical and Power requirement	battery)				
6.2. Dimensions	(W x D x H) 293 x 390 x 280 mm, +/- 20%				
6.3. Weight	15kg, maximum				
6.4 Spare parts/Accessories	All accessories serve for 3 years minimum				
0.4 Spare parts/Accessories	Certified reference materials for diesel fuel, and petrol				
	Anti-vibration Platform				
	High-performance lithium-ion battery with				
	= :				
	power supply Vehicle Adapter				
7 Authoritisated Tostimenial / Condential /					
7. Authenticated Testimonial/ Credential/ Certificate/ and Document	7.1. User/Technical/Maintenance manuals to be supplied in English.				
certificate/ and Document	With certificate of distilled water by the equipment				
	7.2. The bidder shall submit the documents includes, but not limited, maintenance and user manual, brochure of the machine, application notes and				
	maintenance and user manual, prochure of the machine, application notes and certificates				
	7.3. The bidder shall submit the following, but not limited to, authenticated				
	Testimonial/ Credential/ Certificate/				
	7.3.1. The bidder must declare to provide at least 5-year warranty after the				
	warranty card (commissioning).				
	7.3.2. In the warranty period, the bidder should declare the frequency of the machine preventive maintenance service.				
	7.3.3 In the warranty period, the bidder should declare to provide the spare				
	parts free of charge.				
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE				
	machinery directive compliance or equivalent international directives				
	7.3.5 The bidder must declare to provide at least 2-year warranty after the				
	warranty card (commissioning). In the warranty period, the bidder should				
	declare the frequency of the machine service and spare parts free of charge,				
	after.				
	7.3.6 The bidder shall declare to provide installation and Training for				
	appropriate Period at least for 3 analysts. In addition, the declaration shall				
	indicate SOP (standard operating procedure) that clearly indicate how to				
	operate, troubleshooting, monitoring of functional units and consumables).				
	7.3.7 Evidence on the equipment compliance with applicable health and safety				
	regulations and standards.				
	7.3.8 Willingness of the principal to provide the spares in future at least for ten				
	years (based on client request)				
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in				
	8.2 Appropriate shock watch label should be in placed in the package				
Item. 01.10	Automatic Thermal Oxidation Stability tester				
1. Description/Scope	Used to test Jet fuel thermal oxidation				
	Reducing exposure to fuel by flushing it at the end of the test; keeps test section				
	dry during disassembly, sample test area with protection shields and enclosed				
	sample and quick fittin waste glass.				
	Automating traditionally time-intensive manual activities, such as pump				
	priming, flow monitoring, and sample aeration				
2. Unique Identification feature	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer				
	official web page to cross check with the brochure provided				
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	2.2. Country of origin shall be declared				
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared				

4. Quantity	1 Sets				
5.Test Method & Verification Standards	STM D3241, IP 323, and ISO 6249 test methods				
6. Technical Specification					
Sample Capacity	600 mL or more				
Test Temperature	100°C – 380°C				
Pressure Range	0 – 350 mm Hg (automatically bypassed at +250 mm Hg)				
Operating System Pressure Range	500 psig ± 10%				
Fuel Sample Flow Rate Range	1.00 ml/min to 9.99 ml/min				
Flow Accuracy	± 2%				
Pump	HPLC, Single Head, SS, Pulse dampened				
Thermocouple	Type K (Chrome/Alum)				
Thermocouple Temperature Range	0°C to +500°C				
Test Time Range	Programmable 4 to 600 minutes				
Fuel Aeration Timer	6 minutes				
Aeration Flow Rate	1.5 L/min				
Coolant Flow Rate	38 L/hr. (10 Gal/hr.)				
Ambient Operating Temperature Range	from+10°C to +35°C (D3241 test limited to +15°C to +32°C)				
Relative Humidity	20% to 90% non-condensing				
Safety					
6.1. Electrical and Power requirement	220±10V, 50/60 Hz, Maximum Operating Current 7A/3.5A				
6.2. Dimensions	(W x D x H) 44 cm X 60 cm X 67 cm, +/-20%				
6.3. Weight	60 kg, maximum				
6.4 Spare parts/Accessories	Heater tube and filter kit, Set of 10: 2 each				
or spars parajessassas	Bottle, Sample/Waste System, 1L: 2each				
	Fuse, 0.5A Fast acting, Nano SMD: 10 each, 5A Fast acting, 5x20mm: 5 each,				
	2.5A Fast acting, 5x20mm: 5 each				
	Manual Rating training guidelines, Energy Institute: 1 each				
	O-rings, Pack of 25: 1 each				
	Cotton Swab Regular, Pack of 100: 1 each				
	Brush Nylon (1/4" x 2): 1 each				
	Brush Nylon (1-5/8 x 3): 1 each				
	Bushing Insulation kit: 1 each				
	Paper filter 20 count: 1 each				
	Bottle and tube assembly: 1 each				
	Aluminum foil: 1 each				
	Tweezers, Teflon coated: 1 each				
	Rubber Squeeze Bulb: 1 each				
	pan S/S Cleaning: 1 each				
	Bottle Tube 4pcs				
	Extractor Insulator: 1 each				
	Grease silicone: 1 each				
	Kit Prefilter Qty 25: 1 each				
	O-ring Viton 1/8"x1/4"x1/6 25/Pk: 1 each				
	Gloves disposable 100/bx: 1 each Tissues, Paper: 1 each				
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.				
Certificate/ and Document	With certificate of distilled water by the equipment				
The state of the s	7.2. The bidder shall submit the documents includes, but not limited,				
	maintenance and user manual, brochure of the machine, application notes and				
	certificates				
	7.3. The bidder shall submit the following, but not limited to, authenticated				
	Testimonial/ Credential/ Certificate/				
	7.3.1. The bidder must declare to provide at least 2-year warranty after the				
	warranty card (commissioning).				
	7.3.2. In the warranty period, the bidder should declare the frequency of the				
	machine preventive maintenance service.				
	7.3.3 In the warranty period, the bidder should declare to provide the spare				
	parts free of charge.				

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	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive compliance or equivalent international directives				
	7.3.5 The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning). In the warranty period, the bidder should declare the frequency of the machine service and spare parts free of charge,				
	after.  7.3.6 The bidder shall declare to provide installation and Training for appropriate Period at least for 3 analysts. In addition, the declaration shall indicate SOP (standard operating procedure) that clearly indicate how to operate, troubleshooting, monitoring of functional units and consumables).				
	7.3.7 Evidence on the equipment compliance with applicable health and safety regulations and standards.				
	7.3.8 Willingness of the principal to provide the spares in future at least for ten years (based on client request)				
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in				
	8.2 Appropriate shock watch label should be in placed in the package				
Item. 01.11	Micro-separometer				
1. Description/Scope	Micro-Separometer is an electro-mechanical instrument used to perform four discrete tests.				
	ASTM Standard Test Methods D3948 (Jet), D7224 (Jet) and D7261 (Diesel) are used to rate water separation characteristics and D4860 (Jet or Diesel) detects and numerically rates free water and particulate contamination.				
2. Unique Identification feature	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided				
	2.2. Country of origin shall be declared				
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
4. Quantity	1 Sets				
5.Test Method & Verification Standards					
5.Test Method & Verification Standards  6. Technical Specification	completely portable and self-contained unit, operating on an internal rechargeable battery				
	1 1 1 1				
	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the				
	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a				
	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied).				
	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable				
	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used.				
6. Technical Specification	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents: 1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing:				
	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents:  1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe				
6. Technical Specification	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents: 1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing:				
6. Technical Specification	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents:  1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip				
6. Technical Specification	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents:  1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip Syringe Plug				
6. Technical Specification	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents:  1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip				
6. Technical Specification  6 pack - Diesel (ASTM D7261)	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents:  1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip Syringe Plug Glass Vial				
6. Technical Specification  6 pack - Diesel (ASTM D7261)  Safety	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents: 1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip Syringe Plug Glass Vial  Quantity 20 pack				
6. Technical Specification  6 pack - Diesel (ASTM D7261)  Safety  6.1. Electrical and Power requirement	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents: 1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip Syringe Plug Glass Vial Quantity 20 pack				
6. Technical Specification  6 pack - Diesel (ASTM D7261)  Safety  6.1. Electrical and Power requirement  6.2. Dimensions	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents: 1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip Syringe Plug Glass Vial Quantity 20 pack  220±10V, 50/60 Hz, (W x D x H) 46x35x16 cm				
6. Technical Specification  6 pack - Diesel (ASTM D7261)  Safety  6.1. Electrical and Power requirement  6.2. Dimensions  6.3. Weight	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents: 1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip Syringe Plug Glass Vial Quantity 20 pack				
6. Technical Specification  6 pack - Diesel (ASTM D7261)  Safety  6.1. Electrical and Power requirement  6.2. Dimensions	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents:  1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip Syringe Plug Glass Vial  Quantity 20 pack  220±10V, 50/60 Hz, (W x D x H) 46x35x16 cm 15kg, maximum				
6. Technical Specification  6 pack - Diesel (ASTM D7261)  Safety 6.1. Electrical and Power requirement 6.2. Dimensions 6.3. Weight	rechargeable battery operated at sites where no AC power supply is available. operated while connected to an AC power line (220V AC may be used) via the standard 3 pin IEC power plug (not supplied). Each Test Kit contains vacuum packed expendables that are used to perform a single test. Each coalescer / filter is labeled to identify the type of fuel and the applicable ASTM method to be used. Box Contents: 1 x Bottle of distilled water (< 3mL) 6 x vacuum sealed six packs containing: Plastic Syringe Coalescer Pipette Tip Syringe Plug Glass Vial Quantity 20 pack  220±10V, 50/60 Hz, (W x D x H) 46x35x16 cm				

	a solution of toluene and AOT surfactant and has been produced using the	1				
AOT Premix 28mL for Micro-separometer	method specified in ASTM D3948, ASTM D7224 and ASTM D7261. (2 years	1				
e	expiry date up on delivery)					
Ground lead u	used to ground the syringe drive to the coalescer.					
Micro-separometer O-Ring .	Part of the Emulsifier assembly which can easily be checked and replaced	1				
F	Box Contents					
	1 x Bottle of distilled water (< 3mL)					
	5 x vacuum sealed six packs containing:					
	Plastic Syringe					
6 pack - Standard (ASTM D3948)	Coalescer	1				
	Pipette Tip	1				
	Syringe Plug					
	Glass Vial					
l	Quantity 20 pack	<del></del>				
	Quantity 20 pack	i <del></del>				
а	ach Test Kit contains vacuum packed expendables that are used to perform a	1				
s	single test. Each coalescer/filter is labeled to identify the type of fuel and the	1				
6 pack - M-Cell (ASTM D7224)	applicable ASTM method to be used. A container of distilled water is also	1				
ir	ncluded in each Six Pack to perform water separation tests. For use with ASTM	1				
	D7224 - M-Cell testing using Micro-separometer	1				
<u>.</u>	the desired and the desired and a CTD and the desired at the control of the contr					
	Used with the Micro-separometer and AOT Premix to chemically validate the	1				
	nstrument.	<del>                                     </del>				
	Quantity 1 pack	<del> </del>				
	Electronics 50 µL Micro Liter pipette for use with Electronics Micro-	1				
Si	separometer. Quantity 4	4				
	Micro-separometer Emulsifier Drive Belt Suitable for the instruments					
	1000mL Quantity 3					
	7.1. User/Technical/Maintenance manuals to be supplied in English.					
Certificate/ and Document	With certificate of distilled water by the equipment					
7	7.2. The bidder shall submit the documents includes, but not limited,	1				
r	maintenance and user manual, brochure of the machine, application notes and	1				
c	certificates, Safety Datasheet available					
7	7.3. The bidder shall submit the following, but not limited to, authenticated	1				
	Testimonial/ Credential/ Certificate/	1				
7	7.3.1. The bidder must declare to provide at least 2-year warranty after the					
v	warranty card (commissioning).	1				
7	7.3.2. In the warranty period, the bidder should declare the frequency of the					
r	machine preventive maintenance service.	1				
7	7.3.3 In the warranty period, the bidder should declare to provide the spare					
	parts free of charge.	1				
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE	1				
[n	machinery directive compliance or equivalent international directives	1				
7	7.3.5 The bidder must declare to provide at least 2-year warranty after the					
	warranty card (commissioning). In the warranty period, the bidder should	1				
	declare the frequency of the machine service and spare parts free of charge,	1				
	after.	1				
			<del></del>			
<b> </b> 7	7.3.6 The bidder shall declare to provide installation and Training for	1				
	appropriate Period at least for 3 analysts. In addition, the declaration shall	1				
į.	ndicate SOP (standard operating procedure) that clearly indicate how to	1				
[c	operate, troubleshooting, monitoring of functional units and consumables).	1				
-	7.3.7 Evidence on the equipment compliance with applicable health and safety	<del>                                     </del>				
	7.3.7 Evidence on the equipment compliance with applicable health and safety regulations and standards.	1				
		<del>                                     </del>				
	7.3.8 Willingness of the principal to provide the spares in future at least for ten	1				
У	years (based on client request)	←				
8. Packaging 8	3.1 Instrument shall be packed using over load and over travel protection built in					
	Instrument shall be packed using over load and over travel protection built in     Appropriate shock watch label should be in placed in the package					

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(ECAE <u></u>		TLD/F6.05-5	
九十卯史	Ethiopian Conformity Assessment Enterprise	Copy No:	Rev No:
			0
	Specification	Page No:	Effective date:
		1 of 1	1-Sep-19
Laboratory:	Biochemical Testing Laboratory Directorate, Microbiological Laboratory		
Address:	P.O. Box: 11145, Woreda 6, Bole Sub-City, Addis Ababa, Ethiopia, St. Line 1: B74-1376 Bole	Audit	English
	Phone: +251 (0)11-830 2477, +251 (0)116 51 81 95, Fax:+251 (0)11-646 9720	Language	
	Web-site: www.eca-e.com, E-Mail: info-bctl@eca-e.com		
Prepared By	Zerihun Abebe,	Signature	
Approved By	Abel Anberbir	Signature	
Contract Ref		Year	2023

Lot -2: Description: - Those categories of instruments are listed under similar LOT, Lot -2 due to instrument function. Those instruments are <u>common laboratory facilities</u> which can be used for other products as well but, dedicated for petroleum and petroleum products. Different manufacturers can produce with minimal capacity and/or scope products characteristic.

## Petrolium Testing Equipments

	ECAE Specification	Bidder Name:					Evaluating N	ote on Scoring (C =
				Bidder Offer			Comply, N	C = Not Comply)
Category of specification	Items and Specification	Specification/Requirement	Warranty	Lead Time (Days)	Part Number/ Evidence (for applicable & critical component)	Bidder Remark	Evaluation	Remark
Item. 02.01	Karl Fisher Titrator							
1. Description/Scope	Karl Fischer titration is a widely used analytical method for quantifying water content in a variety of products (Solid sample and Liquid samples)							
	Complete system is required with all interfaces.							
2. Unique Identification feature	2.1 Name of the manufacturer of the machine should be provided							
	2.2 Provide Model Number with traceability internet link of the machine at the manufacturer website for verification purpose							
	2.3 The country of origin of the machine shall be declared.							
3. Status of the Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared							
4. Quantity	2 Sets							
5. Test Method and Verification Standards	Compatible for ASTM D6304-00 AOAC, EPA, EN, ISO methods							
6. Technical Specification	Titration Method Volumetric							
6.1 Machine Capacity and its Accessary	Reagent Dispensing: Multi-roller Peristaltic Pump							
	Moisture Range :1 ppm to 100% H2O							
	Precision: 0.4 % at 25 mg H2O							
	End-point Potential: Variable							
	Calibration Range :1 to 100 mg							
	End-point Time :1 to 30 second							
	Delay Time :0 to 15 minutes							
	Factor Range :0 to 100%							
	Blank Range :0 to 100 mg							
	Readout: ppm - % - mg							
	Stirring Speeds: 200 to 1400 rpm							
	Interfaces: Balance and Computer							
	Balance Recognition: Compatible with common brands of balance							
	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%							
Environmental factors	Thu unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of 80%.							
	Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. Or should comply with 89/366/EEC; EMC-directive.							
6.2 Size, Testing Area and Weight (ergonometric)	dimensions and weight of the instrument to be specified							
6.3 Electrical and power	Power input to be 220-240VAC, 50Hz						Ì	

•	i					
Power Consumption	Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications. (Input 160-260 V and output 220-240 V and 50 Hz)					
6.4 Spare part	Required accessories, cables, software, manuals, spares, consumables for 2 years shall be supplied with the instrument					
	All consumables required for installation and standardization of system to be given free of cost.					
	Reagents and chemical for 2 years shall be supplied with the instruments					
6.5 Consumable	Including but not limited to the following					
0.5 Consumable						
	- coulomat A (pack in 1 liter) - Quantity - 5L					
	- Coulomat CG (pack in 1 liter), Quantity - 5L - syringe with needle Quantity 8 needle					
7. Authenticated Testimonial/ Credential/ Certificate/ and Document	7.1 All documentations shall be in English and submitted in hard and soft copy.					
	7.2 The bidder shall submit the documents includes, but not limited, maintenance and user manual, brochure of the machine, application notes and certificates					
	7.3 The bidder shall submit the following, but not limited to, authenticated Testimonial/ Credential/ Certificate/					
	7.3.1 The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning).					
	7.3.2 Evidence on the equipment compliance with applicable health and safety regulations and standards.					
	7.3.3 The bidder shall declare to provide installation and Training for appropriate Period at least for 3 analysts. In addition, the declaration shall indicate SOP (standard operating procedure) that clearly indicate how to operate, troubleshooting, monitoring of functional units and consumables).					
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in					
	8.2 Appropriate shock watch label should be emplaced in the package					
Item. 02.02	Combined Conductivity pH Meter  2 channel instrument that measures up to 7 parameters. With this single bench					
1. Description	z channel instrument that measures up to 7 parameters, with units single bench meter to measure pH, ORP, ISE, conductivity (EC), Dissolved Oxygen, TDS, NaCl percentage and temperature.					
	Utilizing an external temperature probe, pH readings are automatically temperature compensated. To ensure a higher level of precision, pH calibrations are up to five calibration points, chosen from the seven available memorized buffers.					
	This instrument provides GLP capabilities that allows for the storage and retrieval of all data regarding pH, rel mV, EC and NaCl calibration and sample measurement as well as data regarding the maintenance and status of the electrode.					
	With a built-in logging function, measurements are stored in non-volatile memory, and can be transferred to a PC through the USB port. Users can manually log up to 200 records and interval log up to 500 records.					
2. Unique Identification feature	2.1 Name of the manufacturer of the machine should be provided     2.2 Provide Model Number with traceability internet link of the machine at the manufacturer website for verification purpose					
	2.3 The country of origin of the machine shall be declared.					
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared					
4. Quantity	2 Sets					
5. Technical Specification	pH Range: (-2.00 to 20.00) with 0.001 resolution					
	ISE & ORP: 0.1 mV (±999.9 mV)	<u> </u>		I	<u> </u>	

Tempers   5.1. Accuracy at 20°C   pH: 0.00   ISE & OF	0.1% NaCl crature: 0.1 °C				
Tempera	Prature: 0.1 °C DO2 DRP: ±0.2 mV (±999.9 mV % reading (±0.05 μS/cm) over full range 1% of reading (±0.03 ppm over full range)				
5.1. Accuracy at 20°C pH: 0.00 ISE & OF EC: ±1 % TDS: ±1% NaCl: ±1 Tempers 5.2. Calibration pH: up t	DO2  DRP: ±0.2 mV (±999.9 mV  % reading (±0.05 μS/cm) over full range  1% of reading (±0.03 ppm over full range)				
ISE & OF   EC: ±1 %   TDS: ±19   NaCl: ±1   Tempers   5.2. Calibration pH: up t	DRP: ±0.2 mV (±999.9 mV % reading (±0.05 μS/cm) over full range 1% of reading (±0.03 ppm over full range)				
EC: ±1 % TDS: ±19 NaCl: ±1 Tempera  5.2. Calibration  PH: up t	% reading (±0.05 μS/cm) over full range 1% of reading (±0.03 ppm over full range)				
TDS: ±19	1% of reading (±0.03 ppm over full range)				
NaCl: ±1 Tempera 5.2. Calibration pH: up t					
Tempera 5.2. Calibration pH: up t					
5.2. Calibration pH: up to	erature: ±0.4 °C (excluding probe error)				
	to five-point calibration				
EC: two	o-point calibration; one point slope calibration; six conductivity				
	tion point: 84.0, 1413 μS/cm; 5.00, 12.88, 80.0, 111.8 mS/cm; one point				
	0.00 μS/cm				
	one point with standard prob				
nH: dlas	ass body pH electrode with BNC connector and 1 m (3.3') cable shall be				
5.3. Probes included					
	tinum four ring conductivity/TDS probe with built-in temperature sensor				
	m (3.3') cable shall be included				
Tempera	erature: temperature probe with 1 m (3.3') cable shall be included				
Relative	re mV Offset: ±2000 mV				
	erature: manual or automatic from: -20.0 to 120.0 °C (pH range) -20.0 to				
	<sup>QC</sup> (EC range) (which can be disabled on conductivity range to measure				
actual co	conductivity)				
Compor	ensation: automatic temperature compensation for EC, TDS, PH whenever				
l ·					
needed	u				
PC Conn	nnectivity: Via USB and/or RS 232				
Log on [	Demand: 200 records				
Log Inte	terval Feature: 500 records; 5, 10, 30 sec and 1, 2, 5, 10, 15, 30, 60, 120,				
180 min	in stability logging				
5.4. Power requirement 220±10\	0V, 50/60Hz main supply and suitable adaptor for the offered PH meter				
Environ	nment: 0 to 50°C (32 to 122°F); RH max 95% non-condensing				
	sions: 235 x 218 x 108 mm (9.2 x 8.5 x 4.2") +/- 20%				
	t: 1.3 Kg (2.9 lb.); kit with holder 2.1 Kg (4.6 lb.)				
5.5. Accessories For each	ch pH meter the following accessories should be included:				
4-Ring P	Platinum Potentiometric EC/TDS Probe other than standard offer				
Refillabl	ble, PH electrode				
Combin	nation pH Electrode for the Laboratory and Beer Testing, BNC Connection				
	· · · · · · · · · · · · · · · · · · ·				
	μS/cm EC Solution, 500 mL Bottle x 2	<u>'</u>			
	IS/cm EC Solution, 500 mL Bottle x 2				
	cm EC Solution, 500 mL Bottle x 2	<u>'</u>			
	μS/cm EC Solution, 500 mL Bottle x 2				
	0 μS/cm EC Solution, 500 mL Bottle x 2				
	I meter should be supplied with:				
	ctrode, Conductivity/TDS Probe, Temperature Probe, Electrode Holder,				
	1 Buffer Solution Sachet, pH 7.01 Buffer Solution Sachet, Electrolyte				
	on, 30 mL, 12VDC Adapter				
	ction Manual in English language				
	ation Certificate				
6. Type of Software for Testing and Reporting and its License	y with Title 21 CFR Part 11 (or similar) guidelines.				
	ced data management control, remote access capabilities, and long-term				
	onic archiving.				
7 Authenticated Testimonial / Credential /					
Certificate/ and Document	ll documentations shall be in English and submitted in hard and soft copy.				

4. Quantity  1 Sets  Compilant with ASTM D396, ASTM D975, ASTM D1655, D2880, D3699, D6158, D6751, D6823, and many more standards  6. Technical Specification  Viscosity measuring range  0.2 mm²/s to 30,000 mm²/s  Temperature  from - 60 °C to +135 °C (-76 °F to +275 °F)  Viscosity repeatability  0.10%  Viscosity repeatability  0.005 °C (0.009 °F)  Temperature reproducibility  0.03 °C (0.009 °F) outside this range  Sample volume min. / typical  Solvent volume min. / typical  Solvent volume min. / typical  1.5 mi. / 5 mi.  Max. sample throughput  33 samples per hour  Chemical upgrade kit  Data memory  1,000 measurement results  HID (Human Interface Device)  4 xt 108 (2.0 fill speed). 11 x fiber mer for substants of the surface and results and surface and results and surface and results and surface and s							
Set Tillians  2.1 The Godden minist decide to sproofe at the thirt 2-year was many shire the  2.2 The first amount of the Set of Section of Sec		7.2 The bidder shall submit the documents includes, but not limited,					
Set Tillians  2.1 The Godden minist decide to sproofe at the thirt 2-year was many shire the  2.2 The first amount of the Set of Section of Sec		maintenance and user manual, brochure of the machine, application notes and					
Secretary and (processorating)  7.2.1 for the sample of processor description of processor descr							
Secretary and (processorating)  7.2.1 for the sample of processor description of processor descr		7.2.1 The bidder must declare to provide at least 2-year warranty after the					
2.2.1 in the searching process the additional standard control to require or at the improvement of the search of t							
residue, procedure maintenance service.    12							
2.2.1 is the security principle. The better should decide the special formation of an appear in the security of an appear in the security of an appear in the security of a security of		7.2.2 In the warranty period, the bidder should declare the frequency of the					
parts from change.    2.4 A solvers on the order economic compliance with applicable health and selection.   2.4 A solvers on the order economic compliance with applicable health and selection.   3.5 Application should be profited using over local and over tracel protection built in		machine preventive maintenance service.					
parts from change.    2.4 A solvers on the order economic compliance with applicable health and selection.   2.4 A solvers on the order economic compliance with applicable health and selection.   3.5 Application should be profited using over local and over tracel protection built in		7.2.2.1- 4b				-	
A. A description of the sequence of the equipment complexes with applicable final state and expected to position and state of the sequence of							
Repulsions and Establishmen.  See Absoluting:  1. A consequence shows wearth label about all we empired in the proclayer  1. A consequence shows wearth label about all we empired in the proclayer  1. Security of the state of t						+	
8. Petraging 8. 1 Intercement shall be packed using over load and over towel protection built in 8. 2. Apparature shock which had before enabled in the package 1.1. measure from jet built own in whether changing the capillary Grewn to 20 1.1. measure from jet built own whether changing the capillary Grewn to 20 1.1. measure from jet built own whether changing the capillary Grewn to 20 1.1. measure from jet built own whether changing the capillary Grewn to 20 1.1. measure from jet built own will be for a given the package of t							
Comparison where wants have a material about the emplaced in the pockage		regulations and standards.					
Comparison where wants have a material about the emplaced in the pockage	8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in					
L. Description/Ecope							
1. Description/Acope							
1. Oescription/Scope  The Manifery and Cooling rates for in the 2017/clinis, provides a wide measuring arange, Optimum precision is spelfied for the works adjustment range. Speedil adjustments refer for low are ally interpretature range of californian correction points for eact disingle temperature range of californian correction points for eact disingle temperature captor californian correction points for eact disingle temperature captor californian correction points for eact disingle temperature captor correction.  Conling (conn.) to 2017 cwill not external counter cooling, Rapid heating and cooling rates by part 2017 cwilling.  Special sample volume for manual sperators: in a consider of the special analysis of the control of th	Item. 01.03	Viscometer					
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specific applications.  1. Life as a samples—from jet ful to wax. Cooling down to -20 °C without external counter-cooling, Rapid heating and cooling ratter, (in the 70 °C million of the 70 °C millio		adjustments - either for a low or a high temperature range - or calibration					
specific applications.  1. Life as a samples—from jet ful to wax. Cooling down to -20 °C without external counter-cooling, Rapid heating and cooling ratter, (in the 70 °C million of the 70 °C millio	1	correction points for exact single temperatures customize the instrument for				ĺ	
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3. Status of Instrument  It shall be new (Refurbished equipment will not be accepted)/ shall be declared  4. Quantity  1. Sets  Compliant with ASTM D396, ASTM D975, ASTM D1655, D2880, D3699, D6158, D6158, D6151, D6823, and many more standards  6. Technical Specification  Set of the specification of the		2.2. Country of origin shall be declared					
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S. Test Method & Verification Standards   Compliant with ASTM 0396, ASTM 0975, ASTM 01655, D2880, 03699, D6158, D6751, D6823, and many more standards   S. Technical Specification   Sixosity measuring range   0.2 mm/s to 30,000 mm/s   S. Density measuring range   0.2 mm/s to 30,000 mm/s   S. Density measuring range   0.3 cmm/s to 30,000 mm/s   S. Density measuring range   0.3 cmm/s to 30,000 mm/s   S. Density measuring range   0.3 cmm/s to 30,000 mm/s   S. Density measuring range   0.3 cmm/s to 30,000 mm/s   S. Density measuring range   0.0 cmm/s to 40	3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared					
S. Test Method & Verification Standards   Compliant with ASTM 0396, ASTM 0975, ASTM 01655, D2880, 03699, D6158, D6751, D6823, and many more standards   S. Technical Specification   Sixosity measuring range   0.2 mm/s to 30,000 mm/s   S. Density measuring range   0.2 mm/s to 30,000 mm/s   S. Density measuring range   0.3 cmm/s to 30,000 mm/s   S. Density measuring range   0.3 cmm/s to 30,000 mm/s   S. Density measuring range   0.3 cmm/s to 30,000 mm/s   S. Density measuring range   0.3 cmm/s to 30,000 mm/s   S. Density measuring range   0.0 cmm/s to 40	1 Ourseller	4.6-4-					
5.1est Method & Vertication Standards   D6751, D6823, and many more standards   D6751, D6823, D6751, D6823, D6751, D6823, D6751,	4. Quantity					+	
6. Technical Specification	5.Test Method & Verification Standards						
Viscosity measuring range		D6751, D6823, and many more standards					
Density measuring range							
Temperature   from - 60 °C to +135 °C (-76 °F to +275 °F)		, , ,					
Viscosity repeatability         0.10%           Viscosity reproducibility         0.35%           Temperature repeatability         0.003 °C (0.009 °F)           Temperature reproducibility         0.03 °C (0.009 °F) outside this range           Sample volume min. / typical         1.5 mt./ 5 mt.           Solvent volume min. / typical         1.5 mt./ 5 mt.           Max. sample throughput         33 samples per hour           Chemical uggrade kit         0.00 measurement results           HID (Human Interface Device)         1.04" touchscreen, optional keyboard, mouse, and 2D bar code reader           Interfaces         4 x USB (2.0 full speed), 1 x Ethernet (100 Mbit), 1 x CAN bus, 1 x RS-232, 1 x VGA           Safety         5.1. Electrical and Power requirement         220±10V, 50/60 Hz, 250 VA max.						ļ	
Viscosity reproducibility	-						
Temperature repeatability	Viscosity repeatability	0.10%					
Comparature reproducibility	Viscosity reproducibility	0.35%					
Comparature reproducibility	Temperature repeatability	0.005 °C (0.009 °F)					
Comparature reproducibility	T	0.03 °C (0.054 °F) from +15 °C to +100 °C					
Sample volume min. / typical       1.5 mL / 5 mL  <	remperature reproducibility						
Solvent volume min. / typical 1.5 mL / 6 mL	Sample volume min. / typical						
Max. sample throughput 33 samples per hour Chemical upgrade kit Data memory 1,000 measurement results HID (Human Interface Device) 10.4" touchscreen, optional keyboard, mouse, and 2D bar code reader Interfaces 4x USB (2.0 full speed), 1 x Ethernet (100 Mbit), 1 X CAN bus, 1 x RS-232, 1 x VGA Safety 20.5 Leterrical and Power requirement 220±10V, 50/60 Hz, 250 VA max.							
Chemical upgrade kit   Data memory   1,000 measurement results					Ì	1	
Data memory   1,000 measurement results						1	
HID (Human Interface Device)  10.4" touchscreen, optional keyboard, mouse, and 2D bar code reader  Interfaces  4 x USB (2.0 full speed), 1 x Ethernet (100 Mbit), 1 X CAN bus, 1 x RS-232, 1 x VGA  VGA  Safety  6.1. Electrical and Power requirement  20±10V, 50/60 Hz, 250 VA max.	Data memory					<b>+</b>	
1						<del> </del>	
NGA	mo (maman interface bevice)			<del> </del>		-	
VGA         Image: Control of the control of the	Interfaces					ĺ	
<b>6.1. Electrical and Power requirement</b> 220±10V, 50/60 Hz, 250 VA max.		NOA			-	<del>                                     </del>	
	-				1	<b>.</b>	
6.2. Dimensions (W x D x H) 33 cm x 51 cm x 23.1 cm +/- 20%							
	6.2. Dimensions	(W x D x H) 33 cm x 51 cm x 23.1 cm +/- 20%				L	

6.3. Weight	60kg, maximum						
6.4 Spare parts/Accessories	full Accessories for two years						
	Magnetic particle trap (MPT), Quantity = 2						
	Hot filling attachment (HFA), Quantity 2						
	Syringes						
	5 ml and 10 Lure (100 pcs.) 10 pack for each						
	Angular screwdriver torn (Quantity 1)						
	Density standards in ampules 10 pack						
	Heated sample changer						
	Magnetic particle trap						
	Hot filling attachment						
	HOSE CLAMP DMIN 8,8 DMAX 9,3						
	DRYING CARTRIDGE						
Consumables	Density Standard Dodecane 1x10ml, Quantity 2 pack Density Standard Oil 30 cSt						
	@40°C 1x10ml, Quantity 2 pack						
	CRM Viscosity (500 ml), Quantity 4 pack						
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.						
Certificate/ and Document	With certificate of distilled water by the equipment	1		1		1	
	7.2. The bidder shall submit the documents includes, but not limited,						
	maintenance and user manual, brochure of the machine, application notes and						
	certificates	 					
	7.3. The bidder shall submit the following, but not limited to, authenticated						
	Testimonial/ Credential/ Certificate/						
	7.3.1. The bidder must declare to provide at least 2-year warranty after the	1		1			
	warranty card (commissioning).						
	7.3.2. In the warranty period, the bidder should declare the frequency of the						
	machine preventive maintenance service.						
	7.3.3 In the warranty period, the bidder should declare to provide the spare						
	parts free of charge.						
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE						
	machinery directive compliance or Equivalent international directives						
	7.3.5 The bidder must declare to provide at least 2-year warranty after the						
	warranty card (commissioning). In the warranty period, the bidder should						
	declare the frequency of the machine service and spare parts free of charge,						
	after						
	7.3.6 The bidder shall declare to provide installation and Training for						
	appropriate Period at least for 3 analysts. In addition, the declaration shall						
	indicate SOP (standard operating procedure) that clearly indicate how to						
	operate, troubleshooting, monitoring of functional units and consumables).						
	7.3.7 Evidence on the equipment compliance with applicable health and safety						
	regulations and standards.  7.3.8 Willingness of the principal to provide the spares in future at least for ten	<del> </del>	-	-	-	-	
	years (based on client request)						
	<u> </u>	<del> </del>	<del> </del>	<del> </del>			
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in	1		1			
	8.2 Appropriate shock watch label should be in placed in the package						
Item. 02.04	Potentiometer titrator						
1.Description/ Scope	For the determination of total Acid Number (TAN), Total Base Number (TBN	 <u> </u>		<u> </u>			
	Endpoint Determination single equivalence point (1st or 2nd derivative) or fixed	1					
	pH/mV value						
	Potentiometric Titrations acid/base (pH or mV-mode), redox, precipitation,	1		1			
	complexometric, non-aqueous, ion-selective, argentometric	1		1			
2. Unique Identification feature	2.1 Name of the manufacturer of the machine should be provided	ļ					
	2.2 Provide Model Number with traceability internet link of the machine at the						
	manufacturer website for verification purpose						
	2.3 The country of origin of the machine shall be declared.	<u> </u>		<u> </u>			<u> </u>

3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
4. Quantity	3 Sets				
5. Test Method and Verification Standards	5.1 conform ASTM D664, D2896, D3227, D4739				
6. Technical Specification	pH Range: -2.00 to 20.00				
	pH Resolution: 0.01				
	pH Accuracy: ±0.01 at 25°C				
	pH Calibration minimum three-point calibration				
	mV Range: 0.0 to 2000.0 mV				
	mV Resolution: 0.1 mV				
	mV Accuracy: ±0.1 mV at 25ºC				
	mV Calibration single-point offset				
	With temperature sensor				
	Temperature Range: -20.0 to 130.0°C				
	Temperature Resolution: 0.1°C				
	Temperature Accuracy: ±0.1°C				
	Temperature Compensation manual or automatic				
	Display: Minimum 5.7" backlit color LCD with 640 x 480 pixels resolution				
	Programmable Stirrer with 200 to 2500 rpm, resolution 100 rpm				
	Burette Sizes: Interchangeable 5, 10, 25 and 50 mL	 	 		
	Burette resolution: 1 μL				
	Accuracy: ±0.1% of full burette volume				
	Operating Environment: 10 to 40°C, up to 95% RH, non-condensing				
	GLP Conformity instrumentation data storage and printing capabilities				
6.1 Size, Testing Area and Weight (ergonometric)	Dimensions				
(L x W x H)	(390 x 350 x 380) mm +/- 20%				
Weight:	8 - 12 kg				
6.2 Electrical and power requirement	6.2.1 Mains supply of 220±10V single phase and frequency shall be 50/60 Hz				
6.3 Calibration Related Features	6.3.1 Calibration certificate at least at 5 points (of the full range)				
6.4 Spare part	pH electrode, reference half-cell electrode, ATC temperature probe, stirrer probe				
	List and quantity of all necessary spare part that serve for two years after commissioning shall be declared				
6.5 Type of Software for Testing and Reporting and its License	Stored Results: Minimum 100 method				
	User Management: Multiple Users with Password Protection of Settings				
	Result display: PDF Reports				
	Stored Methods: Minimum 60 method				
6.6 Hardware Capacity, Monitor specification and Connectivity feature	Peripherals (Rear) connections for VGA display, PC-keyboard, parallel printer, USB device input, RS232				
7. Authenticated Testimonial/ Credential/ Certificate/ and Document	7.1 Instrument Language and all documentations shall be in English and submitted in hard and soft copy.				
	7.2 Operation Manual, certificate of electrodes, reference standards and other documents shall be in English				
	7.3 The bidder shall submit the following, but not limited to, authenticated Testimonial/ Credential/ Certificate/				
	7.3.1 The bidder must declare to provide at least one year warranty after the warranty card (commissioning).				
	7.3.2 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive compliance or equivalent international directives				
	7.3.3 Calibration certificate at least at 5 points for temperature with traceability evidence.				

	7.3.4 Evidence on the equipment compliance with applicable health and safety					
	regulations and standards.					
	regulations and standards.					
	7.3.5 Willingness of the principal to provide the spares in future at least for ten					
	years (based on client request)					
	The hidder shall declare to provide installation and 7.2.6 Training for					
	The bidder shall declare to provide installation and 7.3.6 Training for appropriate Period at least for 3 analysts. In addition, the declaration shall					
	indicate SOP (standard operating procedure) that clearly indicate how to					
	operate, troubleshooting, monitoring of functional units and consumables).					
	operate, troubleshooting, monitoring or functional units and consumables).					
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in					
o. rackaging						
	8.2 Appropriate shock watch label should be emplaced in the package					
Item. 02.05	Digital Density meter					
1. Description/Scope	1.1.for the measurement of Density, Relative Density, and API Gravity of					
21. 2000.191.01.700090	petroleum					
	1.2. The fast and accurate alternative to pressure hydrometers and pycnometers					
	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer					
2. Unique Identification feature	official web page to cross check with the brochure provided					
	2.2. Country of origin shall be declared					
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared					
4. Quantity	1 Sets					
4. Quantity	complies with the ASTM D4052 Standard Test Method for Density, Relative					
	Density, and API Gravity of Liquids by Digital Density Meter and the ASTM					
5.Test Method & Verification Standards	D5002 Standard Test Method for Density and Relative Density of Crude Oils by					
	Digital Density Analyzer					
6. Technical Specification	8					
Density Measuring range	0 g/cm³ to 3 g/cm³					
temperature Measuring range	from -10 °C to 200 °C (14 °F to 392 °F)					
Pressure range	0 bar to 500 bar (7250 psi)				1	
density measuring accuracy	0.0002 g/cm <sup>3</sup>					
temperature measuring accuracy	0.03 °C (0.05 °F)					
density Repeatability, s.d.	0.00005 g/cm <sup>3</sup>					
temperature Repeatability, s.d.	0.01 °C (0.02 °F)					
Reproducibility, s.d. of					1	
Density	0.0001 g/cm <sup>3</sup>					
Digital Resolution	0.00001 g/cm <sup>3</sup>					
Full range viscosity correction	Yes (at ambient pressure)					
Pulsed Excitation Method	yes					
Minimum sample volume	2mL					
Wetted materials	Hastelloy C276					
Connections	Pressure fittings for metal tubes with 1/8" outer diameter					
	4 x USB (2.0 full speed),				<u>                                      </u>	
Interfaces	1 x Ethernet (100 Mbit),					
interfaces	1 x CAN Bus,	·	 			
	1 x RS-232,					
	1 x VGA					
Software features	One time license fee (No restriction, no annual fee)				ļ	
Safety					ļ	
6.1. Electrical and Power requirement	220±10V, 50/60 Hz,					
6.2. Dimensions	(W x D) 510 mm x 330 mm +/- 20%					
6.3. Weight	25kg, maximum				ļ	
6.4 Spare parts/Accessories						
	For filling samples with a high melting point, e.g., bitumen, asphalt, waxes, plastics					

Syringe heating accessory with all fittings	Keeps samples heated at up to 200 °C					
	Simplifies filling, sample handling					
	Filling device for liquid gases: LPG adapter for DMA				-	
LPG-Adapter	Equips your density meter to measure propane, butane, and propane-butane mixtures from various sample containers					
Lr G-Adaptei	Installation in less than 5 sec					
	Simple, safe operation					
6.5 Consumable	Injection Adapter with Luer Lock Black					
	Density Standard "Trimethylpentane" 10ml Quantity 5					
	Vial 50mL polystyrene (50 Pcs.) Quantity 5 pack					
	Set of caps D29 (30Pcs.) silicone Quantity 5 pack					
	Set of caps D14 (30Pcs.) Silicone Quantity 5 pack					
	Syringe Holder 5mL, quantity 2					
	Isoversinic Tubing I.D.=2 O.D.=4					
	Versilic Silicone Tubing I.D.=4 O.D.=6					
	Syringes 2 ml LUER (10 PCS)					
	Adapter UNF 1/4"-LUER MALE					
	Vial 12mL glass (100 Pcs.) Quantity 2 pack					
	Viscosity standard with traceable Certificate (100 ml) Quantity 3 pack				ļ	
	Density standard with traceable certificate (100ml), Quantity 3 pack					
	Density std Ethanol/Water (~41% ABV) Quantity 3 pack				<del>                                     </del>	
	Density standard Ethanol/Water (9% ABV) Quantity 3pack					
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.					
Certificate/ and Document	With Traceable certificate of all required consumables					
	7.2. The bidder shall submit the documents includes, but not limited, software					
	maintenance and user manual, brochure of the machine, application notes and certificates					
	7.3. The bidder shall submit the following, but not limited to, authenticated					
	Testimonial/ Credential/ Certificate/					
	7.3.1. The bidder must declare to provide at least 2-year warranty after the					
	warranty card (commissioning).					
	7.3.2. In the warranty period, the bidder should declare the frequency of the					
	machine preventive maintenance service.					
	7.3.3 In the warranty period, the bidder should declare to provide the spare parts free of charge.					
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE					
	machinery directive or compliance equivalent international directives					
	7.3.5 The bidder must declare to provide at least 2-year warranty after the					
	warranty card (commissioning). In the warranty period, the bidder should					
	declare the frequency of the machine service and spare parts free of charge,					
	after.					
	7.3.6 The bidder shall declare to provide installation and Training for					
	appropriate Period at least for 3 analysts. In addition, the declaration shall					
	indicate SOP (standard operating procedure) that clearly indicate how to					
	operate, troubleshooting, monitoring of functional units and consumables).					
	7.3.7 Evidence on the equipment compliance with applicable health and safety				1	
	regulations and standards.				1	
	7.3.8 Willingness of the principal to provide the spares in future at least for ten					
	years (based on client request)					
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in					
	8.2 Appropriate shock watch label should be in placed in the package				<del>                                     </del>	
9. Delivery Schedule	9.1 Not more than three to four months from the time of the order placement					
Item. 02.06	Digital Refractometer with Circulator water Bath					
		•	•	•	 	•

•	•			•	•	
	Measures % Brix, and Refractive Index scales—suitable for use with transparent					
	or translucent liquids and solids. Temperature compensation automatically					
1. Description/Scope	corrects measurements within 20°>C in an operating range of 59 to 122°>F (15					
	to 50°>C)—there's no need for a water bath or correction charts within this					
	range.					
	Automatically corrects measurements for differences in temperature Models					
	81001-10 and -15 feature user-friendly computerized data handling—RS-232 serial port					
	seriai port					
	Stainless steel-rimmed prism is sealed with solvent-resistant epoxy to prevent					
	damage from harsh chemicals. A focusable eyepiece and dispersion correction					
	prism provide true 589 nm RI measurements. The built-in adjustable illuminator					
2. Unique Identification feature	lets you view shadow line easily—eliminating the need for transformers or other					
	types of illumination. Place your sample on the prism, adjust the shadow line (if					
	using the uncorrected scale), focus the image, and press the READ button to see					
	your results on the bright LED display.					
	2.2. Country of origin shall be declared					
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared					ļ
	The second state of the se					
4 Overstite	4 5-4-					
4. Quantity	1 Sets					
5.Test Method & Verification Standards	Display: Direct digital readout of refractive index or concentration (% solids or					
6. Technical Specification	custom scale) and temperature					
	Min Brix Range (%:)0					
	Max Brix Range (%:)85					
	Min Refractive Index: 1.32					
	Max Refractive Index: 1.7					
	Resolution0.001% (Brix); 0.0001 (RI)					
	Accuracy±0.1% (Brix); ±0.0001 (RI)					
	Thermistor mounted in					
Temperature Measurement	prism assembly					
	Temperature Accuracy±0.1°C					
	Max Temperature Compensation (° F)122					
	Min Temperature Compensation (° F)59					
	Max Temperature Compensation (° C)50					
	Min Temperature Compensation (° C)15					
	Display Type5-digit LED					
	Fittings on prism assembly for connecting temperature					
Sample temperature control	controlled water circulator					
	Dual amici prism compensator for sharp shadow-lines					
Optical compensation						
Optical compensation	and 589nm (Sodium D line) illumination Dual amici prism compensator for sharp					
	shadow-lines and 589nm (Sodium D line) illumination					<u> </u>
	Include four 1/4" OD ports for water bath hookup, test glass, standard solution					
	(7 mL of 1-bromonaphthalene), a number 4 Allen wrench for scale adjustments,					
	a splash guard, and a dust cover.					
Safety	222/40// 50/50 //					
6.1. Electrical and Power requirement	220±10V, 50/60 Hz,					
6.2. Dimensions	(W x D x H) 6x10.5x14cm					
6.3. Weight	8kg, maximum					
6.4 Spare parts/Accessories	1. a refractive index test glass, Quantity 2					
<u> </u>	2. 1- Bromonaphthalene, Quantity 2 bottles					
Circulation thermostat	Used for the sample temperature control of Refractometer, digital display					
Temperature range	5–95 °C					
Accuracy of Temperature Control	± 0.1 °C					
Temperature Control Resolution	0.1 °C					
Ambient Temperature Range	5 °C – 40 °C					

To a second	I		1	1	1		
Heating Capacity	120 W						
Cooling Capacity at 20 °C	40 W						
Pump Pressure	110 mbar						
Pump Capacity	60 l/h						
Filling Volume	250 ml						
Electrical Data	220±10V, 50/60 Hz,						
Electronic Interface	RS-232 interface						
Device Dimensions (W X H X D)	(W x D x H) 170 mm x 225 mm x 244 mm +/- 20%						
Device Dimensions (W X H X D)	(W x D x H) 170 mm x 225 mm x 244 mm +/- 20%						
weight	10 kg max						
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.						
Certificate/ and Document	With certificate of distilled water by the equipment						
	7.2. The bidder shall submit the documents includes, but not limited,						
	maintenance and user manual, brochure of the machine, application notes and						
	certificates						
	7.3. The bidder shall submit the following, but not limited to, authenticated						
	Testimonial/ Credential/ Certificate/						
	7.3.1. The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning).						
	7.3.2. In the warranty period, the bidder should declare the frequency of the						
	machine preventive maintenance service.						
	7.3.3 In the warranty period, the bidder should declare to provide the spare						
	parts free of charge.						
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE						
	machinery directive compliance or equivalent international directives						
	7.3.5 The bidder must declare to provide at least 2-year warranty after the						
	warranty card (commissioning). In the warranty period, the bidder should						
	declare the frequency of the machine service and spare parts free of charge,						
	after.						
	7.3.6 The bidder shall declare to provide installation and Training for						
	appropriate Period at least for 3 analysts. In addition, the declaration shall						
	indicate SOP (standard operating procedure) that clearly indicate how to						
	operate, troubleshooting, monitoring of functional units and consumables).						
	7.3.7 Evidence on the equipment compliance with applicable health and safety						
	regulations and standards.						
	7.3.8 Willingness of the principal to provide the spares in future at least for ten years (based on client request)						
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in						
	8.2 Appropriate shock watch label should be in placed in the package						
Item. 01.08	Petroleum Colorimeter 220V						
1. Description/Scope	1.1. To determine ASTM color, the sample is compared against standard color						
	discs in the Petroleum Colorimeter.  1.2. The ASTM color of petroleum products applies to products having an ASTM						
	color of 0.5 or darker, including lubricating oils, heating oils and diesel fuel oils.						
	(For products having an ASTM color lighter than 0.5, use the Say bolt						
	Chromometer.)						
		1				1	

	Single scale, three-field petroleum comparator designed for visual color grading by direct comparison between the sample and colored glass filters housed in test discs conforming to the chromaticity coordinates of ASTM D1500. The sample and two consecutive glasses on the color scale are viewed simultaneously, making it easier to achieve the optimum color match. For rapid color grading within predetermined color limits, the glass standards can be set to the two limiting colors so that it is easy to check that the sample is within tolerance. The tungsten halogen light source is color corrected to CIE Standard Illuminant C, giving constant lighting conditions for color grading, regardless of ambient lighting. A prism brings the three fields together to aid color grading.					
2. Unique Identification feature	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided					
	2.2. Country of origin shall be declared					
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared					
4. Quantity	1 Sets					
5.Test Method & Verification Standards	Conforms to the specifications of: ASTM D1500, D6074; IP 196; ISO 2049; FTM 791-102					
6. Technical Specification						
	Constructed from ABS (Acrylonitrile Butadiene Styrene) Fire Retardant Plastic					
	Single press of large switch illuminates' sample for one minute (two presses = two minutes, three presses = three minutes).					
	Halogen, long life, light source combined with standard daylight filters ensures full compliance with previous units and consistency from unit to unit					
	Low voltage power supply					
	Disk values are read directly from disks					
	Fully removable sample chamber allows quick cleanup of inevitable spillages					
Safety						
6.1. Electrical and Power requirement	220±10V, 50/60 Hz,					
6.2. Dimensions	(W x D x H) 25x27x18 cm, +/-20%					
6.3. Weight	3kg, maximum					
6.4 Spare parts/Accessories	Glass Color Discs (2)					
	Sample Container (3)					
	Calibration Certificate					
	Replacement Tungsten Halogen Lamp					
	ASTM Color Conformance Filter Set (3 Filters: 0.5, 3.5, 5.0)					
	ASTM Color <0.5 Certified Color Reference Standard 500ml, Quantity 2 pack					
	ASTM Color 1 Certified Color Reference Standard 500ml, Quantity 2 pack					
	ASTM Color 3 Certified Color Reference Standard 500ml, Quantity 2 pack					
	ASTM Color 5 Certified Color Reference Standard 500ml, Quantity 2 pack					
	ASTM Color 7 Certified Color Reference Standard 500ml, Quantity 2 pack					
7. Authenticated Testimonial/ Credential/ Certificate/ and Document	7.1. User/Technical/Maintenance manuals to be supplied in English.					
- Continues and Document	With certificate of distilled water by the equipment					
	7.2. The bidder shall submit the documents includes, but not limited, maintenance and user manual, brochure of the machine, application notes and certificates					
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	7.3. The bidder shall submit the following, but not limited to, authenticated Testimonial/ Credential/ Certificate/				
	7.3.1. The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning).				
	7.3.2. In the warranty period, the bidder should declare the frequency of the machine preventive maintenance service.				
	7.3.3 In the warranty period, the bidder should declare to provide the spare parts free of charge.				
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive compliance or equivalent international directives				
	7.3.5 The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning). In the warranty period, the bidder should declare the frequency of the machine service and spare parts free of charge, after.				
	7.3.6 The bidder shall declare to provide installation and Training for appropriate Period at least for 3 analysts. In addition, the declaration shall indicate SOP (standard operating procedure) that clearly indicate how to operate, troubleshooting, monitoring of functional units and consumables).				
	7.3.7 Evidence on the equipment compliance with applicable health and safety regulations and standards.				
	7.3.8 Willingness of the principal to provide the spares in future at least for ten years (based on client request)				
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in				
	8.2 Appropriate shock watch label should be in placed in the package				
Item. 02.09	Portable digital Density meter				
1. Description/Scope	Used for the he determination of density, relative density and API Gravity of petroleum distillates and viscous oils				
	Particularly suitable for measuring flammable chemicals.				
	Petrol provides excellent resistance to petroleum samples and fully complies with the ASTM D7777 and IP 559 standards.				
2. Unique Identification feature	Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided				
	2.2. Country of origin shall be declared				
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
4. Quantity	1 Sets		1		
5.Test Method & Verification Standards	Fully complies with the ASTM D7777 and IP 559 standards				
6. Technical Specification					
6. Technical Specification  Measuring range	Density: 0 g/cm³ to 3 g/cm³				
	Density: 0 g/cm³ to 3 g/cm³ Temperature: 0 °C to 40 °C (32 °F to 104 °F)				
	Temperature: 0 °C to 40 °C (32 °F to 104 °F)				
Measuring range					
Measuring range	Temperature: 0 °C to 40 °C (32 °F to 104 °F)  Density: 0.001 g/cm³				
Measuring range Accuracy	Temperature: 0 °C to 40 °C (32 °F to 104 °F)  Density: 0.001 g/cm³  Temperature: 0.2 °C (0.4 °F)				
Measuring range Accuracy	Temperature: 0 °C to 40 °C (32 °F to 104 °F)  Density: 0.001 g/cm³  Temperature: 0.2 °C (0.4 °F)  Density: 0.0005 g/cm³				
Measuring range  Accuracy  Repeatability, s.d.	Temperature: 0 °C to 40 °C (32 °F to 104 °F)  Density: 0.001 g/cm³  Temperature: 0.2 °C (0.4 °F)  Density: 0.0005 g/cm³  Temperature: 0.1 °C (0.2 °F)				
Measuring range Accuracy Repeatability, s.d. Reproducibility, s.d.	Temperature: 0 °C to 40 °C (32 °F to 104 °F)  Density: 0.001 g/cm³  Temperature: 0.2 °C (0.4 °F)  Density: 0.0005 g/cm³  Temperature: 0.1 °C (0.2 °F)  Density: 0.0007 g/cm³  Density: 0.0015 g/cm³  Temperature: 0.1 °C (0.1 °F)				
Measuring range  Accuracy  Repeatability, s.d.  Reproducibility, s.d.  Digital Resolution  Ambient temperature	Temperature: 0 °C to 40 °C (32 °F to 104 °F)  Density: 0.001 g/cm³  Temperature: 0.2 °C (0.4 °F)  Density: 0.0005 g/cm³  Temperature: 0.1 °C (0.2 °F)  Density: 0.0007 g/cm³  Density: 0.0015 g/cm³  Temperature: 0.1 °C (0.1 °F)  -10 °C to +50 °C (14 °F to 122 °F)				
Measuring range Accuracy Repeatability, s.d. Reproducibility, s.d. Digital Resolution	Temperature: 0 °C to 40 °C (32 °F to 104 °F)  Density: 0.001 g/cm³  Temperature: 0.2 °C (0.4 °F)  Density: 0.0005 g/cm³  Temperature: 0.1 °C (0.2 °F)  Density: 0.0007 g/cm³  Density: 0.0015 g/cm³  Temperature: 0.1 °C (0.1 °F)				

Ī	Alcohol tables				
	Sugar/extract tables				
	API functions				
	H <sub>2</sub> SO <sub>4</sub> tables				
	Ten programmable custom functions (e.g., H <sub>2</sub> O <sub>2</sub> , HCl, CH <sub>2</sub> O)				
Sample volume	2 mL				
Data memory	1024 measured results, 20 measuring methods, 100 sample IDs				
Interfaces	IrDA OBEX/LPT				
Protection class	IP54				
Intrinsically safe Available options	Optional Elongated filling tube				
Available options	Portable thermal printer with IrDA interface				
	IrDA USB adapter				
	Wristband				
	ISO calibration				
Industries	Petrochemical				
0.	chemical, etc.				
Storage	Storage of up to 250 sample IDs for easy sample identification				
Safety					
6.1. Electrical and Power requirement	Two 1.5 V LR06 AA alkaline batteries				
6.2. Dimensions	140 mm x 138 mm x 27 mm, +/- 20%				
6.3. Weight	0.5kg, maximum				
6.4 Spare parts/Accessories	alkaline 1.5V Batteries, Quantity 4				
7. Authenticated Testimonial/ Credential/	7.1. User/Technical/Maintenance manuals to be supplied in English.				
Certificate/ and Document	With certificate of distilled water by the equipment				
	7.2. The bidder shall submit the documents includes, but not limited,				
	maintenance and user manual, brochure of the machine, application notes and certificates				
	7.3. The bidder shall submit the following, but not limited to, authenticated Testimonial/ Credential/ Certificate/				
	7.3.1. The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning).				
	7.3.2. In the warranty period, the bidder should declare the frequency of				
	the machine preventive maintenance service.				
	7.3.3 In the warranty period, the bidder should declare to provide the spare parts free of charge.				
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive compliance or equivalent international directives				
	7.3.5 The bidder must declare to provide at least 2-year warranty after the warranty card (commissioning). In the warranty period, the bidder should declare the frequency of the machine service and spare parts free of charge, after.				
	7.3.6 The bidder shall declare to provide installation and Training for appropriate Period at least for 3 analysts. In addition, the declaration shall indicate SOP (standard operating procedure) that clearly indicate how to operate, troubleshooting, monitoring of functional units and consumables).				
	7.3.7 Evidence on the equipment compliance with applicable health and safety regulations and standards. 7.3.8 Willingness of the principal to provide the spares in future at least				
	for ten years (based on client request)				
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection built in				

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	8.2 Appropriate shock watch label should be in placed in the package				
Item. 02.10	Energy-Dispersive X-ray Fluorescence (EDXRF) for the Petrochemical Industry				
1. Description/Scope	1.1. multi-element analyzer and combines the performance of several single-element analyzers				
	1.2. For S analysis from diesel to crude oils. This also includes continuous process control of higher sulfur levels in refineries as well as norm- compliant Ultra-Low Sulfur (ULS) analysis of final products.				
	With its capability to measure multiple elements simultaneously, including important elements in process control such as Ni, V, Fe and Cl.				
	well suited for the norm-compliant analysis of additives in lubricating oils according to ASTM D6481 and ASTM D7751 that includes the elements Mg, P, S, Cl, Ca, Zn, Mo and Heavy metals. Furthermore, this also includes the analysis of elements in edible oils or palm oils.				
2. Unique Identification feature	2.1. Bidder shall indicate model and brand targeted to offer with manufacturer official web page to cross check with the brochure provided				
	2.2. Country of origin shall be declared				
3. Status of Instrument	It shall be new (Refurbished equipment will not be accepted)/ shall be declared				
4. Quantity	1 Sets				
5.Test Method & Verification Standards	ASTM D7220, D4294, ISO 13032, 20847, 8754, IP 336, 496, 532, complies with the following S international norms: ASTM D7220, D4294, ISO 13032, 20847, 8754, IP 336, 496, 532, JIS K2541-4, ISO 18227, ISO 15309 and ASTM C1255, ASTM C114 and ISO 29581-2				
6. Technical Specification	Elemental analysis in refineries e.g., sulfur analysis of gasoline, diesel biodiesel kerosene, jet fuel, heating oil naphtha, residual oil to crude Further elements on request (e. g. P, Cl, Fe, Ni, V)				
	All refinery applications on one unit				
	ASTM D7220 and D4294 including blanks, set of standards, QC and DC samples				
	Fulfills ISO 13032, 20847, 8754, IP 336, 496, 532, and JIS K 2541-4				
Detection Limit (LLD)	0.5 ppm S at 300 s measurement time				
Measurement Range	3 ppm to 5 % S, combined in one calibration with automated line switch.  Higher concentrations on request.  One calibration with wide concentration range				
X-ray Tube	50 W, high-power X-ray tube, max. voltage 50 kV, with polarizing High Sense beam path, 30 kV max.				
Detector	High Sense ULS Silicon Drift Detector				
Atmosphere Modes	both Vacuum and Helium mode				
Sample Preparation	Liquid cups, Sample Care cups, Proline and Mylar® foils, pipettes, balance				
	With Emergency Machine Off (EMO), UPS 10 KVA and sample rotation	 		 	
Touch Control	Integrated 12.1"TFT touchscreen, multilingual user interface: English, and other languages				
Connectivity	Ethernet port RJ45, 3x USB ports for mouse, keyboard, and printer;				
	HDMI/VGA ports for external display, remote access via TCP/IP				
0.44	DIN EN ISO 9001:2015, DIN EN ISO 14001:2015, 2006/42/EC (CEcertified Machinery directive), 2014/35/EC (Electrical equipment), 2014/30/EC (Electromagnetic Compatibility),				
Safety	Fully radiation-protected system; radiation <1 µSv/h (H*), Compliant to ICRP, IAEA, EURATOM or equivalent international standard				
6.1. Electrical and Power requirement	220±10V, 50/60 Hz, 600VA				
6.2. Dimensions	(W x D x H) 46.6 x 74.5 x 37.0 cm, +/-20%				

6.3. Weight	60kg, maximum					
6.4 Spare parts/Accessories	Glass Capillaries, set of 25, Pack Of 5			1	1	
· ·	Liquid Cups Without Foil, Set Of 500, Quantity 2					
	Liquid Cups With 4.0 Micrometer Proline Film, Set Of 256, Quantity 2					
	Liquid Cups With 2.5 Micrometer Mylar Foil, Set Of 256, Quantity 2					
	Polypropylene Foil, 6 Micrometer, 90 M Roll, Quantity 2					
	Kapton Foil, 7.5 Micrometer, 15.2 M Roll, Quantity 2					
	Mylar Foil, 3.6 μm, 100 Carrier Frames, Quantity 10 Pack					
	Proline Foil, 4 Micrometer, 500 Precut Foils, Quantity 5 Pack					
	Proline Foil, 4 Micrometer, 90 M Roll, Quantity 2					
	Proline Foil, 4 Micrometer, 100 Carrier Frames, Quantity 4					
	Liquid Cup Preparation Tool, Assembling, Quantity 10 Pcs					
	Liquid Cup Preparation Tool, Disassembling, Quantity 10 Pcs					
CRM	Sulfur in Diesel Fuel Oil CRM (Nominal Mass Fraction 40 mg/kg) 500 ml,					
	Quantity 2					
	Full-range of Sulfur Standards for XRF. ASTM Methods D2622, D4294, D5453, D7039, D7212,					
	D5453, D7039, D7212, D7220 and others. 100ml each					
	Helium Gas extra pure (Assay – 99.999%), in a cylinder of capacity 50L					
	with compatible regulator. Qty – 1pc		1	1	1	
	multi element Gasoline CRM 500ml, Quantity 5		<del> </del>	<u> </u>	1	
	· • •			1	1	
7. Authenticated Testimonial/ Credential/ Certificate/ and Document	7.1. User/Technical/Maintenance manuals to be supplied in English.					
	With certificate of distilled water by the equipment					
	7.2. The bidder shall submit the documents includes, but not limited,					
	maintenance and user manual, brochure of the machine, application notes and certificates					
	7.3. The bidder shall submit the following, but not limited to, authenticated					
	Testimonial/ Credential/ Certificate/					
	7.3.1. The bidder must declare to provide at least 2-year warranty after the					
	warranty card (commissioning).					
	7.3.2. In the warranty period, the bidder should declare the frequency of					
	the machine preventive maintenance service.					
	7.3.3 In the warranty period, the bidder should declare to provide the spare					
	parts free of charge.					
	7.3.4 As per Machinery Directive 2006/42EC, Credential evidence of satisfy CE machinery directive compliance or equivalent international					
	directives					
	7.3.5 The bidder must declare to provide at least 2-year warranty after					
	the warranty card (commissioning). In the warranty period, the bidder					
	should declare the frequency of the machine service and spare parts free		1	1	1	
	of charge, after.	 	 <u> </u>	<u> </u>	<u> </u>	
	7.3.6 The bidder shall declare to provide installation and Training for					
	appropriate Period at least for 3 analysts. In addition, the declaration shall					
	indicate SOP (standard operating procedure) that clearly indicate how to					
	operate, troubleshooting, monitoring of functional units and consumables).					
	7.3.7 Evidence on the equipment compliance with applicable health and		1	-	1	
	safety regulations and standards.					
	7.3.8 Willingness of the principal to provide the spares in future at least					
	for ten years (based on client request)					
8. Packaging	8.1 Instrument shall be packed using over load and over travel protection					
o. rackayifiy	built in					
	8.2 Appropriate shock watch label should be in placed in the package		1	1	1	
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ECVE			
ECAE At 90 R	Ethiopian Conformity Assessment Enterprise	Copy No:	Rev No:
			0
	Specification	Page No:	Effective date:
		1 of 1	1-Sep-19
Laboratory:	Biochemical Testing Laboratory Directorate, Microbiological Laboratory		
Address:	P.O. Box: 11145, Woreda 6, Bole Sub-City, Addis Ababa, Ethiopia, St. Line 1: B74-1376 Bole	Audit	English
	Phone: +251 (0)11-830 2477, +251 (0)116 51 81 95, Fax:+251 (0)11-646 9720	Language	İ
	Web-site: www.eca-e.com, E-Mail: info-bctl@eca-e.com		ĺ
Prepared By	Zerihun Abebe,	Signature	
Approved By	Abel Anberbir	Signature	
Contract Ref		Year	2023
Lot -3: Description: - Those lists are common labor	atory place wares which are used in any laboratories, but in this specific		

scenario for petroleum and petroleum products.

Petrolium Testing Equipments

Petrolium Testing Equipments										
ECAE Specification		Bidder Name:						Evaluating Note on Scoring (C =		
		Bidder Offer					Comply, NC = Not Comply)			
Category of specification	Items and Specification	Specification/Requirement	Warranty	Lead Time(Days)	Part Number/ Evidence (for applicable & critical component)	Bidder Remark	Evaluation	Remark		
Item. 01.01	Volumetric flask Glass type (100ml)									
Description:	Volumetric flask for standard preparation or accurate measurement									
Technical Specification:	Glass type Class A glass									
	Capacity 100ml									
	Error limit ±0.02ml									
	Stopper 14/23 NS									
	single point make-up mark									
Quantity:	100 pcs									
Testimonial requirement:	Should have:									
	Certificate of calibration									
Packaging	Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package									
Item. 01.02	Volumetric flask, 250ml									
Description:	Volumetric flask for standard preparation or accurate measurement									
Technical Specification	Glass type – Class A glass									
·	Capacity – 250ml									
	Error limit – ±0.1ml									
	Stopper – 16/24 NS									
	single point make-up mark									
Quantity	30pcs									
Testimonial requirement	Certificate of calibration									
Packaging	Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package									
Item. 01.03	Volumetric flask, 500ml									
Description:	Volumetric flask for standard preparation or accurate measurement									
Technical Specification	Glass type – Class A glass									
	Capacity – 500ml									
	Error limit – ±0.1ml									
	Stopper - 16/24 NS									
	single point make-up mark									
Quantity	30pcs									
Testimonial requirement	Certificate of calibration									
Packaging	Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package									

Volumetric flask 1000ml							
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Certificate of calibration							
Instrument shall be packed using over load and over travel protection built in							
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Heavy wall Pyrex Glass/Borosilicate glass with approximate graduations and							
label on spout.							
Glass type: Type I or Class A glass, neutral as per USP, EP and JP.							
Autoclavable, with spout for heavy duty							
Accuracy: ±5%							
100ml, diameter - 50mm							
250ml, diameter - 70mm							
500ml, diameter - 60mm							
600ml, diameter - 90mm							
•							
Certificate of calibration and performance					1		
Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package							
Petroleum sampling tubes- dipping vessel							
A detachable sampler consisting of a metal or plastic bottle/probe with a							
weighted base (for quick lowering) and a plug for the bottle. The bottle and the plug are suitably tied to a cord, rope or chain, which makes it possible to take samples from various levels: when the necessary level is reached the plug is opened by a sharp pull or alternative means.							
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weighted base (for quick lowering) and a plug for the bottle. The bottle and the plug are suitably tied to a cord, rope or chain, which makes it possible to take samples from various levels: when the necessary level is reached the plug is opened by a sharp pull or alternative means.  Capacity:1000 ml.  for sampling of flammable liquids, the dipping vessel must be made from nonspark producing materials (chrome or nickel-plated brass or stainless steel). The cable or chain, the plug and the manually operated reel must also be made from non-spark producing materials.  The dipping vessel and accessories should meet the requirements of EN 13463-1 Non-electrical equipment for potentially explosive atmospheres — Part 1: Basic method and requirements.  applicable for petroleum and other products, incl. dark petroleum products such as heating oils and dark lubrication oils.  Organic solvents, thinners, and light petroleum products such as petrol, kerosene, petroleum and light lubricating oils.  Water-miscible liquids.  Wash with gasoline, then with water, open the stopper and dry at 60 °C.							
	Appropriate shock watch label should be in placed in the package  Beaker, Glass law form (different size)  Heavy wall Pyrex Glass/Borosilicate glass with approximate graduations and label on spout.  Glass type: Type I or Class A glass, neutral as per USP, EP and JP.  Autoclavable, with spout for heavy duty  Accuracy: ±5%  100ml, diameter - 50mm  250ml, diameter - 70mm  500ml, diameter - 60mm  600ml, diameter - 90mm  Heat resistant for baking dry, up to 450°C  Working Temp: 350°C  50 pcs for each, (100ml, 250ml, 500ml, and 600ml)  Certificate of calibration and performance  Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package	Volumetric flask for standard preparation or accurate measurement Glass type — Class A glass Capacity — 1000ml Error limit — ±0.1ml Stopper — 16/24 NS single point make-up mark 30pcs Certificate of calibration Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package  Beaker, Glass law form (different size) Heavy wall Pyrex Glass/Borosilicate glass with approximate graduations and label on spout. Glass type: Type I or Class A glass, neutral as per USP, EP and JP. Autoclavable, with spout for heavy duty Accuracy: ±5% 100ml, diameter - 50mm 250ml, diameter - 50mm 500ml, diameter - 70mm 500ml, diameter - 60mm 600ml, diameter - 60mm Heat resistant for baking dry, up to 450°C Working Temp: 350°C 50 pcs for each, (100ml, 250ml, 500ml, and 600ml) Certificate of calibration and performance Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package	Volumetric flask for standard preparation or accurate measurement Glass type — Class A glass  Capacity — 1000ml Error limit — 40.1ml Stopper — 16/24 NS single point make-up mark 30pcs Certificate of calibration Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package  Beaker, Glass law form (different size) Heavy wall Pyrex Glass/Borosilicate glass with approximate graduations and label on spout. Glass type: Type I or Class A glass, neutral as per USP, EP and JP. Autoclavable, with spout for heavy duty Accuracy: ±5% 100ml, diameter - 50mm 250ml, diameter - 50mm 500ml, diameter - 60mm 600ml, diameter - 60mm 600ml, diameter - 90mm Heat resistant for baking dry, up to 450°C Working Temp: 350°C 50 pcs for each, (100ml, 250ml, 500ml, and 600ml) Certificate of calibration and performance Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package	Volumetric flask for standard preparation or accurate measurement Glass type - Class & glass Capacity - 1000ml Error limit - ±0.1ml Stopper - 16/24 NS single point make-up mark 30pcs Certificate of calibration Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package Beaker, Glass law form (different size) Heavy wall Pyrex Glass/Borosilicate glass with approximate graduations and label on spout. 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Glass type: Type I or Class A glass, neutral as per USP, EP and JP. Autoclavable, with spout for heavy duty Accuracy: £5% 100ml, diameter - 50mm 250ml, diameter - 50mm 650ml, diameter - 50mm 660ml, diameter - 50mm 600ml, diameter - 50mm 600ml, diameter - 50mm 600ml, diameter - 60mm 60ml, di	Volumetric flask for standard preparation or accurate measurement Glass type — Class A glass Capacity — 100mml Error limit — ±0.1mml Stopper — 16/24 NS Single point make-up mark 30pcs Certificate of calibration Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package Beaker, Glass law form (different size) Heavy wall Pyrex Glass/Borosilicate glass with approximate graduations and label on spout. Glass type: Type I or Class A glass, neutral as per USP, EP and JP: Autoclavable, with spout for heavy duty Accuracy: ±5% Accuracy: ±5% Accuracy: ±5% Soom, I diameter - 50mm Soom, I diameter - 90mm Heat resistant for baking dry, up to 450°C Working Temps: 350°C Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package Petroleum sampling tubes- dipping vessel	Volumetric flask for standard preparation or accurate measurement Glass type — Class A glass Capacity — 1000m1 Error limit — ±0.1ml Stopper — 16724 NS Single point make-up mark 30pcs Certificate of calibration Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package Beaker, Glass law form (different size) Heavy wall Pyrex Glass/Borosilicate glass with approximate graduations and label on spout. Glass type: Type I or Class A glass, neutral as per USP, EP and JP. Autoclavable, with spout for heavy duty Accuracy: ±5% 100ml, diameter - 50mm 250ml, diameter - 50mm 500ml, diameter - 60mm 600ml, diameter - 60mm 600ml, diameter - 90mm 500ml, diameter - 90mm 500ml, diameter - 90ml 50pcs for each (100ml, 250ml, 50ml, and 600ml) Certificate of calibration and performance Instrument shall be packed using over travel protection built in Appropriate shock watch label should be in placed in the package

Item. 01.07	Multi-Level Self-Sealing Sampler				
Description:	Applicable to sampling the petroleum products that are in liquid state at the atmospheric pressure and normal temperature (safety temperature of oil) at different depths of oil tanks, vessels, tank trucks, oil tankers and pipelines etc.				
Technical Specification:	Capacity: 1000 ml.				
	brass material, made with one-step forming technology, No welding, No oil leakage.				
	complies to ISO 3170: Petroleum liquids Manual sampling, ASTM D4057: Standard Practice for Manual Sampling of Petroleum and Petroleum Products.				
	The sample can be accurately collected at the designated point when sampling in tank, and the oil inlet can be automatically closed after sampling to ensure the purity of the sample.				
Characteristic:	With detachable containers opened at the required depth by a snatch valve which reseals when the container is full; Brass material, no spark, avoid the safety accident caused by electric spark;				
	with 50 m anti-static sampling probe,				
	with anti-static-grounding clip with grounding				
feature	Suitable for collecting fixed-points sample in tank/cans- Making bottle opening and closing manually at designated spot - Stamping and stretching forming				
	- 1.5mm wall thickness				
	- Sampling at up port				
	- C1163 Close Bottle's Stopper Auto after Sampling in tank				
Quantity:	3 pcs				
Testimonial requirement	Certificate of performance				
Packaging	Instrument shall be packed using over load and over travel protection built in Appropriate shock watch label should be in placed in the package				
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