

**MULTI PURPOSE BIO MEDICAL WASTE INCINERATOR
AND ASSOCIATED ACCESSORIES BILL OF QUANTITIES
ALL RATES SHALL BE INCLUSIVE OF 16% VAT**

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	<u>PRELIMINARIES AND GENERAL CONDITIONS</u>				
A	Provide performance bond as stated in the published conditions of sub-contract.	Item	1		
B	Provide Tender Security bond 2.5%/insurance as required in the sub contract conditions.	Item	1		
C	Allow for installation working drawings, Shop drawings/ details and “As installed” record drawings.	Item	1		
D	Allow for 3sets of Blue prints/ paper copies of as installed drawings and details	Item	1		
E	Allow for costs to cover out of pocket allowance,Travel ground/ air travel and airport passage taxes) and full board accommodation expenses in at least in three (3) star hotel during lift inspection before shipment for two engineers and clintes representative as allowed for in the conditions of the contract.	Item	1		
F	Allow for training of two (2) technical staff on the operations and maintainance of the incinerator.	Item	1		
G	Allow for the initial routine service maintenance of the incinerator once a month during the 12 months defects liability period and shall carry out all necessary adjustments and repairs, cleaning, greasing and oiling	Item	1		- - -
TOTAL CARRIED TO SUMMARY PAGE					-

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
	GENERAL PRELIMINERY REQUIREMENTS				
A	Allow for Import Duty Declaration, V.A.T(16%) ,shipment, Clearing transportation to site Certification charges by inspection authorities OSHA/(KEBS) to ensure compliance with performance safety requirements	Item			
B	Allow for all costs associated with the on site installation,general and particular specifications and for the initial statutory inspection and certification of the incinerator and associated accessories by a registered Inspector ,and regular inspection during the one year free maintenace warranty period and training of 2no.technician on basic maintenance and care of the incenerator .	Item	1		- - - - - - - - -
C	Allow for Testing and commissioning of the incinerator by gorvernment registered boiler inspector to ensure efficient safe operation of the incinerator, and compliance to environmental ,occupational health and safety requirements before handing over to clent.	Item	1		- - - - - - -
D	Allow for application, follow up and acquisition of approvals for Environmental Impact Assessment (EIA) and Environional Audit (EA) reports with NEMA before	Item	1		-
E	Commencing the works. (Note: No payments shall be made before the permit is acquired and submitted to the Client.)	Item	1		
F	Provide a year's (12 months') initial maintenance upon expiry of the Defects Liability Period. The maintenance to be carried out every quarter (3 months) for a period of 12 months.	Item	1		
		Item	1		
G	Power Supply Allow for electrical supply to incinerator control panel, and any other associated equipment				
	TOTAL CARRIED TO NEXT PAGE				-

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
A	<p>Supply, Install Test and commission Modular Multi purpose Bio Medical Waste Incinerator of the following particular specifications:</p> <p>I. INCINERATOR</p> <ol style="list-style-type: none"> 1. Type - Air Oil Fired Incinerator 2. Type of Waste - BioMedical waste 3. Burning Rate/Capacity - 100kg/hr 4. Auxiliary Fuel - Diesel 5. Type of Burner Operation - Monoblock fully automatic burners 6. Temperature Primary Chamber _ 800±50oC Secondary Chamber _ 1050±50oC <p>II. PRIMARY CHAMBER</p> <ol style="list-style-type: none"> 1. Type - Static Solid Hearth 2. Material of Construction - Mild Steel, 5mm thick 3. Refractory thickness -115mm thick 4. Material - Refractory bricks 5. Temperature resistance - 1400oC 6. Insulation thickness - 115mm thick 7. Material -Insulation bricks 8. Waste Charging - Automatic 9. Ash Removal -Manual <p>III. SECONDARY CHAMBER</p> <ol style="list-style-type: none"> 1. Type -Static Solid Hearth 2. Material of Construction- Mild Steel, 5mm thick 3. Refractory thickness - 115mm thick 4. Material - Refractory bricks 5. Temperature resistance -1400oC 6. Insulation thickness -115mm 7. Materia l- Insulation bricks <p>IV. EMERGENCY STACK</p> <ol style="list-style-type: none"> 1. MOC - Mild Steel, 3mm thick 2. Refractory - 75mm thick castable 3. Insulation - 25mm thick castable 	1	NO		
	TOTAL CARRIED TO NEXT PAGE				

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
	<p>TOTAL BROUGHT FORWARD</p> <p>V. QUENCHER</p> <p>1. MOC of outer body - Mild Steel refractory lined from inside</p> <p>2. Water Circulation system - Provided with centrifugal pump</p> <p>3. Purpose -To reduce flue gas temperature before venturi scrubber</p> <p>4. Pump motor - Suitable capacity provided as per our design</p> <p>VI. AIR POLLUTION CONTROL DEVICE – VENTURI SCRUBBER</p> <p>1. Type -High Pressure Jet Type</p> <p>2. MOC -Stainless steel – 316L</p> <p>3. Temperature at the outlet -78-80°C</p> <p>4. Scrubbing Media -Water with 5% caustic</p> <p>VII. RE- CIRCULATION PUMP FOR VENTURI SCRUBBER</p> <p>1. Type - Centrifugal</p> <p>2. Application - PP/SS</p> <p>3. Piping-PPR</p> <p>VIII. DROPLET SEPARATOR & RE-CIRCULATION TANK (INTEGREL)</p> <p>1. Type-Cyclonic</p> <p>2. Application-To separate water droplets from flue gases</p> <p>3. MOC-Mild Steel Rubber lined 3mm thick</p> <p>IX. INDUCED DRAFT FAN</p> <p>1. Type-High Pressure Centrifugal type</p> <p>2. Material of construction -Stainless Steel Impeller and Mild Steel Rubber lined casting</p> <p>3. Drive-Belt Driven,/ direct coupled</p> <p>X. COMBUSTION FAN</p> <p>1. Type-Centrifugal</p> <p>2. Modulation-Manual damper control</p> <p>3. Material of construction - Mild Steel</p> <p>4. Drive-Direct drive</p>				
	TOTAL CARRIED TO NEXT PAGE				

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
	<p>TOTAL BROUGHT FORWARD</p> <p>XI. BURNERS 1. No. of burners -2 Nos. (1 No. in Primary Chamber and 1No. in Secondary Chamber) 2. Type -Monoblock fully automatic 3. Fuel-Diesel</p> <p>XII. BULK FUEL OIL STORAGE TANK 1. Material of construction & Capacity-Mild Steel, suitable capacity 10,000ltrs 2. Other Standard Accessories-Diesel Oil level indicator, piping with valves& N.R. Valve 3. Visual checking of Fuel-Provided</p> <p>XII. DAILY FUEL OIL STORAGE TANK Daily fuel tank manufactured from 14swg black mild steel sheet complete with bolted cover and adquate venting to BS 799 part 5:2010 capacity 500litres with oil level indicator, on a steel section stand 2.5m above finished floor level and firmly secured on the floor and steel members jointed by bolting/ welding.</p> <p>XIII. CONTROL PANEL 1. Type-PLC based with printer & recording device having both Manual and Auto Operation 2. Material of construction-CRCA Sheet 3. Type of temperature controller-Digital 4. Finish & Painting type-Powder coated 5. Audio-visual alarm system-Provided</p> <p>XIV. CHIMNEY 1. Material of construction _ Mild Steel 2. Type _ Self supporting 3. Height _ Suitable height in mtrs from ground level 4. Other Standard Accessories _ Aviation lamp, lightening arrestor, stack, drain, inspection platform, sampling port 5. Paint _ The chimney is painted externally with two coats of heat resistant aluminium paint 6. Ladder _ Provided till the top 7. Inside Protection _ 3mm thick rubber lining from inside 8.Smoke filter chamber with filter brick to ensure virtually smoke and smell free after burning</p>				
	TOTAL CARRIED TO NEXT PAGE				

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
	<p>TOTAL BROUGHT FORWARD</p> <p>XV. CERTIFICATION</p> <p>1. Approval-KEBSE/OSHA approved machine</p> <p>2. Mandatory approvals for operation_ All mandatory approvals (if any) required for the installation and operation of incinerator shall be done by the successful bidder.</p> <p>XVI. TRAINING</p> <p>1. Training-The successful bidder shall train the JKUAT staff to the satisfaction of the authorities.</p> <p>BULIDERS WORK</p> <p>A The detailed design layout and construction cost for the incinerator shelter and the civil works should be included in the offer</p> <p>B Allow for Tank cleaning and purging and painting with rust inhibiting primer before applying two coats butuminous paint</p> <p>C Allow for all wiring between plant items and controls. Adequate supervision shall be provided to ensure that electrical connections are correctly made to all items of equipment and controls supplied for these works.</p> <p>D Allow for mains up grading and new LV/DB</p> <p>E Earthing comprising of copper earth electrode of size 1500mmlong x 15mm diameter enclosed by a concrete manhole of size 450x450x450mm with removable concrete cover and a 32mm diameter PVC heavy gauage conduit lead in duct and bonded to the board and steel structure using 10mm2 SC cable as per KPLC requirements</p> <p>F Constuct masonry electrical manhloe of size 750x600x600mm with removable concrete cover to beprovided at entry point to the building</p>				
	TOTAL CARRIED TO NEXT PAGE				

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
	TOTAL BROUGHT FORWARD				
	Plumbing between Bulk and Daily Fuel Tank and Burner				-
A	Supply and install class C black mild steel pipe 50mm dia Extra over black mild steel pipe for fittings:	LM			
B	Elbow 50mm dia	NO			
C	Socket 50mm dia	NO			
D	Union 50mm dia	NO			
E	Socket 50mm dia	NO			
F	Crane fuel oil brass control stop valve 50mm dia	NO			
G	Crane fuel oil brass Non Return valve 50mm dia	NO			
H	Supply and install 50mm dia high capacity striner	NO			
I	Supply and install class C black mild steel pipe 25mm dia Extra over black mild steel pipe for fittings:	LM			
J	Elbow 25mm dia	NO			
K	Socket 25mm dia	NO			
L	Union 25mm dia	NO			
M	Socket 25mm dia	NO			
N	Crane fuel oil brass control stop valve 25mm dia	NO			
O	Supply and install 25mm dia high capacity striner	NO			
P	Quick action lever operated dead weight type Fire valve 25mm dia	NO			
Q	Allow for electric tracer heating tape properly wrapped round and along the 25mm dia burner supply pipe	Item			
R	Allow for lagging. the burner supply line with 25mm thick rock wool fibre insulation and finished with 22SWG aluminum sheet cladding	Item			
	TOTAL CARRIED TO NEXT PAGE				

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
TOTAL BROUGHT FORWARD					
Transfer Pump					
A	Supply and install fuel transfer pump as Grundfos duty 1ltr/sec head 20m sinle pase 240v complete with all necessary accessories to allow for complete installation				
	Pipe Suppots	Item			
Power Supply					
B	Allow for electrical supply to incinerator control panel, and wiring between incinerator plant PLC ontrol and any	Item			
	other associated equipment	Item			
Spare and Manuals					
supply					
C	1 set of saftey controls	Rate			
D	solenoid valve	Rate			
E	oil ignition system	Rate			
F	photo electric cells	Rate			
G	Allow for operating and maintenance manuals both for the incinerator and burners	Item			
TOTAL TAKEN TO COLLECTION PAGE					

ITEM No.	DESCRIPTION	AMOUNT KSHS
TOTAL BROUGHT TO COLLECTION PAGE MULTI PURPOSE BIOMEDICAL INCINERATOR		
1	PRELIMINARIES AND GENERAL CONDITIONS	
2	GENERAL PRELIMINARY REQUIREMENTS	
3	SUPPLY INSTALL TEST AND COMMISSION MODULAR BIOMEDICAL INCINERATOR ELECTRICAL WIRING , PLUMBING BETWEEN BULK AND DAILY USE FUEL TANK ASSOCIATED BUILDERS AND CIVIL WORKS	-
4	CONTIGENCY	350,000.00
TOTAL CARRIED TO FORM OF TENDER		

Amount in wards Carried to form of tender.....

Tenderer's Name and Stamp

Incinerator and accessories delivery Period weeks

Contract Period Weeks

Signature..... Date.....

PIN NO..... VAT Certificate No.....

Witness..... Address.....

Signature.....

Date.....