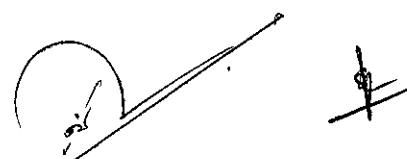


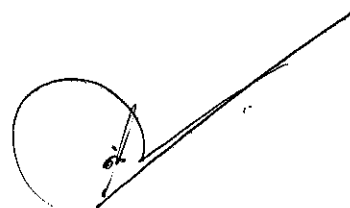
Specification for an Incinerator

As per the discussions held on 7th and 8th July 2020 with the experts, the following specification for an Incinerator has been developed. Please find the specification below for your information and necessary action.

Item	Requirement
Type	Dual chamber
Operating time	Batch wise feeding, maximum 10 hours/d (operating time can be changed according to waste generation capacity, Maximum waste incineration capacity -1.5 T/d)
Burn rate	At least 150 kg/hour
Waste feeding type	Semiautomatic (waste is placed on the conveyer belt by the operator and then automatically it will be taken in to the incinerator)
Composition of waste to be incinerated	Infectious waste: swabs, gloves, plastic specimen containers, plastic reagent or chemical containers, needles and syringes, culture media, human tissue and anatomical waste, Yellow bags containing gloves, masks, gowns, surgical hoods, coveralls, boot covers etc. Moisture content < 30%
Primary combustion chamber temperature	> 850 °C
Secondary combustion chamber temperature	>1200 °C
Gas retention in secondary chamber	≥ 2 sec at 1200 °C
Temperature monitoring	Temperature display should be available
Thermostatic device	Available
Combustion air supply	By suitable blowers with necessary controls.
Burners for chambers	LP gas fired low NOx burners which capable to provide 100% backup when necessary for each chamber. Burners should consist of automatic controls
Controls and safety	Automatic controls with a panel board. All panels should be suitable for tropical use.
Structural details	All walls, partitions and roof should be constructed with a material which could withstand the temperatures up to 1600°C and properly insulated. Insulation material should be supported by removable steel claddings. Whole system must be adequately reinforced and painted with a heat resistant paint.
Waste destruction capability	At least 95% by volume and at least 90% by weight
Average ash residue	3% (excluding inert materials fed into the machine like glass, sharps)
Combustion efficiency	≥ 99.99%
Chimney height	Supplier should decide it according to the location and should comply with gazetted Emission Standards published under the National Environmental Act
Emissions	The quality of the emissions should meet the Central Environment Authority of Sri Lanka recommended regulatory standards
Vibration and noise	Noise levels shall comply with the National Environmental (Noise Control) Regulations No 01 of 1996, and vibration levels shall be maintained in

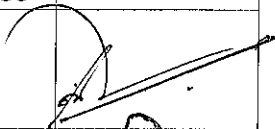
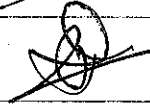

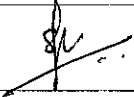
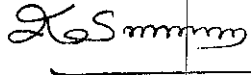
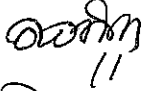


	accordance with the Proposed Vibration Standards published by the Central Environment Authority
Fuel storage	LP gas storage (in built) with a suitable capacity and safety measures
A secure waste storage facility	Adequate temporary storage should be available for infectious waste awaiting disposal (infectious waste have to be stored temporary in case of breakdown of the incinerator)
Shelter for incinerator	Should be provided from the supplier and it should be adaptable for current layout of the health care institution. The contractor must indicate the land area required for this purpose and the dimensions of the shelter (suitably ventilated building). This should be lockable. This should also include an adequate storage facility for infectious waste awaiting disposal considering daily average waste generation. A hand washing area and a washing area with waste water runoff. Facilities to store the tools, protective clothing, and operator records.
Transport, Installation and commissioning	To be provided by the supplier in accordance with the conditions stipulated in the approval issued by the Central Environmental Authority
Materials required for installation and commissioning (wiring, piping and switches etc.)	To be provided by the supplier
Ash pit	Temporary ash pit with easy access to the ash chamber should be available for at least 1-2 days collection. It should be a concrete pit and the bottom of the pit should be above the highest level of the water table. The pit is in the immediate proximity of the incinerator to ensure convenient transfer of ash.
Electrical power supply	220-240V/380 -415V, 50Hz
Flue gas analysis	Flue gas analysis should be done after installation and test run. CCTV monitoring is needed to monitor emissions.
Warranty	Comprehensive warranty for 3 years. Fire bricks, fire walls and two burners will need warranty for 5 years.
Operational and maintenance manual	To be provided by the supplier in three languages (English, Sinhala, Tamil) (Overall maintenance every 3 yearly)
After sales services	Should be readily available on call. The supplier must provide satisfactory documentary evidence on this matter and sign a service contract with the relevant authorities.
Service agreement	Should be available
Spare parts	Should be available for recommended lifetime of the machine
List of customers/user reference	Should be provided
Training of operators	To be provided by the supplier. Comprehensive training based on the operational and maintenance manual. Follow-up training shall be provided after six month operation of the equipment. Should be provided to at least for two operators.




Performance	The supplier shall guarantee that the system offered adequately meets the requirements stated in this specification. A performance assessment (to be conducted by a competent authority) report of the incinerator should be handed over to the relevant authority on commissioning the same.
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Agreement to the specification for Incinerators by the expert panel.

Name	Designation	Comment Agree/Disagree	Signature
Mr. J.M.U.Indrarathna	Deputy Director General (Waste Management), Central Environmental Authority	Agree	
Mr. AjithWeerasundara	Director (Waste Management), Central Environmental Authority	Agree	
Mr. S.M.Werahara	Actg. Director (Environment Pollution Control & Chemical Management), Ministry of Environment and Wildlife resources	Agree	
Mrs. H.P.S. Jayasekara	Director (Solid Waste Management), Central Environmental Authority	Agree	
Dr. Inoka Suraweera	Consultant Community Physician, Directorate of Environmental and Occupational Health, Ministry of Health	Agree	
Mr. H.L. Kamal Priyantha	Deputy Director (Air Quality Monitoring unit), Central Environmental Authority	Agree	
Mr. R.M. Jaltota	Assistant Director (Hazardous Waste Management), Central Environmental Authority	Agree	