

Technical Specification for **Coal proximate analyzer/Thermo gravimetric analyzer**

Sl. No.	Equipment	Details
01	Coal proximate analyzer/Thermo gravimetric analyzer	<p>EQUIPMENT- COMPLETELY AUTOMATIC THERMO GRAVIMETRIC ANALYZER(TGA) WITH COMPLETE ASSEMBLY</p> <p>The instrument should be automatic PC based macro thermo Gravimetric analyzer (Proximate Analyzer) and capable of determining Ash, Moisture, Volatile matters as per ASTM D7582</p> <ol style="list-style-type: none"> <li>1. sample size:0.1- 5 grams</li> <li>Weight loss/Gain Range: 0 - 100%</li> <li>Standard deviation of Weight loss/Gain:±0.02 % or better</li> <li>2 Furnace Temperature : Ambient to 1000 °C</li> <li>Temperature Stability : ±2 °C upto 1000 °C</li> <li>3 Sample nos.:Should be able to analyze 1 to 20 samples (19 samples + 1 reference)</li> <li>4 Heated Parts: All heated parts should be of such material or ceramic namely carousels, crucibles, and covers that is not susceptible to warping at temperatures up to 1000°C.</li> <li>5 Balance:Instrument must use an integrated four-place balance, shielded and protected from any interference from other internal components with readability 0.0001 gram.</li> <li>6 Ramping Rate:Instrument must provide variable temperature ramp rate with programmable capabilities.</li> <li>7 Carousel:Instrument must use a pneumatic carousel mechanism for accurate crucible placement. It should have dual carousel for automatic placing and removal of the crucible covers/lids inside the furnace for VM and ash determination. Nickel-chorme alloy carousel/ceramic carousel.</li> <li>8 Instrument calibration:50 g of 3 nos. of Coal standard (CRM) of varying moisture, ash and VM % for TGA calibration with traceability certificate.</li> <li>9 Gas Cylinder:Nitrogen, Oxygen and air gas cylinder of capacity 47 liters with dual stage regulator.</li> <li>10 PC &amp; Printer:Latest branded PC compatible TGA with complete with accessories like TFT moitor, UPS etc</li> </ol> <p>Software for control, operation, data processing and analysis of TGA Printer for taking output of results</p> <p>Specification for PC and Printer: Branded PC(HP, ACER, DELL, WIPRO) with latest configuration and complete with following-</p> <ul style="list-style-type: none"> <li>Intel i5 or better with original motherboard</li> <li>4 GB/6GB 1333 MHz DDR3 RAM</li> <li>500 GB HDD or better</li> <li>DVD-RW combo drive</li> <li>17"/19" TFT monitor</li> <li>USB optical mouse, 6 USB port( min. 2 infront), audio port, serial port,</li> <li>1 GB graphics card, multimedia keyboard</li> <li>Integrated 100/1000 Mbps LAN card</li> <li>Latest antivirus software</li> <li>Latest licenced window OS compatible with features for DSC operation, calculation,storage of data, calibration graphs, data interpretation and report generation.</li> </ul> <ol style="list-style-type: none"> <li>11. Following items have to be supplied with the instrument <ol style="list-style-type: none"> <li>a. One number of double stage regulator for each nitrogen, oxygen and air gas cylinders in addition to supplied with the cylinders.</li> <li>b. 20 numbers of crucibles with covers/lids</li> <li>c. 5 numbers of Scoop for coal sample loading</li> <li>d. Suitable UPS for Power backup system</li> <li>e. 3 nos. of Filters systems for gases used for running of instrument Filter system refers to moisture absorbent/purification filters</li> <li>f. 1 no. of air compressor</li> <li>g.2 Nos. of operation and maintenance manual.</li> </ol> </li> </ol>

		<p>h. Essential consumables for 2500 analysis.  i. Essential tool and maintenance kit:One set  j. Dust Cover: 01 no.  k. Any other accessory/attachment required under scope of application:  As required.</p> <p><b>TERMS AND CONDITIONS:</b></p> <ol style="list-style-type: none"> <li>1. The instrument should be installed and commissioned by the supplier at our laboratory and all features of the equipment are to be demonstrated through operation by supplier/its authorized agent at our site. At least 3 days of training to be imparted to our personnel for correct operation after the commissioning of instrument.</li> <li>2. Supplier must specify and quote for all standard accessories and consumable required or mentioned in technical specification sheet to make the system fully operational for the application mentioned. All the accessories required for all types of application will be considered for financial implication.</li> <li>3. There should be at least two years of warranty/guaranty for the running of equipment.</li> <li>4. The bidder must ensure and guarantee availability of spares for at least 10 years after the supply of instrument.</li> <li>5. The delivery period is to be 8 weeks from the date of receipt of order.</li> </ol> <p><b>EQUIPMENT-THERMO GRAVIMETRIC ANALYZER(TGA):COMPLETE ASSEMBLY</b>  The instrument should be automatic PC based macro thermo Gravimetric analyzer (Proximate Analyzer) and capable of determining Ash, Moisture, Volatile matters as per ASTM D7582</p> <ol style="list-style-type: none"> <li>1. sample size:0.1- 5 grams</li> <li>Weight loss/Gain Range: 0 - 100%</li> <li>Standard deviation of Weight loss/Gain:±0.02 % or better</li> <li>2 Furnace Temperature : Ambient to 1000 °C</li> <li>Temperature Stability : ±2 °C upto 1000 °C</li> <li>3 Sample nos.:Should be able to analyze 1 to 20 samples (19 samples + 1 reference)</li> <li>4 Heated Parts: All heated parts should be of such material or ceramic namely carousels, crucibles, and covers that is not susceptible to warping at temperatures up to 1000°C.</li> <li>5 Balance:Instrument must use an integrated four-place balance, shielded and protected from any interference from other internal components with readability 0.0001 gram.</li> <li>6 Ramping Rate:Instrument must provide variable temperature ramp rate with programmable capabilities.</li> <li>7 Carousel:Instrument must use a pneumatic carousel mechanism for accurate crucible placement. It should have dual carousel for automatic placing and removal of the crucible covers/lids inside the furnace for VM and ash determination.</li> <li>8 Instrument calibration:50 g of 3 nos. of Coal standard (CRM) of varying moisture, ash and VM % for TGA calibration with traceability certificate.</li> <li>9 Gas Cylinder:Nitrogen, Oxygen and air gas cylinder of capacity 47 liters with dual stage regulator.</li> <li>10 PC &amp; Printer:Latest branded PC compatible with TGA complete with accessories like TFT moitor,UPS etc</li> </ol> <p>Software for control, operation, data processing and analysis of TGA Printer for taking output of results</p> <p>Specification for PC and Printer:  Branded PC(HP, ACER, DELL, WIPRO) with latest configuration and complete with following-</p> <ul style="list-style-type: none"> <li>Intel i5 or better with original motherboard</li> <li>4 GB/6GB 1333 MHz DDR3 RAM</li> <li>500 GB HDD or better</li> <li>DVD-RW combo drive</li> <li>17"/19" TFT monitor</li> </ul>
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**Other Terms:**

1. Deliverable include license for above equipment along with all spare parts to run the equipment for three years with operating manual hardcopy (for TGA).
2. There will be two years comprehensive annual maintenance contract (for fourth & fifth year) for the above equipment. Kindly attach estimate/cost separately for CAMC.
3. The warranty of TGA should be three years from the date of installation with all parts with complete warranty.
4. If the equipment is proprietary you have to provide proprietary & sole supplier certificate.