

# National Centre for Physics

## Detailed specification Document

Annex- A-242

S#	Title of the Project Item	Specification	A/U Nos	QTY
1.	Wet Particle Size Analyzer. Model: Winner2006A or Equivalent	<ul style="list-style-type: none"> <li>- Model Name: Winner2006A</li> <li>- Size Range: 0.01µm-1000µm</li> <li>- Accuracy: &lt;0.5%</li> <li>- Laser: He-Ne Laser λ=632.8nm, p&gt;2mW/Auxiliary Laser Semiconductor λ=532nm, power: 1-40W</li> <li>Wet Dispersion: <ul style="list-style-type: none"> <li>- Ultrasonic: Frequency: 40kHz, Power:60W, Time &gt;1s.</li> <li>- Agitator: Revolutions Speed 0-3000rpm adjustable.</li> <li>- Circulation: Rated Flow: 17Ltr/flow, Rated power 15W</li> <li>- Sample pool: Volume 450ml</li> <li>- Operation mode: Manual and fully automatic, 2 Mode, freely choose,</li> <li>- Optical alignment system: Fully Automatic optical path alignment system.</li> <li>- Testing speed: &lt; 2mint/time</li> <li>- Outer dimensions: L-85cm* W-39cm*H45cm.</li> </ul> </li> <li>- <b>Booster Pump</b></li> </ul>	Nos	01
2.	Automatic Micro Moisture Coulometric Karl Fischer Titrator, xylem Lab Solutions, Model: TO 7280 or Equivalent	<ul style="list-style-type: none"> <li>- Measurement range: 0.0001% (1ppm) to 100%,</li> <li>- Resolution: 0.1µg.</li> <li>- Power Supply: AC (220±10%) V, (50/60) Hz,</li> <li>- Dimensions: 385mm x 290mm x 280mm,</li> <li>- Max Temperature: 280 oC</li> <li>- Max Power Consumption: 60W</li> <li>- Sensitivity Threshold: 0.01ugH<sub>2</sub>O</li> </ul>	Nos Nos	01 01
3.	Metallurgical Microscope DarkField & Polarizing Features. AmScope ME520, Model SKU:ME520TC or Equivalent	<ul style="list-style-type: none"> <li>- Magnification: 1000X</li> <li>- Optical System: Infinite conjugate.</li> <li>- Reference Focal Length: 200mm.</li> <li>- Head Trinocular, 30° incline, 360° rotatable,</li> <li>- Interpupillary Adjustment Siedentop Compensation- free gemel, 48-75mm,</li> <li>- Ocular Diameter: 30mm</li> <li>- Ocular Diopter: Left Ocular</li> <li>- Eye Pieces: 10X eyepiece with reticle 10X</li> <li>- Objective Parfocal Distance: 45mm</li> <li>- Objective Mounting Thread: 3 x RMS 20.32mm, 2 x M25</li> <li>- Objective Turret: Reverse quintuple, ball bearing movement.</li> <li>- Focus Range: Travel 124mm</li> <li>- Coarse Stroke: 37.7mm Per rotation</li> <li>- Fine Stroke: 0.1mm per rotation</li> <li>- Stage Design Three-layer mechanical stage with caliper</li> <li>- Stage Dimensions: 186mm x 133mm</li> <li>- X-Y Translation Range: 74mm x 50mm</li> <li>- Transmitted Illumination: Halogen, continuous-adjusting, rear-mount housing with aspherical</li> <li>- Episcopic illumination: 100W halogen, continuous-adjustment, rear-mount housing with aspherical collector</li> <li>- Condenser: NA0.9/0.25 achromatic swing condenser with iris diaphragm</li> <li>- Sub- Stage Condenser holder: Rack and pinion</li> </ul>	Nos	01

Power: 100-240V AC 50/60Hz wide-Band  
 Objective Lenses: seven objective lenses for metallurgical and biological applications. Two lenses are designated as BD, which can be used for reflected-Light darkfield.

Brightfield Objective lenses

Magnification Corrections	NA	Working Distance	Cover Glass Thickness	Mount
5X Plan-achromatic	0.1	15.5mm	-	RMS
50X Plan-achromatic	0.7	0.32mm	0	RMS
100X Plan-achromatic	0.8	2mm	0	RMS

Brightfield/Darkfield Metallurgical Objective Lenses

Magnification Corrections	NA	Working Distance	Cover Glass Thickness	Mount
10X Plan-achromatic	0.2	10mm	0	M25
20X Plan-achromatic	0.4	4.3mm	0	M25

Transmitted-Light Objective Lenses

Magnification Corrections	NA	Working Distance	Cover Glass Thickness	Mount
40X Plan-achromatic	0.6	0.54mm	0.17mm	RMS
100X Plan-achromatic	1.2	0.13mm	0.17mm	RMS

Along with Accessories:

-	Tinocular Microscope head.	Nos	01
-	Microscope Body	Nos	01
-	Episcopic illuminator	Nos	01
-	light Housing	Nos	02
-	Brightfield metallurgical objective lenses: 5X, 50X, 100X	Nos	03
-	Brightfield/darkfield metallurgical objective lenses: 10X, 20X	Nos	02
-	Brightfield transmitted light objective lenses: 40X, 100X	Nos	02
-	10X eyepieces	Nos	02
-	1 Set Polarizer and analyzer	Nos	01
-	2 Lamp Bulbs	Nos	02
-	2 spare fuses	Nos	02
-	1 Dust Cover	Nos	01
-	1 Sample immersion oil	Ltr	01
-	Computer	Nos	01
-	Software for image analysis (IMAGIN MEASURA 200)	Nos	01
-	High Efficiency 2 Samples one time fully Automatic Metallographic Specimen	Nos	01
-	Protection class IP55		
-	Accuracy $\pm 0.1\%$ - $\pm 0.5\%$ FS		
-	Voltage: 220V		
-	Along with Mounting Resin (Phenolic-2 Black)	Kgs	10
-	Double Disc Semi-Automatic main of Grinding/Polishing Machine	Nos	01
-	Individual Forec: 05-60N		

4. Hot Mounting Press Metallography, metkon, Model: ECOPRESS.102or Equivalent

5. Metallographic Grinding & Polishing Metkon,

6.	Grinding & Polishing Consumables	Model: FORCIMATE 52 or Equivalent.	- Sample Holder Ring: 6 Samples		
			- Product Size: 650*500*350mm		
			- Speed: 50-1500 rpm (Stepless speed regulation)		
			- Power: 0.6 kW		
			- Grinding and Polishing Disc: 200mm (8") Double disc Double control		
			- Sample Holder Ring, 25mm-50mm, Dia: 1inch	Nos	02
			- Sample Holder Ring: 25mm-50mm, Dia: 2inch	Nos	02
			- Peristaltic pump	Nos	03
			<b>Grinding Papers/SiC Papers</b>		
			- Grits 40/60 papers	Nos	100
			- Grits 240/320 papers	Nos	100
			- Grits 600 papers	Nos	100
			- Grits 800 papers	Nos	100
			- Grits 1200 papers	Nos	100
	- Grits 2400 papers	Nos	100		
	- Grits 5000 papers	Nos	100		
	- Dimond paste 9µm	Nos	02		
	- Dimond paste 3µm	Nos	02		
	- Dimond paste 1µm	Nos	02		
	- Lubricant oil for Grinding & Polishing	Ltr	05		
	- Polishing Cloths	Nos	10		
7.	Abrasion Cutting Machine, MetKon. Model: Micracut 202 or Equivalent	- Type: Cut Off Machine	Nos	01	
		- No Load Speed: 600rpm			
		- Blade size: 200mm			
		- Voltage: 220V			
		- Power: 1kW			
8.	Precision/Analytical Balance, Shimadzu or Equivalent	- Min: 1mg	Nos	01	
		- Max: 300-450g			
		- Units: gm			
		- Scale Division: 0.001g (1mg)			
		- Analytical Balance			
		- AC/DC power Supply Adapter			

Note: All the components installed should be compatible with the system and each other.

Please tick the relevant box

Installation

Testing

Commissioning

Training

Warranty requirement

Any other please specify