

Indicative Procurement Plan of Laboratory/Scientific Equipment for the year 2021-26

Sl No.	Item description	Quantity	Approx Cost	End Use	Year of Procurement
1	Mass Comparator (1mg-200g)(L.C-0.001mg upto 30 g and 0.1mg upto 200g)	1	25 lakh	For calibration of E-2 class weights, Volumetric Glassware	2021
2	Mass Comparator (150kg)(L.C-0.1 g)	1	20 lakh	For calibration of E-2 class weights, Volumetric Glassware	2021
3	Electric based fusion bead machine	1	30 Lakhs	For safely fusion bead preparation along with minor oxide accurate analysis	2021
4	Section Cutting and Polishing machine (2 nos)	1	10 Lakhs	OM/SEM sample preparation	2021
5	Mercury Analyzer	1	7 Lakhs	Water analysis	2021
6	Electronic Balance (3 no's)	1	4 Lakhs	Sample measurement for chemical and physical characterization	2021
7	Hot plate	5	1 lakh	Sample preparation for chemical analysis and chemical synthesis.	2021
8	Centrifuge	2	3 lakhs	Separation, precipitation, and decantation- R&D and SP project	2021
9	Knorr apparatus, Turbidity meter and Vacuum filtration unit	1	2 lakhs	Chemical analysis of raw material	2021
10	Cement free lime rapid tester	1	5 lakhs	Chemical analysis of clinker and cement	2021
11	Water flow meter	1	8 lakhs	To be used in cement plant energy audit	2021
12	Compressed Air Flow Meter	1	5.5 lakhs	To be used in cement plant energy audit	2021
13	Flue Gas Analyzer	1	3.8 lakhs	To be used in cement plant energy audit	2021

14	CO2 Analyzer	1	4.5 lakhs	To be used in cement plant energy audit	2021
15	Inductively Coupled Plasma Spectrometer (ICP-OES)	1	70 lakhs	R & D purpose	2021
16	X-Ray Diffraction (XRD)	1	1 crore	For mineralogical analysis	2021
17	Mass Comparator (150kg)	1	17 lakhs	R & D purpose	2021
18	PRT and Thermocouple with Digital Precision Dual Channel Thermometer/ Digital Indicator	1	7 lakhs	R & D purpose	2021
19	Sulphur Analyzer	1	20 lakhs	R & D purpose	2021
20	Direct Mercury Analyzer	1	30 lakhs	R & D purpose	2021
21	Simultaneous Thermal Analyser (STA)	1	45 lakhs	R & D purpose	2021
22	Digital Profometer	1	3.5 lakhs	R & D purpose	2021
23	Multi-channel Electrochemical Impedance spectroscopy (EIS)	1	35 lakhs	R & D purpose	2021
24	Electrical Resistivity Meter	3	15 lakhs	R & D purpose	2021
25	Half Cell Potential Kit	2	10 lakhs	R & D purpose	2021
26	Digital UPV Tester	4	20 lakhs	R & D purpose	2021
27	Optical Microscope	1	50 lakhs	R & D purpose	2021
28	Mercury Intrusion Porosimeter	1	20 lakh	R&D Purpose	2022
29	Guard Ring	2	07 lakh	R&D Purpose	2022
30	Electrochemical Cell Kit	1	05 lakh	R&D Purpose	2022
31	Dead Weight Tester-Dual Range-1400 bar (Cross Float Type with CVV)	1	25 lakh	For calibration of Industrial Dead Weight Tester and Pressure Indicating Devices	2022
32	Temp and Relative Humidity Calibrator	1	10 lakh	For calibration of Hygrometer and RH indicating devices	2022
33	Thermal Analyzer (DTA/TG)/STA	2	50 Lakhs	R&D and sponsor purpose for estimation of thermal characteristics of limestone, gypsum, rawmix, hydrated cement, concrete etc.	2022

34	Dilatometer/ Thermal Expansion Meter	1	40 Lakhs	Determination of thermal expansion coefficient/expansivity of ceramic/ refractory, concrete and building materials for sponsor and R&D purpose	2022
35	High Temperature Muffle Furnace	2	20 Lakhs	To be used for calcination, sintering and clinkerisation at high temperature	2022
36	High Temperature Rising Hearth/ Bottom Loading Furnace	1	15 Lakhs	Bulk clinker firing and calcination of materials, sintering of refractory and ceramic materials, high temperature characterization of ceramic, refractory, concrete materials	2022
37	Vacuum oven	1	20 Lakhs	Sample preparation for testing and analysis.	2022
38	Fourier Transform InfraRed (FT-IR) Spectrometer	1	50 Lakhs	R&D purpose for estimation of functional groups/ metal oxide vibrational bands in clinker, fly ash, slag, and hydrated samples	2022
39	UV Vis Spectrophotometer	1	25 Lakhs	Spectrometer of solids and liquid for paints or coating studies -R &D and SP Project	2022
40	Rheometers	1	40 Lakhs	Rheological studies on Cement and building materials R&D and SP project	2022
41	Carbonation Chamber	1	15 lakhs	Cement testing and durability performance analysis	2022
42	Oven	1	2 lakhs	Preparation sample for chemical and physical analysis	2022

43	Corrosion/Fireproof chemical Cabinets	1	20 lakhs	Sample storage and safety	2022
44	Sulphide/Sulphur apparatus	1	3 lakhs	Chemical analysis of raw materials	2022
45	Flue Gas Analyzer	1	05 Lakhs	Sponsor Project (R & D purpose)	2022
46	Digital Thermometer	2	1.5 Lakhs	R & D purpose	2022
47	Digital Pyrometer	4	04 Lakhs	R & D purpose	2022
48	Electrochemical Impedance spectroscopy Multi channel	1	45 lakh	R&D Purpose	2023
49	Rheometer of concrete and mortar	1	20 lakh	R&D Purpose	2023
50	Multi-channel concrete maturity meter	2	08 lakh	R&D Purpose	2023
51	Atomic force microscope (Nano Indentation)	1	30 lakh	R&D Purpose	2023
52	Electrochemical Cell Kit	1	05 lakh	R&D Purpose	2023
53	Thermocouple Calibrator With B-type Thermocouple(with cold Junction) with Indicator	1	15 lakh	For calibration of Thermocouples, Pyrometers etc.	2023
54	Temp. Indicator with PRT Probe -50 °C-400 °C, Least Count-0.0001 °C	1	15 lakh	For Calibration of Various Temp. Indicating Devices	2023
55	Isothermal Calorimeter	1	40 Lakhs	Hydration studies of cementitious materials for R&D and sponsor projects	2023
56	Hot Disk for Thermal Conductivity, Thermal diffusivity, and Specific heat	1	40 lakhs	Thermal conductivity measurement of glass, ceramic, refractory, concrete and building materials	2023
57	Refractoriness Under Load (RUL)	1	80 Lakhs	Thermal characterization of refractory bricks, castables used in cement manufacturing.	2023

58	Creep in Compression	1	25 Lakhs	Thermal mechanical characterization of glass, ceramic, refractory, concrete and building materials	2023
59	DSC	1	40 lakhs	R&D and sponsor purpose for estimation of thermal characteristics and heat of reaction of limestone, gypsum, kiln feed and hydrated cement etc	2023
60	Atomic Absorption Spectroscopy (AAS)	1	60 Lakhs	Elemental analysis of raw materials used in cement and building materials.	2023
61	Zeta Potential Analyzer	1	15-20 Lakhs	Materials characterization of building materials and raw materials.	2023
62	Digital manometer	4	02 Lakhs	R & D purpose	2023
63	Freezing thawing equipment	1	20 lakh	R&D Purpose	2024
64	Autogenous shrinkage	1	15 lakh	R&D Purpose	2024
65	Heat of Hydration of Concrete (Adiabatic)	1	20 lakh	R&D Purpose	2024
66	Thermo Mechanical Analyzer (TMA)	1	40 Lakhs	R&D and sponsor purpose for estimation of thermo-mechanical properties of refractory, ceramic and composite materials.	2024
67	Thermal Conductivity Measurement Laser/Light Flash Apparatus	1	90 Lakhs	Thermal conductivity measurement of glass, ceramic, refractory, concrete and building materials	2024
68	Hot Modulus of Rapture (HMOR)	1	25 Lakhs	Thermal mechanical characterization of ceramic materials and refractory bricks used in cement manufacturing.	2024

69	Air/Water Permeability Instrument	1	10 Lakhs	Used in studying densification and compactness of cement hardening and its performance.	2024
70	Flexure Strength Testing Machine	1	15 Lakhs	Physical testing of cement, refractory, concrete and composite	2024
71	Profile Projector 300*200 mm 10X,50x and 100x magnification	1	25 lakh	For Calibration of Test Sieves	2025
72	Force Calibration Machine by Comparator Method 500-1000 kN	1	1 crore	For calibration of Force proving instruments	2025
73	Force Calibration Machine by Comparator Method 2000-3000 kN	1	1.5crore	For calibration of Force proving instruments	2025
74	Abrasion Resistance Instrument	1	30 Lakhs	Used in studying physical characteristics of ceramic materials used in cement or clinker manufacturing.	2025
75	Field Emission Scanning Electron Microscope (FE-SEM) with EDX	1	110 Lakhs	R&D purpose for microstructural and mineralogical analysis of clinker, slag, fly ash and hydrated cement etc.	2025
76	BET Surface Area and Pore Volume Analyzer	1	25 Lakhs	R&D and sponsor purpose for identification/estimation of pore characteristics of building materials.	2025
77	Raman Spectrometer	1	120 lakhs	R&D purpose for estimation of functional groups/ metal oxide vibrational bands in clinker, fly ash, slag, and hydrated samples	2025
78	Material Characterization Analytical Software (2 no's)	1	20 lakhs	Evaluation of sample and interpretation of cement and building material	2025

79	Rapid Chloride Permeability Test Equipment	1	5 lakhs	Cement testing and durability performance analysis	2025
80	Vernier Caliper Scale (Digital)	2	0.25 Lakhs	Refractory testing and measurement	2025
81	High Energy Grinding Machine	1	15 lakhs	Sample preparation and raw material grinding.	2025
82	Air/Water Vapor Permeability Tester	1	5 lakhs	Cement testing and durability performance analysis	2026
83	Mass spectrometer (LC and GC module)	1	150 lakhs	Alternative fuels, chemical formulation, raw materials, environment studies- R&D and SP project	2026

Note: This list of equipment is indicative not exhaustive and may be updated/modified time to time. Prospective Manufactures/Sellers may regularly visit website www.ncbindia.com for further update.

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