

Schedule of Testing Charges

w.e.f. 1st August 2007

ANALYTICAL CHEMISTRY DIVISION

Testing Charges

Sl. No	Name of Test	Rate(s) Per Sample (Rs.)
1.	Quantitative chemical analysis of glass and ceramic raw materials and finished products, refractory, cement, clay for determination of 10 constituents (SiO ₂ , Al ₂ O ₃ , Fe ₂ O ₃ , TiO ₂ , CaO, MgO, Na ₂ O, K ₂ O, Li ₂ O and loss on ignition).	5,000.00
2.	Quantitative chemical analysis by wet chemical method for determination of each of the following constituents (SiO ₂ , Fe ₂ O ₃ , TiO ₂ , CaO, MgO, PbO, BaO, ZnO, B ₂ O ₃ , SO ₃)	1,000.00
3.	Quantitative chemical analysis by wet chemical method for determination of each of the following constituents (Al ₂ O ₃ , ZrO ₂ , Cr ₂ O ₃ , P ₂ O ₅)	1800.00
4.	Quantitative chemical analysis by ICP AES for determination of each element	1,500.00 (new)
5.	Quantitative chemical analysis by AAS for determination of each element	1,000.00
6.	Quantitative chemical analysis by UV-VIS Spectrophotometer for determination of each element	1,000.00 (new)
7.	Quantitative chemical analysis by Flame photometer for determination of each element (Na ₂ O, K ₂ O, Li ₂ O)	1,000.00 (new)
8.	Quantitative chemical analysis of Fluoride / Chloride by Ion selective electrode	1,000.00 (new)
9.	Determination of loss on ignition / ash content of carbonaceous material / graphite	1,000.00
10.	Determination of silver content in graphite	1,500.00 (new)
11.	Determination of free moisture	500.00
12.	Grading of glass for Alkalinity as per IS : 2303-1994	1,500.00
13.	Determination of Lead and Cadmium extracted from Glazed Ceramic surfaces as per ASTM C 738-94	1,500.00
14.	Test for Acid Resistance of bricks as per IS : 4860-1968	1,500.00
15.	Chemical Analysis of Water:	
	i. pH Measurement	500.00
	ii. Arsenic by FI-HG-AAS	1,500.00
	iii. Fluoride / Chloride	500.00
	iv. ICP, AES analysis of each element (Si, Al, Fe, Ca, Mg, Na, K, Sr, Ba, Mn, Zn, Cu, Cr, Ni, Co, Mo, Pb, Cd, S, P, B)	700.00 (new)
16	Sample preparation for chemical analysis	450.00
17.	Chemical Analysis of Castable (Al ₂ O ₃ , TiO ₂ , CaO & Fe ₂ O ₃)	3,000.00

ATOMIC FORCE MICROSCOPE (AFM)

Testing Charges

Sl. No.	Name of the Test(s)	Rate(s) Per Sample (Rs.)
1	Normal AFM tapping mode/Contact mode scan	3,500.00
2	Nano-Indentation	6,000.00
3	Special Scans (Under liquid, Thermal Conductivity, Electrical resistivity)	6,000.00
Special Note		
(a)	Imaging of each sample enables scanning at 3 (three) different locations, image post-processing, 2-D/3-D morphology & sectional analysis	---
(b)	Any extra analysis (like roughness, grain size etc.) will involve extra cost per sample. [Sample size (max): 15 mm x 15 mm x 10 mm]	500.00
(c)	Sample preparation charges – per sample	500.000

CERAMIC MEMBRANE DIVISION

Testing Charges

Sl. No.	Name of the Test(s)	Rate(s) Per Sample (Rs.)
1	Particle Size Analysis	2,250.00

CLAY & TRADITIONAL CERAMICS DIVISION

Testing Charges

Sl. No.	Name of the Test	Rate(s) Per Sample (Rs.)
1.	Sieve Analysis:	
	(a) One Sieve	450.00
	(b) Set of Sieves: (i) Dry	800.00
	(ii) Wet	900.00
2.	Coarse particles/grit content	600.00
3.	Plasticity by feel	250.00
4.	Water of plasticity	400.00
5.	Atterberg's number	800.00
6.	Hardness	450.00
7.	Water absorption/apparent porosity/bulk density/relative density/apparent specific gravity/true specific gravity	600.00
8.	Classification of ceramic tile as per IS 13712	2,500.00
9.	Testing of china clay for ceramic industry as per IS:2840	15,000.00
10.	Testing of ball clay for ceramic industry	8,000.00
11.	Crazing resistance of glaze by autoclave	2,000.00
12.	Dry/fired shrinkage (excluding fabrication and firing)	400.00
13.	Only firing in electric furnaces	
	a. upto 1000°C	2,000.00
	b. upto 1400°C	3,000.00
	c. upto 1500°C	3,500.00
14.	Firing between 1200°C and 1400°C in electric furnace (one firing) and examination of the fired characteristics like	
	a. colour, shrinkage, vitrification, water absorption, app. Porosity and bulk density (batch firing)	4,500.00
	b. -do- (firing at two temperatures between 1200°C and 1400°C and examination of fired properties)	7,500.00
15	Fabrication of sample(s)	400.00

COMPOSITE SECTION

Testing Charges (Mechanical & Physical)

Sl. No.	Name of Test(s)	Rate(s) Per Sample (Rs.)
1	Glass to Resin Ratio	600.00
2	Density (Composites)	600.00
3	Viscosity (Liquid)	1,000.00
4	Monomer Content (Resin)	500.00
5	Gel Time (Resin)	600.00
6	Gel Time with Peak Exothermic Temperature	1,000.00
7	Fibre Diameter Measure	400.00
8	Hardness - Barcol	400.00
9	Water Absorption	600.00
10	Tensile Properties of Metals: a. Cross-Head Speed < 0.5 mm/min (1 Pc.) b. – do – (5 Pcs.) c. –do – > 0.5 mm/min (5 Pcs.) d. –do – (5 Pcs.)	600.00 2,500.00 350.00 1,500.00
11	Mechanical Properties of Glass, Ceramics, Composites, Fibre etc. Flexure, Compressive, Tensile Mode (5 Pcs.)	1,000.00
12	Tensile Test of Single Fibre (10 Pcs.)	1,500.00
13	Impact Test of Glass, Ceramics, Composites, Plastics etc. (Charpy & Izod – 10 Pcs.)	1,000.00
14	Micro-Hardness (Vickers)	1,200.00
15	Distribution of Fibre	400.00
16	Load Deflection (FRP Corrugated Sheet)	1,000.00
17	Bolt-Shear Test (FRP Corrugated Sheet)	1,000.00
18	Fabrication of FRP Sample from Raw Material for Testing	600.00
19	Particle Size Distribution using Image Analyser (Per Sample)	2,500.00
20	Heat Distortion Temperature (H.D.T.)	1,200.00
21	Flammability	1,200.00
22	Modulus of Resonance	2,000.00

GLASS SCIENCE SECTION

Testing Charges

Sl. No.	Name of the Test(s)	Rate(s) Per Sample (Rs.)
1	(a) Co-efficient of linear thermal expansion of Glass and supply of data with Curve including sample preparation.	1,500.00
	(b) Co-efficient of linear thermal expansion of Glass and supply of data with Curve including sample preparation including Dilatometer Softening Point, Strain Point and Annealing Point.	1,800.00
2	(a) Testing of eye Protective glass for Welding Operation as per IS : 5983 – 1980 for UV/Visible/NIR.	1,500.00
	(b) Shade Number as per IS : 5983 – 1980	1,800.00
3	Spectroscopic measurement of overall transmission in UV/Visible/NIR.	2,000.00
4	Thickness of laminated safety glass for general purpose as per IS: 2553	500.00
5	Testing of Laminated Safety Glass for Road Transport as per IS:2553(Part-II)-1992	
	(a) Thickness (not more than 3 pieces)	500.00
	(b) Impact Resistance Test (5 pieces)	2,000.00
	(c) Penetration Resistance Test	2,000.00
6	Testing of Glasses for the following tests:	
	(a) Whether Sheet Glass or Float Glass	2,000.00
	(b) Thickness of the Glass	500.00
7	Determination of density of Glass	750.00
8	Determination of density of Glass:	
	(a) at one wave length of light	1,000.00
	(b) at each additional wavelength	400.00
9	Fabrication of Sample (per sample)	400.00

INSTRUMENTATION SECTION

Testing Charges

Sl. No.	Name of the Test(s)	Rate(s) Per Sample (Rs.)
1	Determination of viscosity of glass by rotating cylinder method.	15,000.00

NON-OXIDE CERAMICS SECTION

Testing Charges

Sl. No.	Name of the Test(s)	Rate(s) Per Sample (Rs.)
1	Thermal Conductivity of Ceramics by Laser Method Up to 100°C Up to 1200°C	6,000.00 8,000.00

OPTICAL COMMUNICATION FIBRE DIVISION

Testing Charges

Sl. No.	Name of the Test(s)	Rate(s) Per Sample (Rs.)
1	Refractive Index of Optical Fibre	4,000.00

REFRACTORIES DIVISION

Testing Charges

Sl. No.	Name of the Test	Rate(s) Per Sample (Rs.)
1.	Sieve Analysis as per IS : 1528 (Part – XIV)	
	(a) Dry	600.00
	(b) Wet	900.00
2.	Size tolerance	200.00
3.	PCE (Pyrometric Cone Equivalent) as per IS:1528 (Part-I)	2,000.00
4.	RUL (Refractoriness Under Load) as per IS:1528 (Part-II) (Cutting charge extra)	1,600.00
5.	PLCR (Permanent Linear Change after Reheating) as per IS:1528 (Part-VI): (a) Up to 1400°C for 5 hours (b) Above 1400°C and upto 1600°C for 5 hrs	3,000.00 4,000.00
6.	Spalling resistance test as per IS:1528 (Part-III) Prism method by air quenching up to 1000°C	4,500.00

Sl. No.	Name of the Test	Rate(s) Per Sample (Rs.)
7.	CCS (cold Crushing Strength) as per IS:1528 (Part-IV) (Cutting charge extra)	600.00
8.	MOR (Modulus of rupture) as per IS: 1528 (Part-V) (Cutting charge extra)	600.00
9.	Thermal Expansion as per IS:1528 (Part-XIX) : (a) Up to 1000°C (b) Up to 1400°C (c) Extra charges for cooling curve if required	1,500.00 2,100.00 500.00
10..	Apparent Porosity/Bulk density/apparent Specific gravity as per IS : 1528 (Part-VIII) (Cutting charge extra)	600.00
11.	True density/Specific gravity as per IS:1528 (Part-IX)	750.00
12.	True porosity/Closed Porosity IS:1528 (Part XV)	1,200.00
13.	Pore size distribution by mercury porosimeter	2,500.00
14.	Thermal conductivity of refractory brick (Insulating type) by hot wire method at a particular temperature as per ASTM: C 1113/ISO8894 upto 1400°C.	3,000.00
15.	Surface area measurement by BET method	2,000.00
16.	Compressive strength/modulus of rupture of monolithics and castables as per IS:10570: a. after 24 hrs. curing b. after 72 hrs. curing c. after firing at temp up to 1000°C (3 hrs) d. after firing at temp up to 1400°C (3 hrs) e. after firing at temp up to 1550°C (3 hrs)	900.00 1,000.00 2,500.00 3,500.00 4,000.00
17.	Firing in electric furnace : a. up to 1000°C (5 hrs) b. up to 1400°C (5 hrs) c. up to 1500°C (5 hrs)	2,000.00 3,000.00 3,500.00
18.	Cutting of dense and hard bricks (per brick)	500.00
19.	Abradability index as per B.S. 1902 Part-1A	1,200.00
20.	Hot MOR (upto 1400°C) IS : 1528 (Part XX)	4,500.00
21.	DTA and TGA: (a) up to 1000°C (b) up to 1400°C	2,000.00 2,500.00
22	Fabrication of Castable Samples (per sample)	750.00
23	Static Cup Slag Resistance (New)	4,500.00
24	Polishing Charges (Per Sample)	450.00

SEM, FESEM & TEM SECTION

Testing Charges

Sl. No.	Name of the Equipment(s)/Test(s)	Rate Per Sample (Rs.)
1	(a) Microstructural Analysis by Scanning Electron Microscope (SEM S4301) (Including conducting coating & 6 nos. of micrographs).	1,800.00
	(b) Additional Micrographs (a package of 6)	300.00
2	(a) High Resolution Microstructural analysis by Field Emission Scanning Electron Microscopy (FESEM SUPRA 35VP) (Including conducting coating & 6 nos. of micrographs).	4,000.00
	(b) Additional Micrographs (a package of 4)	300.00
3	(a) Transmission Electron Microscope (TEM) studies (Including sample preparation of powder samples only and 6 micrographs).	5,000.00
	(b) Additional Micrographs (a package of 4)	500.00
4	Elemental Analysis by Energy Dispersive X-Ray Analysis (EDX) in SEM/FESEM/TEM (Including conductive coating).	3,000.00
5	Elemental Distribution Analysis EDX Line Scanning/Dot Mapping in SEM/FESEM/TEM (Including conductive coating)	4,000.00
6	Sample Preparation For SEM Study:	
	(a) Sample preparation for bulk sample (cutting & polishing)	500.00
	(b) Au/Au-Pd Coating	500.00
	(c) Pt. Coating	600.00
	(d) C Coating	500.00
7	Sample Preparation For TEM Study:	
	(a) For bulk sample	2,000.00
	(b) For Cross-sectional view of thin films/layers on substrates	3,000.00

SOL-GEL DIVISION

Testing Charges

Sl. No.	Name of the Test(s)	Rate(s) Per Sample (Rs.)
1	Energy Transmission Test:	
	(a) % Transmission	2,000.00
	(b) % Reflection	2,000.00

X-RAY SECTION

Testing Charges

Sl. No.	Name of the Test(s)	Rate(s) Per Sample (Rs.)
1	XRD Diffractogram without any analysis	750.00
2	XRD Diffractogram with qualitative phase analysis	1,250.00
3	XRD Diffractogram with quantitative phase analysis	
	(a) Sample containing less or equal to three phases (single phase)	2,500.00
	(b) Sample containing more than three phases (single phase)	4,000.00
4	XRD Diffractogram with only amorphous phase quantification	2,500.00

CGCRI-NARODA & KHURJA CENTRES

Testing Charges

Sl. No.	Name of the tests	Rate(s) Per Sample (Rs.)
1.	Differential thermal analysis : a) Upto 1200°C b) Above 1200°C	2,000 .00 2,500.00
2.	Crazing resistance for : a) Tiles i) 500 Kpa ii) 750 Kpa b) Fire clay / sanitaryware : 500 Kpa (5h) c) Vitreous China Sanitaryware : 500 Kpa (10h) d) Earthenware / Stoneware / Porcelain Crockery ware 500 KPa/1h (3 cycles) e) Line (bone) China / Porcelain / Stoneware Crockery ware 500 Kpa (5 cycles)	2,000.00 2,000.00 1,100.00 1,800.00 1,800.00 3,000.00
3.	Thermal shock test on sanitary wares as per IS 771 - 1958	1,500.00
4.	Sieve analysis : a) One sieve b) Set of sieves : i) dry (4 to 5 sieves) ii) wet	450.00 800.00 900.00
5.	Particle size distribution by Andreason Pipette method	1,500.00
6.	Grit content on 300 / 350 mesh	450.00
7.	Plasticity by hand feel	250.00
8.	Water of Plasticity	400.00
9.	Atterberg Number	800.00
10.	Slaking test	250.00
11.	Hardness by Mohs' Scale	450.00
12.	Water absorption / Specific gravity / Apparent Porosity / Bulk Density / Relative Density	600.00
13.	Dry / Fired MOR / CCS (excluding firing)	600.00
14.	Firing between 1200°C and 1400°C in electric furnace (one Firing), examination of the fired characteristics like: a) Colour, shrinkage, vitrification, water absorption, app. Porosity and bulk density (batch firing) b) - do - (firing at two temperatures between 1200°C and 1400°C examination of fired properties).	4,500.00 7,500.00

Sl. No.	Name of the test(s)	Rate(s) Per Sample (Rs.)
15.	Co-efficient of thermal expansion (excluding sample Preparation) : a) Up to 1000°C b) above 1000°C and up to 1400°C c) Extra Charge for Cooling Curve, if required	1,500.00 2,200.00 500.00
16.	Rational analysis by Norms' method	300.00
17.	pH value	300.00
18.	Fabrication of ceramic articles by casting / throwing / Extrusion / processing (uo to 5 kg batch)	800.00
19.	Testing of China clay for ceramic industry as per IS : 2840 - 1993.	15,000.00
20.	Testing of ball / plastic clay for ceramic industry As per IS 4589 - 1979	8,000.00
21.	Dye penetration test	750.00
22.	a) Abrasion resistance as per BS : 6451-1984 b) Deep abrasion resistance as per DIN:154 (part xv)-1983	1,200.00 1,200.00
23.	Toluene absorption	800.00
24.	Dry / Fired Shrinkage (excluding fabrication and firing)	400.00
25.	Preparation of ceramic body (material to be prepared) for Max. up to 24h grinding : a) Up to 3 Kg b) Up to 5 Kg c) Up to 10 kg d) Up to 100 kg e) Up to 200 kg f) Up to 350 kg g) Up to 750 kg	120.00 200.00 300.00 1,000.00 1,200.00 1,400.00 1,600.00
26.	Dry grinding of ceramic body materials / glass / frit for 30 h grinding for 100 kg	1,200.00
27.	Depth abrasion test as per EN-102	1,500.00
28.	PEI abrasion for tiles as per EN-154 / IS : 13630 (Part 11) : 1999	4,500.00

Sl. No.	Name of the tests	Rate(s) Per Sample (Rs.)
29.	Firing in thermal gradient furnace : i) Up to 1000°C ii) above 1000°C and up to 1300°C	1,800.00 2,250.00
30.	Pyrometric Cone Equivalent (PCE)	2,000.00
31.	Refractoriness Under Load (RUL) [Excluding cutting charges]	1,600.00
32.	Firing in electric furnace (0.035 m) i) Up to 1000°C (5h) ii) above 1000°C and up to 1400°C (5h)	1,800.00 2,700.00
33.	Cutting of dense and hard bricks (per brick)	500.00
34.	Firing in horse shoe furnace (0.45 m ³) (Up to 25h firing) a) 1000°C - 1200°C b) above 1200°C and up to 1300°C c) above 1300°C and up to 1400°C	6,750.00 7,500.00 8,250.00
35.	Firing in shuttle kiln (2.0 m ³ , 2 burners) (up to 24h firing) a) up to 1000°C b) above 1000°C and up to 1250°C c) above 1250°C and up to 1350°C d) above 1350°C and up to 1400°C	7,500.00 11,250.00 8,925.00 15,000.00
36.	Firing in electric furnace (0.084 m ³ and 0.112 m ³ (up to 24h firing) a) up to 1000°C b) above 1000°C and up to 1300°C c) above 1300°C and up to 1400°C	2,000.00 2,500.00 3,000.00
37.	Firing in electric furnace (0.028 m ³) (up to 24 h firing) a) up to 1000°C b) above 1000°C and up to 1200°C	1,500.00 2,000.00
38.	Firing in Nabertherm furnace (0.078 m ³) (up to 24 h firing) a) up to 1100°C b) above 1100°C and up to 1250°C c) above 1250°C and up to 1340°C d) above 1340°C and up to 1360°C	1,500.00 2,000.00 2,200.00 2,500.00

Sl. No.	Name of the tests	Rate(s) Per Sample (Rs.)
39.	Firing in Nabertherm furnace (0.014 m ³) (up to 24 h firing) a) Up to 1250°C b) Above 1250°C and up to 1300°C	1,000.00 1,200.00
40.	Firing in Nabertherm furnace (0.0085 m ³) (up to 24 h firing) a) Upto 1250°C b) Above 1250°C and up to 1350°C c) Above 1350°C and up to 1400°C	650.00 750.00 900.00
41.	Firing in high temperature furnace (0.046 m ³) (heating time : 12 h max inclusive soaking of about 3 h) a) Up to 1400°C b) Above 1400°C and up to 1500°C c) Above 1500°C and up to 1650°C	2,650.00 3,000.00 3,300.00
42.	Complete chemical analysis of glass, ceramic and allied materials : determination of the following constituents : a) SiO ₂ , Al ₂ O ₃ , TiO ₂ , Fe ₂ O ₃ , CaO, MgO, K ₂ O, Na ₂ O, Li ₂ O and LOI b) In addition to the constituents mentioned in 42 a, determination of any of the following constituents: P ₂ O ₃ , ZrO ₂ , NiO, CoO, MnO, PbO, BaO, B ₂ O ₃ , ZnO, As ₂ O, Sb ₂ O ₃ , F, Cl, SO ₃ , CdO, CuO, SrO,	4,000.00 600.00
43.	Analysis of raw materials and ceramic finished products : a. determination of single constituent except Al ₂ O ₃ from the list of constituents mentioned in 47a and 47b b. determination of two constituents from the list of constituents mentioned in 47a and 47b c. determination of three constituents from the list of constituents mentioned in 47a and 47b d. determination of four constituents from the list of constituents mentioned in 47a and 47b e. determination of five constituents from the list of constituents mentioned in 47a and 47b f. determination of ZrO ₂ g. determination of Cr ₂ O ₃ h. determination of L.O.I. / ash content for carbonaceous material / graphite i. determination of Al ₂ O ₃ + TiO ₂	1,000.00 1,200.00 1,500.00 1,500.00 2,000.00 1,200.00 1,800.00 1,200.00 1,400.00
44	Analysis of chrome / mag-chrome bearing materials	5,500.00

Sl. No.	Name of the tests	Rate(s) Per Sample (Rs.)
45.	Complete chemical analysis (including SO ₃ , free moisture and combined water) of : a. Plaster of Paris / gypsum b. Phosphogypsum	4,000.00 4,500.00
46.	Complete analysis of enamel and frit : determination of the following constituents : SiO ₂ , Al ₂ O ₃ , TiO ₂ , Fe ₂ O ₃ , CaO, MgO, K ₂ O, Na ₂ O, BaO, PbO, B ₂ O ₃ , ZrO ₂ and ZnO. (for one or more constituents charge will be as per 48a, 48b and 48c above)	5,500.00
47.	a. Acid resistance test of chemical stoneware as per BS : 784 - 1963 or IS 4860 - 1968	1,500.00
	b. Acid resistance test as per IS 4860 - 1968 / IS : 4575 (5 separate test)	3,500.00
	c. Acid resistance at elevated temperature	
	i) Conc.HNO ₂ , boiling for 8 h	2,000.00
	ii) - do - for 24 h	4,000.00
48.	Staining and burning test as per IS : 2556 (Part-1)	1,000.00
49.	Chemical resistant test as per IS : 2556 (Part-1)	6,000.00
50.	Rheological tests for china & ball clays for electrolyte Demand, determination of pint weight, fluidity, Thixotropy and casting thickness etc.	1,500.00
51.	Grinding in vibro energy mill (max. 10kg ; feed material - 200 mesh)	
	i) 24 h grinding	600.00
	ii) 40 h grinding	900.00
52.	Drying charge (per kg. of material)	25.00
53.	Determination of fluidity / viscosity of casting slip	150.00
54.	Pressing (mechanical / hydraulic press) (minimum 100 pieces @ Rs.5.00 per piece)	750.00
55.	Chemical resistance test as per IS : 4456 (Part-1). Chemical resistance mortar (one solution)	1,200.00
56.	Lead Solubility Test	1250.00

Sl. No.	Name of the tests	Rate(s) Per Sample (Rs.)
56.	Chemical resistance test as per IS : 4456 (Part-1), Chemical resistance mortar (one solution)	1,200.00
57.	Chemical resistance of glazed / unglazed tiles (one solution) IS 13630 (Part 7/8)	1,500.00
58.	Deviation in the dimension of tiles as per EN-98/ISI 13630 Part 1 : 1993	400.00
59.	Thermal shock as per EN-104/IS 13630 (Part 5)	1,000.00
60.	Scratch resistance as per EN-101 / IS 13630 (Part 13)	400.00
61.	Clay levigation (10 kg)	2,000.00
62.	Moisture content	300.00
63.	Water analysis (5 parameters)	1,000.00
64.	Straightness of sides IS 13630 (Part 1) - glazed tiles	700.00
65.	Rectangularity of glazed tiles - do -	700.00
66.	Surface flatness - glazed tiles - do -	1,300.00
67.	Test for Soda ash (insoluble impurities, contents of Na ₂ O , SO ₃ and Fe ₂ O ₃)	2,500.00
68.	Classification by hydrocyclone (10 kg. batch for one experimental settling)	3,000.00
69.	Abrasion resistance test for sanitaryware as per SASO	1,000.00
70.	Whiteness Index	800.00
71.	Light Transmission	800.00
72.	Sample preparation of glaze for thermal expansion	400.00