

# METAL HANDICRAFTS SERVICE CENTRE



## **Background**

Handicrafts of India are very significant to the country as they not only represent the culture & tradition but also have high utility and decorative value. Although, Handicraft sector is highly unorganised sector, it makes substantial contribution to Indian Economy and is major employment generator for the masses.

Moradabad is famous throughout world for metal handicrafts. To promote metal handicrafts, Metal Handicrafts Service Centre (MHSC), Moradabad was established with the sole purpose of the development of quality production Art Metal Wares which are exported outside India from Moradabad. MHSC was established by Government of India with financial and technical assistance of UNDP & Government of Utter Pradesh.

Metal Handicrafts Service Centre functioning under the administrative control of the Development Commissioner (Handicrafts), Ministry of Textiles, Government of India. MHSC has been registered as a Government of India Society under Societies Registration Act XXI, 1860. The Metal Handicrafts Service Centre (MHSC), Moradabad centrally located on NH24, 167 Kms from Delhi.

## Common Facility Centre (CFC)

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The common facility centre has electroplating, powder coating, lacquering, polishing and sand/shot blasting section with mass production capacities. These facilities are available to exporter/ manufacturer on no profit no loss basis.



### Electroplating



The modern electroplating plant existing in this centre is having tank with a capacity of 1,700lts. Due to large tanks, it is easily possible to electroplate heavy and big items up to 20-25 micron or even above if the need arises. At present, MHSC has the facilities of Copper Plating, Nickel Plating, Silver Plating, Tin Plating & Brass Plating.



### Powder Coating



In powder coating section, negatively charged powder is sprayed using electrostatic guns on different items, which are earthed. After coating the items with powder, it is baked at about 200°Celsius and the finish becomes supreme adhesive, hard, thermal resistant and durable for years. In this way the handicraft items made of cheaper ferrous metals and its alloys, coating with powder and enhancing product value are exported from this region for decorative and utility purpose.



### Lacquering



The process of lacquering is carried out in this centre in a dust free pressurized chamber where air is injected through micro filters thereby avoiding any chances of dust deposition with surface of the items. Electrostatic lacquering is adopted to achieve best wrap around effect and minimized wastage of lacquer. The lacquers using in the centre are high quality acrylic type and strict in process quality checks are conducted and the items are subjected to various test meeting international specifications.



## **Sand/ Shot Blasting**



Polishing is an essential step before metal finishing while sand/ Shot blasting is used for making the metal surface granular and for cleaning intricate object, by pressurized spraying of sand or any other abrasive like aluminium oxide, glass beads, chilled iron shots etc. Blasted surface is very sensitive to atmosphere and applying a coat of lacquer or any other similar finishing can protect it.



## **Silicon Di Oxide Coating :**



The Plasma processing Group of IPR has developed a technique to deposit silicon dioxide films on brassware using the technique of plasma polymerizations of organic silicon monomers using radio frequency discharge plasma. The main advantage of Plasma Coating is that there is no any toxic metal observed in the surface coating.



# **Research Testing & Calibration Laboratory (RTCL)**

**NABL Accredited as per ISO/IEC : 17025:2005**

In Moradabad alone, there are about 2500 Handicrafts Industrial units in large, medium, small sector. Testing facilities are required for the quality assurance of their products for three areas (Purchased material components, In-process material / Products and Finished Products).

MHSC has one of the leading Material Testing Laboratory in India in the field of Metal Handicrafts Products, Chemical, Non – Destructive, Toxic Metal Testing, Drop Test and Corrosion Resistance Testing etc. RTC Laboratory at MHSC, have acquired a great reputation for Quality and Implemented Quality Management System in line with the requirements of ISO / IEC 17025 : 2005 equipped with Contemporary Testing Equipments.

# Testing Services

The testing facilities are available at RTCL, MHSC for following material/product

- ◆ Carbon Steel / Stainless Steel / Tool Steel/ Copper/ Zinc / Aluminum & Its Alloys Based Handicrafts / Metal Products
- ◆ Precious Metal (Silver / Gold & Platinum) Elements in Metal & alloys
- ◆ Solid/ Liquid & Powder / Metal / Handicrafts Products by (X-Ray XDAL-XDV Spectrometer)
- ◆ Toys Testing Migration of Heavy Metals in Toys
- ◆ Lighting Lamp, Lighting Fixtures, Light Bulbs , Clocks (RoHS Directive)
- ◆ Small / Large Household Appliances Testing as per FDA/California Prop 65.
- ◆ Children Jewelry Products
- ◆ Metallic Coating Metallic Wares / Handicrafts Products
- ◆ Paint & enamels pigment & extenders polishes, Powder Coating, Solvent & Thinners
- ◆ Migration of Heavy Metals in Toys & Metal Handicrafts Products /Toys
- ◆ Powder / Paints / Lacquer Coating Thickness Test
- ◆ Surface Coating & Coating Material
- ◆ Salt Spray Test
- ◆ Waste Water (Effluents / Sewage)
- ◆ Ground Water / Drinking Water



**National Accreditation Board for  
Testing and Calibration Laboratories**

(A Constituent Board of Quality Council of India)



**CERTIFICATE OF ACCREDITATION**

**RESEARCH TESTING & CALIBRATION  
LABORATORY (A DIVISION OF METAL  
HANDICRAFTS SERVICE CENTRE)**

has been assessed and accredited in accordance with the standard

**ISO/IEC 17025:2005**

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

Peetal Nagri, Rampur Road, Moradabad, Uttar Pradesh

in the field of

**TESTING**

Certificate Number TC-6683

Issue Date 26/12/2017

Valid Until 25/12/2019

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

(To see the scope of accreditation of this laboratory, you may also visit NABL website [www.nabl-india.org](http://www.nabl-india.org))

Signed for and on behalf of NABL

N. Venkateswaran  
Program Director



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Anil Rella  
Chief Executive Officer



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### SCOPE OF ACCREDITATION

**Laboratory** Research Testing & Calibration Laboratory (A Division of Metal Handicrafts Service Centre), Peetal Nagri, Rampur Road, Moradabad, Uttar Pradesh

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-6683

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**Validity** 26.12.2017 to 25.12.2019

**Last Amended on** --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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#### CHEMICAL TESTING

I. METALS & ALLOYS				
1.	Carbon Steel & Its Alloys Based Handicrafts / Metal Products	Phosphorous (P)	IS 228 (Part 3): 1987 (RA 2012)	0.005 % to 0.5 %
		Silicon (S)	IS 228 (Part 8): 1989 (RA 2014)	0.05 % to 5.0 %
		Manganese (Mn)	IS 228 (Part 2): 1987 (RA 2014)	0.1 % to 3.0 %
		Sulphur (S)	IS 228 (Part 3): 1989 (RA 2014)	0.005 % to 0.3 %
		Nickel (Ni)	IS 228 (Part 5): 1987 (RA 2014)	0.05 % to 15 % 0.1 % to 15 %
			ASTM E:1621-13 [ED-XRF-XDUL/XDU] ASTM E:1479:16-ICP	0.001 % to 15 %
		Molybdenum (Mo)	IS 228 (Part 7): 1989 (RA 2012)	0.2 % to 5 % 0.1 % to 5.0 %
			ASTM E-1621-13 [ED-XRF-XDAL/XDV]	
		Chromium (Cr)	IS 228 (Part 6): 1987 (RA 2016) ASTM E-1621-13 [ED-XRF-XDAL/XDV]	0.2 % to 15 % 0.1 % to 35 %
			Manganese (Mn)	ASTM E-350:12/ ASTM E-1621-13 [ED-XRF-XDAL/XDV]
2.	Stainless Steel & Its Alloys Based	Chromium (Cr)	ASTM E-1479:2016-ICP	0.001 % to 3.0 %
		Lead (Pb)	ASTM E-1479:2016-ICP	0.001 % to 0.5 %
		Cadmium (Cd)	ASTM E-1479:2016-ICP	0.001 % to 0.5 %
		Phosphorous (P)	IS 228 (Part 3): 1987 (RA 2012)	0.005 % to 0.4 %

  
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	Handicrafts / Metal Products	Silicon (S)	IS 228 (Part 8): 1989 (RA 2014)	0.05 % to 5.0 %
		Manganese (Mn)	ASTM E:1621:13 [ED-XRF-XDUL/XDU]	0.1 % to 15.0 %
		Sulphur (S)	ASTM E-352:13 IS 228(P6):87/RA 14	0.01 % to 5.0%
		Chromium (Cr)	ASTM E-1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDAL/XDV]	0.1 % to 40.0 % 0.1 % to 40.0 %
		Nickel (Ni)	ASTM E:1479:16-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDU]	0.0001 % to 25.0 % 0.01 % to 40.0 %
		Molybdenum (Mo)	IS 228 (Part 7): 1989 (RA 2012) ASTM E-1621-13 [ED-XRF-XDAL/XDV]	0.1 % to 5.0 % 0.1 % to 18.0 %
		Chromium (Cr)	ASTM E-1479:2016-ICP ASTM E-1621-13 [ED-XRF-XDAL/XDV]	0.01 % to 30.0 % 0.1 % to 30.0 %
		Lead (Pb)	ASTM E-1479:2016-ICP	0.001 % to 0.5 %
		Cadmium (Cd)	ASTM E-1479:2016-ICP	0.001 % to 0.5 %
		3.	Tool Steel & Its Alloys Based Handicrafts / Metal Products	Phosphorous (P)
Silicon (S)	IS 228 (Part 8): 1989 (RA 2014)	0.05 % to 5.0 %		
Manganese (Mn)	ASTM E:1621:13 [ED-XRF-XDUL/XDU]	0.1 % to 15.0 %		
Sulphur (S)	ASTM E-352:13 IS 228 (Part 6): 1987 (RA 2014)	0.01 % to 5.0 %		
Chromium (Cr)	ASTM E-1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDAL/XDV]	0.1 % to 40.0 % 0.1 % to 40.0 %		

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		Nickel (Ni)	ASTM E:1479:16-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDU]	0.0001 % to 25.0 % 0.01 % to 40.0 %
		Molybdenum (Mo)	IS 228 (Part 7): 1989 (RA 2012) ASTM E:1621:13 [ED-XRF-XDAL/XDV]	0.1 % to 5.0 % 0.1 % to 18.0 %
		Chromium (Cr)	ASTM E:1479:2016-ICP ASTM E:1621 - 13 [ED-XRF-XDAL/XDV]	0.01 % to 30.0 % 0.1 % to 30.0 %
		Lead (Pb)	ASTM E:1479:2016-ICP	0.001 % to 0.5 %
		Cadmium (Cd)	ASTM E:1479:2016-ICP	0.001 % to 0.5 %
4.	Copper & its Alloy & Copper Based Handicrafts / Metal Products	Iron (Fe)	ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.10 % to 10.0 %
		Lead (Pb)	ASTM E:1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.001 % to 8.0 % 0.10 % to 8.0 %
		Tin (Sn)	ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.10 % to 10.0 %
		Nickel (Ni)	ASTM E:1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.001 % to 10.0 % 0.10 % to 30.0 %
		Manganese (Mn)	ASTM E:1479:2016-ICP	0.10 % to 10.0 %
		Zinc (Zn)	ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.10 % to 50.0 %
		Copper (Cu)	ASTM E:1479:16-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDV]	20.0 % to 99.99 % 20.0 % to 99.99 %
		Cadmium (Cd)	ASTM E:1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.001 % to 10.0 % 0.10 % to 15.0 %
		Chromium (Cr)	ASTM E:1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDAL/XDV]	0.01 % to 3.0 % 0.10 % to 3.0 %

  
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		Lead (Pb)	ASTM E-1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.10 % to 5.0 % 0.10 % to 5.0 %
		Cadmium (Cd)	ASTM E-1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.10 % to 5.0 % 0.10 % to 5.0 %
5.	Zinc & its Alloy & Zinc Based Handicrafts / Metal Products	Copper (Cu)	ASTM E:1277-08-ICP ASTM E:1479:11 ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.01 % to 10.0 % 0.01 % to 10.0 %
		Iron (Fe)	ASTM E:1621:13 [ED-XRF-XDUL/XDV] ASTM E:1277-14-ICP	0.10 % to 10.0 % 0.01 % to 10.0 %
		Lead (Pb)	ASTM E:1277-14-ICP ASTM E:1479:11 ASTM E:1613:12 ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.001 % to 10.0 % 0.001 % to 10.0 % 0.1 % to 10.0 %
		Tin (Sn)	ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.1 % to 6.0 %
		Cadmium (Cd)	ASTM E:1277-14-ICP ASTM E-1479:2016-ICP ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.001 % to 8.0 % 0.10 % to 8.0 %
		Aluminum (Al)	ASTM E:1277-14-ICP	0.05 % to 2.0 %
		Nickel (Ni)	ASTM E:1621:13 [ED-XRF-XDUL/XDV]	0.01 % to 10.0 %
		Zinc (Zn)	ASTM E:1621:13 [ED-XRF-XDUL/XDV]	20.0 % to 99.9 %
6.	Aluminum & its Alloy & Aluminum Based Handicrafts/ Metal Products	Copper (Cu)	ASTM E:306:17 ASTM E:34:11 [Photometric]	0.02 % to 20.0 %

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Iron (Fe)	ASTM E:306:17 ASTM E:34:11 [Photometric]	0.03 % to 5.0 %
		Nickel (Ni)	ASTM E:306:17 ASTM E:34:11 [Photometric]	0.02 % to 5.0 %
		Magnesium (Mg)	ASTM E:306:17 ASTM E:34:11 [Photometric]	0.002 % to 2.0 %
		Silicon (Si)	ASTM E:306:17 ASTM E:34:11 [Photometric]	0.03 % to 10.0 %
		Lead (Pb)	ASTM E:306:17 ASTM E:1479:16 - ICP	0.002 % to 1.0 %
		Cadmium (Cd)	ASTM E:306:17 ASTM E:34:11 [Photometric]	0.002 % to 1.0 %
		Aluminum (Al)	ASTM E:306:17 ASTM E:34:11 [Photometric]	0.5 % to 99.99 %
7.	<b>Metal &amp; alloys - Solid/ Liquid &amp; Powder / Handicrafts Products (X-Ray XDAL-XDV Spect, Al-U)</b>	Silver, Gold, Cadmium, Cobalt, Chromium, Tin, Copper, Iron, Arsenic, Mercury, Iridium, Manganese, Molybdenum, Nickel, Lead, Platinum, Antimony, Titanium, Vanadium, Tungsten, Zinc & Zirconium	ASTM:E-1621:2013	0.1 % to 99.99 %

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<b>II. POLLUTION &amp; ENVIRONMENT</b>				
1.	Waste Water (Effluents / Sewage)	pH value	IS 3025 (Part 11): 2014	1 to 14
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	5 mg/L to 1000 mg/L
		Acidity	IS 3025 (Part 10): 1984 (RA 2014)	5 mg/L to 1000 mg/L
		Turbidity	IS 3025 (Part 10): 1984 (RA 2014)	0.5 NTU to 100 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2014)	10 mg/L to 1000 mg/L
		Colour	IS 3025-5:2012	0.5 Hazen to 25 Hazen
		Odour	IS 3025-5:2012	Qualitative
		Total Chlorine	IS 3025 (Part 4): 2012	0.01 mg/L to 10 mg/L
		Cyanide	IS 3025 (Part 26): 1986 USEPA Pyridine Pyrrazoaine-2014	0.01 mg/L to 240 mg/L
		Fluoride	IS 3025 (Part 26): 1986 USEPA Spands Method-2014	0.02 mg/L to 100 mg/L
		Phenols	IS 3025 (Part 60): 2008 USEPA 4 Aminoniatiipyrine-2013	0.005 mg/L to 200 mg/L
		Iodine	IS 3025 (Part 60): 2008 USEPA/DPD:2013	0.05 mg/L to 7 mg/L
		Nitrate	IS 3025 (Part 08)/ USEPA Cadmium Reduction-2012	0.5 mg/L to 100 mg/L
Formaldehyde	IS 3025 (Part 34): 2008/ 2014 USEPA:MBTH:8110/ USEPA	5 µg/L to 500 µg/L		
Phosphate	USEPA 1.5 Diphenylcarbohydrazidee	0.1 mg/L to 125 mg/L		

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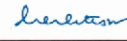
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		Chromium Hexavalent	USEPA Oxidation ISO 11083:1984	0.05 mg/L to 200 mg/L
		Silica	IS 3025 (Part 35): 2008 (RA 2014) Silicomolybdate Method	5 mg/L to 100 mg/L
		Chloride	IS 3025 (Part 32): 1984 (RA 2014) USEPA	8 mg/L to 1000 mg/L
		Sulphate	IS 3025 (Part 24): 1986 (RA 2014) Gravimetric	10 mg/L to 2000 mg/L
		Conductivity	IS 3025 (Part 14): 1984 (RA 2013) Gravimetric	1 micro to 10000 micro mhos/cm (µmhos)
		Calcium	IS 3025 (Part 40): 1991 (RA 2014) EDTA BASE	1 mg/L to 1000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2013)	10 mg/L to 5000 mg/L
		Dissolved Oxygen	IS 3025 (Part 38): 1984 (RA 2014)	0.5 mg/L to 15.0 mg/L
		Na	HRDO/USEPA	0.10 mg/L to 100 mg/L
		K	ASTM D:1076:2012	0.10 mg/L to 100 mg/L
		Mg	[ICP-OES]	0.10 mg/L to 1000 mg/L
		Mo		0.50 mg/L to 500 mg/L
		Fe		0.10 mg/L to 1000 mg/L
		<b>Heavy Metals</b>		
		Ni	APHA-22 Edition Part 3000/US-EPA	0.1 mg/L to 200 mg/L
		Mo		0.05 mg/L to 200 mg/L
		Cu	ASTM D 6052:97 (2016)	0.01 mg/L to 200 mg/L
		Hg	[ED-XRF]	0.001 mg/L to 200 mg/L
		As	ASTM D 1976:2012	0.05 mg/L to 200 mg/L
		Pb	[ICP-OES]	0.05 mg/L to 200 mg/L
		Cd		0.05 mg/L to 200 mg/L
		Al		0.05 mg/L to 200 mg/L
		Cr		0.05 mg/L to 200 mg/L
		Zn		0.05 mg/L to 200 mg/L



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		Se		0.05 mg/L to 200 mg/L
		Ba		0.05 mg/L to 200 mg/L
<b>III.</b>	<b>WATER</b>			
<b>1.</b>	<b>Surface Water</b>	pH value	IS 3025 (Part 11): 2012	1 to 14
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	5 mg/L to 1000 mg/L
		Acidity	IS 3025 (Part 10): 1984 (RA 2012)	2 mg/L to 1000 mg/L
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	5 NTU to 100 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2014)	10 mg/L to 1000 mg/L
		Odour	IS 3025 (Part 5): 2012	Qualitative
		Colour	IS 3025 (Part 4): 2012	0.5 Hazen to 25 Hazen
		Total Chlorine	IS 3025 (Part 26): 1986 USEPA	0.1 mg/L to 10 mg/L
		Cyanide	Mercuric Thiocyanate-2014 IS 3025 (Part 27): 1986 USEPA	0.1 mg/L to 240 mg/L
		Fluoride	Pyridine Pyrazooin-2014 IS 3025 (Part 60): 2008 USEPA	0.02 mg/L to 100 mg/L
		Phenols	Spands Method-2013 IS 3025 (Part 60): 2008 USEPA 4	0.5 mg/L to 200 mg/L
		Iodine	Aminiatipyrine-2013 IS 3025 (Part 08): 2012 USEPA-DPD	0.05 mg/L to 7 mg/L
		Nitrate	IS 3025 (Part 34): 2008 USEPA	0.5 mg/L to 100 mg/L
		Formaldehyde	Cadmium Reduction-2012 MBTH:8110/USEPA USEPA 1.5	5 µg/L to 500 µg/L

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		Phosphate	USEPA Diphenylcarbohydrazide	0.5 mg/L to 125 mg/L
		Chromium Hexavalent	USEPA Oxidation ISO 11083:1984	0.05 mg/L to 200 mg/L
		Silica	IS 3025 (Part 35): 2008 (RA 2014) Silicomolybdate Method	5 mg/L to 100 mg/L
		Chloride	IS 3025 (Part 32): 1988 (RA 2014) USEPA	8 mg/L to 1000 mg/L
		Sulphate	IS 3025 (Part 24): 1986 (RA 2014) Gravimetric	10 mg/L to 2000 mg/L
		Conductivity	IS 3025 (Part 14): 1984 (RA 2013)	1 to 10000 micro mh os/cm (µmhos)
		Calcium	IS 3025 (Part 40): 1991 (RA 2014) EDTA BASE	1 mg/L to 1000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2013)	10 mg/L to 5000 mg/L
		Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2014) HRDO/USEPA	0.5 mg/L to 15.0 mg/L
		Na	APHA-22 <sup>nd</sup> Edition	0.5 mg/L to 100 mg/L
		K	Par13000 / USEPA	0.5 mg/L to 100 mg/L
		Mg		0.5 mg/L to 1000 mg/L
		Mn		0.5 mg/L to 500 mg/L
		Fe		0.5 mg/L to 1000 mg/L
		<b>Heavy Metals</b>		
		Ni	APHA-22 Edition part 3000/US-EPA	0.1 mg/L to 200 mg/L
		Mo		0.1 mg/L to 200 mg/L
		Cu	ASTM D6052:97(2016)	0.05 mg/L to 200 mg/L
		Hg	[ED-XRF]	0.05 mg/L to 200 mg/L
		As	ASTM D:1976:2012	0.05 mg/L to 200 mg/L
		Pb	[ICP-OES]	0.05 mg/L to 200 mg/L

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# National Accreditation Board for Testing and Calibration Laboratories

(A Constituent Board of Quality Council of India)



## SCOPE OF ACCREDITATION

**Laboratory** Research Testing & Calibration Laboratory (A Division of Metal Handicrafts Service Centre), Peetal Nagri, Rampur Road, Moradabad, Uttar Pradesh

**Accreditation Standard** ISO/IEC 17025: 2005

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**Validity** 26.12.2017 to 25.12.2019

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Cd		0.05 mg/L to 200 mg/L
		Al		0.05 mg/L to 200 mg/L
		Cr		0.05 mg/L to 200 mg/L
		Zn		0.05 mg/L to 200 mg/L
		Se		0.05 mg/L to 200 mg/L
		Ba		0.05 mg/L to 200 mg/L
2.	Ground Water	pH value	IS 3025 (Part 11): 2012	1 to 14
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	1 mg/L to 1000 mg/L
		Acidity	IS 3025 (Part 10): 1984 (RA 2012)	1 mg/L to 1000 mg/L
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	5 NTU to 100 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2014)	10 mg/L to 1000 mg/L
		Odour	IS 3025 (Part 5): 2012	Qualitative
		Colour	IS 3025 (Part 4): 2012	0.5 Hazen to 25 Hazen
		Total Chlorine	IS 3025 (Part 26): 1986 USEPA	0.1 mg/L to 10 mg/L
		Cyanide	Mercuric Thiocyanate-2014 IS 3025 (Part 27): 1986 USEPA	0.1 mg/L to 240 mg/L
		Fluoride	Pyridine Pyrazoaine-2014 IS 3025 (Part 60): 2008 USEPA	0.02 mg/L to 100 mg/L
		Phenols	Spands Method-2013 IS 3025 (Part 60): 2008 USEPA 4	0.5 mg/L to 200 mg/L
		Iodine	Aminoniatiopyrine-2013 IS 3025 (Part 08): 2012 USEPA-DPD	0.05 mg/L to 7 mg/L

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nitrate	IS 3025 (Part 34): 2008 USEPA-Cadmium Reduction-2012	0.5 mg/L to 100 mg/L
		Formaldehyde	MBTH:8110/USEPA USEPA 1.5	5 µg/L to 500 µg/L
		Phosphate	USEPA <sup>1</sup> Diphenylcarbohydrazide	0.5 mg/L to 125 mg/L
		Chromium Hexavalent	USEPA Oxidation ISO 11083:1984	0.05 mg/L to 200 mg/L
		Silica	IS 3025 (Part 35): 2008 (RA 2014) Silicomolybdate Method	5 mg/L to 100 mg/L
		Chloride	IS 3025 (Part 32): 1988 (RA 2014) USEPA	8 mg/L to 1000 mg/L
		Sulphate	IS 3025 (Part 24): 1986 (RA 2014) Gravimetric	10 mg/L to 2000 mg/L
		Conductivity	IS 3025 (Part 14): 1984 (RA 2013)	1 to 10000 micro mh os/cm (µmhos)
		Calcium	IS 3025 (Part 40): 1991 (RA 2014) EDTA BASE	1 mg/L to 1000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2012)	10 mg/L to 5000 mg/L
		Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2014) HRDO/USEPA	0.5 mg/L to 15.0 mg/L
		Na	APHA-22 <sup>nd</sup> Edition	0.10 mg/L to 100 mg/L
		K	Part 13000 / USEPA	0.10 mg/L to 100 mg/L
		Mg		0.10 mg/L to 1000 mg/L
		Mn		0.05 mg/L to 500 mg/L
		Fe		0.1 mg/L to 1000 mg/L
		<b>Heavy Metals</b>		
		Ni	APHA-22 Edition part 3000/US-EPA	0.01 mg/L to 200 mg/L
		Mo		0.1 mg/L to 200 mg/L
		Cu	ASTM D6052:97(2016)	0.01 mg/L to 200 mg/L

  
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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Hg	[ED-XRF]	0.05 mg/L to 200 mg/L
		As	ASTM D:1976:2012	0.05 mg/L to 200 mg/L
		Pb	[ICP-OES]	0.05 mg/L to 200 mg/L
		Cd		0.05 mg/L to 200 mg/L
		Al		0.05 mg/L to 200 mg/L
		Cr		0.05 mg/L to 200 mg/L
		Zn		0.05 mg/L to 200 mg/L
		Se		0.05 mg/L to 200 mg/L
		Ba		0.05 mg/L to 200 mg/L
3.	Drinking / Portable / Domestic & Mineral Water	pH value	IS 3025 (Part 11): 2012	1 to 14
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	1 mg/L to 1000 mg/L
		Acidity	IS 3025 (Part 10): 1984 (RA 2012)	1 mg/L to 1000 mg/L
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	0.5 NTU to 100 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2014)	10 mg/L to 1000 mg/L
		Odour	IS 3025 (Part 5): 2012	Qualitative
		Colour	IS 3025 (Part 4): 2012	0.5 Hazen to 25 Hazen
		Total Chlorine	IS 3025 (Part 26): 1986 USEPA	0.1 mg/L to 10 mg/L
		Cyanide	Mercuric Thiocyanate-2014 IS 3025 (Part 27): 1986 USEPA	0.01 mg/L to 240 mg/L
		Fluoride	Pyridine Pyrazoioine-2014 IS 3025 (Part 60): 2008 USEPA	0.02 mg/L to 100 mg/L
	Phenols	Spands Method-2013 IS 3025 (Part 60): 2008 USEPA 4	0.005 mg/L to 200 mg/L	
			Aminoniatipyrine-2013	



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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Iodine	IS 3025 (Part 08): 2012 USEPA-DPD	0.05 mg/L to 7 mg/L
		Nitrate	IS 3025 (Part 34): 2008 USEPA-Cadmium Reduction-2012	0.5 mg/L to 100 mg/L
		Formaldehyde	MBTH.8110/USEPA USEPA 1.5	5 µg/L to 500 µg/L
		Phosphate	USEPA Diphenylcarbohydrazide	0.1 mg/L to 125 mg/L
		Chromium Hexavalent	USEPA Oxidation ISO 11083:1984	0.05 mg/L to 200 mg/L
		Silica	IS 3025 (Part 35): 2008 (RA 2014) Sillicomolybdate Method	5 mg/L to 100 mg/L
		Chloride	IS 3025 (Part 32): 1988 (RA 2014) USEPA	8 mg/L to 1000 mg/L
		Sulphate	IS 3025 (Part 24): 1986 (RA 2014) Gravimetric	10 mg/L to 2000 mg/L
		Conductivity	IS 3025 (Part 14): 1984 (RA 2013)	1 to 10000 micro mh os/cm (µmhos)
		Calcium	IS 3025 (Part 40): 1991 (RA 2014) EDTA BASE	1 mg/L to 1000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2012)	10 mg/L to 5000 mg/L
		Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2014) HRDO/USEPA	0.5 mg/L to 15.0 mg/L
		Na	APHA-22 <sup>nd</sup> Edition Part 13000 / USEPA	0.10 mg/L to 100 mg/L
		K		0.10 mg/L to 100 mg/L
		Mg		0.10 mg/L to 1000 mg/L
		Mn		0.05 mg/L to 500 mg/L
		Fe		0.1 mg/L to 1000 mg/L
		<b>Heavy Metals</b>		
		Ni	APHA-22 Edition Part	0.01 mg/L to 200 mg/L

  
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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Mo	3000/US-EPA	0.05 mg/L to 200 mg/L
		Cu	ASTM D6052:97(2016)	0.01 mg/L to 200 mg/L
		Hg	[ED-XRF]	0.001 mg/L to 200 mg/L
		As	ASTM D:1976:2012	0.009 mg/L to 200 mg/L
		Pb	[ICP-OES]	0.007 mg/L to 200 mg/L
		Cd		0.005 mg/L to 200 mg/L
		Al		0.05 mg/L to 200 mg/L
		Cr		0.05 mg/L to 200 mg/L
		Zn		0.05 mg/L to 200 mg/L
		Se		0.05 mg/L to 200 mg/L
		Ba		0.1 mg/L to 200 mg/L
4.	Construction Water	pH value	IS 3025 (Part 11): 2014	1 to 14
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	5 mg/L to 1000 mg/L
		Acidity	IS 3025 (Part 10): 1984 (RA 2014)	2 mg/L to 1000 mg/L
		Turbidity	IS 3025 (Part 10): 1984 (RA 2014)	5 NTU to 100 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2014)	10 mg/L to 1000 mg/L
5.	Swimming Pool Water	pH value	IS 3025 (Part 11): 2014	1 to 14
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	5 mg/L to 1000 mg/L
		Acidity	IS 3025 (Part 10): 1984 (RA 2014)	2 mg/L to 1000 mg/L
		Turbidity	IS 3025 (Part 10): 1984 (RA 2014)	5 NTU to 100 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2014)	10 mg/L to 1000 mg/L
		Colour	IS 3025 (Part 5): 2012	0.5 Hazen to 25 Hazen
		Total Chlorine	IS 3025 (Part 4): 2012	0.1 mg/L to 15 mg/L

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Cyanide	IS 3025 (Part 26): 1986 USEPA Pyridine Pyrazoaine-2014	0.1 mg/L to 240 mg/L
		Fluoride	IS 3025 (Part 26): 1986 USEPA Spands Method-2014	0.02 mg/L to 100 mg/L
		Phenols	IS 3025 (Part 60): 2008 USEPA 4 Aminoniatiptyrine-2013	0.5 mg/L to 200 mg/L
		Iodine	IS 3025 (Part 60): 2008 USEPA DPD:2013	0.5 mg/L to 7 mg/L
		Nitrate	IS 3025 (Part 08)/ USEPA - Cadmium Reduction-2012	0.5 mg/L to 100 mg/L
		Formaldehyde	IS 3025 (Part 34): 2008 (RA 2014) USEPA: MBTH: 8110/USEPA	5 µg/L to 500 µg/L
		Phosphate	USEPA 1.5 Diphenyiearbohdrazidee	0.5 mg/L to 125 mg/L
		Chromium Hexavalent	USEPA Oxidation	0.02 mg/L to 200 mg/L
		Silica	IS 3025 (Part 35): 2008 (RA 2014) Silicomolybdate Method	5 mg/L to 100 mg/L
		Chloride	IS 3025 (Part 32): 1984 (RA 2014) USEPA	8 mg/l to 1000 mg/L
		Sulphate	IS 3025 (Part 24): 1986 (RA 2014) Gravimetric	10 mg/L to 2000 mg/L
		Conductivity	IS 3025 (Part 14): 1984 (RA 2013) Gravimetric	1 to 10000 micro mh os/cm (µmhos)
		Calcium	IS 3025 (Part 40): 1991 (RA 2014) EDTA BASE	1 mg/L to 1000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2013)	10 mg/L to 5000 mg/L

  
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## National Accreditation Board for Testing and Calibration Laboratories

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### SCOPE OF ACCREDITATION

**Laboratory** Research Testing & Calibration Laboratory (A Division of Metal Handicrafts Service Centre), Peetal Nagri, Rampur Road, Moradabad, Uttar Pradesh

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2014)	0.5 mg/L to 15.0 mg/L
		Na	HRDO/USEPA	0.50 mg/L to 100 mg/L
		K	ASTM D-1076:2012	0.50 mg/L to 100 mg/L
		Mg	[ICP-OES]	0.50 mg/L to 1000 mg/L
		Mo		0.50 mg/L to 500 mg/L
		Fe		0.5 mg/L to 1000 mg/L
		<b>Heavy Metals</b>		
		Ni	APHA-22 Edition Part 3000/US-EPA	0.1 mg/L to 200 mg/L
		Mo	ASTM D6052:97(2016)	0.1 mg/L to 200 mg/L
		Cu	[ED-XRF]	0.1 mg/L to 200 mg/L
		Hg	ASTM D-1976:2012	0.05 mg/L to 200 mg/L
		As	[ICP-OES]	0.05 mg/L to 200 mg/L
		Pb		0.05 mg/L to 200 mg/L
		Cd		0.05 mg/L to 200 mg/L
		Al		0.05 mg/L to 200 mg/L
		Cr		0.05 mg/L to 200 mg/L
		Zn		0.05 mg/L to 200 mg/L
		Se		0.05 mg/L to 200 mg/L
		Ba		0.05 mg/L to 200 mg/L
6.	<b>Industrial Water / Boiler Feed Water</b>	pH value	IS 3025 (Part 11): 2014	1 to 14
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	5 mg/L to 1000 mg/L
		Acidity	IS 3025 (Part 10): 1984 (RA 2014)	2 mg/L to 100 mg/L
		Turbidity	IS 3025 (Part 10): 1984 (RA 2014)	5 NTU to 100 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2014)	10 mg/L to 1000 mg/L
		Colour	IS 3025 (Part 5): 2012	0.5 Hazen to 25 Hazen
		Total Chlorine	IS 3025 (Part 4): 2012	0.1 mg/L to 15 mg/L

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Cyanide	IS 3025 (Part 26): 1986 USEPA Pyridine Pyrazaoline-2014	0.1 mg/L to 240 mg/L
		Fluoride	IS 3025 (Part 26): 1986 USEPA Spands Method-2014	0.02 mg/L to 100 mg/L
		Phenols	IS 3025 (Part 60): 2008 USEPA 4 Aminoniatiopyrine-2013	0.5 mg/L to 200 mg/L
		Iodine	IS 3025 (Part 60): 2008 USEPA-DPD:2013	0.5 mg/L to 7 mg/L
		Nitrate	IS 3025 (Part 08)/ USEPA - Cadmium Reduction-2012	0.5 mg/L to 100 mg/L
		Formaldehyde	IS 3025 (Part 34): 2008 (RA 2014) USEPA: MBTH: 8110/ USEPA	5 µg/L to 500 µg/L
		Phosphate	USEPA 1-5 Diphenylcarbohydrazidee	0.5 mg/L to 125 mg/L
		Chromium Hexavalent	USEPA Oxidation	0.02 mg/L to 200 mg/L
		Silica	IS 3025 (Part 35): 2008 (RA 2014) Silicomolybdate Method	5 mg/L to 100 mg/L
		Chloride	IS 3025 (Part 32): 1984 (RA 2014) USEPA	8 mg/L to 1000 mg/L
		Sulphate	IS 3025 (Part 24): 1986 (RA 2014) Gravimetric	10 mg/L to 2000 mg/L
		Conductivity	IS 3025 (Part 14): 1984 (RA 2013) Gravimetric	1 to 10000 micro mh os/cm (µmhos)
		Calcium	IS 3025 (Part 40): 1991 (RA 2014) EDTA BASE	1 mg/L to 1000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2013)	10 mg/L to 5000 mg/L

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2014)	0.5 mg/L to 15.0 mg/L
		Na	HRDO/USEPA	0.50 mg/L to 100 mg/L
		K	ASTM D:1076:2012	0.50 mg/L to 100 mg/L
		Mg	[ICP-OES]	0.50 mg/L to 1000 mg/L
		Mo		0.50 mg/L to 500 mg/L
		Fe		0.5 mg/L to 1000 mg/L
		<b>Heavy Metals</b>		
		Ni	APHA-22 Edition part 3000/US-EPA	0.1 mg/L to 200 mg/L
		Mo		0.1 mg/L to 200 mg/L
		Cu	ASTM D6052:97(2016)	0.10 mg/L to 200 mg/L
		Hg	[ED-XRF]	0.05 mg/L to 200 mg/L
		As	ASTM D:1976:2012	0.05 mg/L to 200 mg/L
		Pb	[ICP-OES]	0.05 mg/L to 200 mg/L
		Cd		0.05 mg/L to 200 mg/L
		Al		0.05 mg/L to 200 mg/L
		Cr		0.05 mg/L to 200 mg/L
		Zn		0.05 mg/L to 200 mg/L
		Se		0.05 mg/L to 200 mg/L
		Ba		0.05 mg/L to 200 mg/L
7.	<b>Others (Reagent Water)</b>	pH value	IS 3025 (Part 11): 2014	1 to 14
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	5 mg/L to 1000 mg/L
		Acidity	IS 3025 (Part 10): 1984 (RA 2014)	2 mg/L to 1000 mg/L
		Turbidity	IS 3025 (Part 10): 1984 (RA 2014)	5 NTU to 100 NTU
		Total Hardness	IS 3025 (Part 21): 1983 (RA 2014)	10 mg/L to 1000 mg/L
		Colour	IS 3025 (Part 5): 2012	0.5 Hazen to 25 Hazen
		Total Chlorine	IS 3025 (Part 4): 2012	0.1 mg/L to 15 mg/L

  
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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Cyanide	IS 3025 (Part 26): 1986 USEPA Pyridine Pyrazoioine-2014	0.1 mg/L to 240 mg/L
		Fluoride	IS 3025 (Part 26): 1986 USEPA Spands Method-2014	0.02 mg/L to 100 mg/L
		Phenols	IS 3025 (Part 60): 2008 USEPA 4, Aminoniatipyrine-2013	0.5 mg/L to 200 mg/L
		Iodine	IS 3025 (Part 60): 2008 USEPA-DPD:2013	0.5 mg/L to 7 mg/L
		Nitrate	IS 3025 (Part 08)/ USEPA - Cadmium Reduction-2012	0.5 mg/L to 100 mg/L
		Formaldehyde	IS 3025 (Part 34): 2008 (RA 2014) USEPA:MBTH:8110/USEPA	5 µg/L to 500 µg/L
		Phosphate	USEPA 1.5 Diphenylcarbohydrazidee	0.5 mg/L to 125 mg/L
		Chromium Hexavalent	USEPA Oxidation	0.02 mg/L to 200 mg/L
		Silica	IS 3025 (Part 35): 2008 (RA 2014) Silicomolybdate Method	5 mg/L to 100 mg/L
		Chloride	IS 3025 (Part 32): 1984 (RA 2014) USEPA	8 mg/L to 1000 mg/L
		Sulphate	IS 3025 (Part 24): 1986 (RA 2014) Gravimetric	10 to 2000 mg/L
		Conductivity	IS 3025 (Part 14): 1984 (RA 2013) Gravimetric	1 to 10000 micro mh os/cm(µmhos)
		Calcium	IS 3025 (Part 40): 1991 (RA 2014) EDTA BASE	1 mg/L to 1000 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2013)	10 mg/L to 5000 mg/L

  
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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dissolved Oxygen	IS 3025 (Part 38): 1989 (RA 2014)	0.5 mg/L to 15.0 mg/L
		Na	HRDC/USEPA	0.50 mg/L to 100 mg/L
		K	ASTM D:1076:2012	0.50 mg/L to 100 mg/L
		Mg	[ICP-OES]	0.50 mg/L to 1000 mg/L
		Mo		0.50 mg/L to 500 mg/L
		Fe		0.5 mg/L to 1000 mg/L
		<b>Heavy Metals</b>		
		Ni	APHA-22 Edition Part 3000/US-EPA	0.1 mg/L to 200 mg/L
		Mo	3000/US-EPA	0.1 mg/L to 200 mg/L
		Cu	ASTM D6052:97(2016)	0.1 mg/L to 200 mg/L
		Hg	[ED-XRF]	0.05 mg/L to 200 mg/L
		As	ASTM D:1976:2012	0.05 mg/L to 200 mg/L
		Pb	[ICP-OES]	0.05 mg/L to 200 mg/L
		Cd		0.05 mg/L to 200 mg/L
		Al		0.05 mg/L to 200 mg/L
		Cr		0.05 mg/L to 200 mg/L
		Zn		0.05 mg/L to 200 mg/L
		Se		0.05 mg/L to 200 mg/L
		Ba		0.05 mg/L to 200 mg/L
<b>IV.</b>	<b>HAZARDUS &amp; RESTRICTED CHEMICALS</b>			
1.	<b>Toys Testing Migration of Heavy Metals in Toys &amp; Metal Handicrafts Products</b>	Aluminum	BS:EN:71 Part 3 : 2014	40 mg/kg to 1000 mg/kg
		Antimony	IS : 9873 - 3 : 2017	10 mg/kg to 1000 mg/kg
		Arsenic	ISO: 8124-3:2014	2 mg/kg to 1000 mg/kg
		Barium	ASTM-F-983:2011 / 16	50 mg/kg to 1000 mg/kg
		Boron		50 mg/kg to 1000 mg/kg
		Cadmium		5 mg/kg to 1000 mg/kg
		Chromium		0.1 mg/kg to 800 mg/kg
		Chromium VI		0.01 mg/kg to 500 mg/kg
		Cobalt		5 mg/kg to 1000 mg/kg
		Copper		20 mg/kg to 1000 mg/kg



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### SCOPE OF ACCREDITATION

**Laboratory** Research Testing & Calibration Laboratory (A Division of Metal Handicrafts Service Centre), Peetal Nagri, Rampur Road, Moradabad, Uttar Pradesh

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Lead		5 mg/kg to 1000 mg/kg
		Manganese		40 mg/kg to 1000 mg/kg
		Mercury		5 mg/kg to 1000 mg/kg
		Nickel		5 mg/kg to 1000 mg/kg
		Selenium		10 mg/kg to 1000 mg/kg
		Strontium		50 mg/kg to 1000 mg/kg
		Tin		5 mg/kg to 1000 mg/kg
		Zinc		40 mg/kg to 1000 mg/kg
2.	Lighting Lamp, Lighting Fixtures, Light Bulbs, Clocks & Metals Handicrafts Items (RoHS Directive)	Lead	IEC62321:2013	0.002 % to 5.0 %
		Cadmium	ASTM:E-1613:2012	0.001 % to 0.05 %
		Mercury	ASTM:E-1621:2013	0.0010 % to 0.15 %
		Hexavalent- Chromium	2011/65/EU US: EPA Methods 3052	0.0010 % to 0.15 %
		Total Bromine	X-Ray Screening based on IEC62321:2013	0.005 % to 0.20 %
3.	Cups / Tea Pots / Coffee Pot/Mug/ Bowl/ Spoon / Pitcher / Tray/ Metallic & Non Metallic Wares / Handicrafts Products [GRASS EU – Directive]	Leachable Lead	ASTM:E-1613-12-ICP	0.03 mg/L to 150.0 mg/L
		Leachable Cadmium (Leaching Test)	AOAC 973.32 ASTM:C-738-11	0.03 mg/L to 150.0 mg/L
		Leachable Lead	FDA & CALIFORNIA	0.03 mg/L to 150.0 mg/L
		Leachable Cadmium	REGUL PROP 65	0.03 mg/L to 150.0 mg/L
		Leachable Nickel	COMPLIANCE,	0.03 mg/L to 150.0 mg/L
		Leachable Chromium	BS:6748:2011 / LFGB DIRECTIVES BS EN 1186-1:02 ISO 7066:2000/ISO 6486-19	0.03 mg/L to 150.0 mg/L
4.	Metals / Others Products & Children Jewelry Products	Total Lead in Children Metal Products Including children metal jewelry	US:CPSC-CH-E1001-08.3 US:CPSC-CH-E1001-08.2 US:CPSC-CH-E1001-8.1	0.0010 % to 10 %
		Total Lead in Non Metal Children Products	US:CPSC-CH-E1002-08.3 US:CPSC-CH-E1002-08.2 US:CPSC-CH-E1002-08.1 ASTM F-2853 – 10(2015)	0.0010 % to 10 %

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<b>V. METALLIC COATING &amp; TREATMENT SOLUTION</b>				
1.	<b>Metallic Coating Metallic Wares / Handicrafts Products</b>	Silver Coating	ISO:3497:90/	0.01 $\mu$ m to 50 $\mu$ m
		Nickel Coating	ASTM-B-568-14	0.01 $\mu$ m to 35 $\mu$ m
		Copper Coating	(XRF Spectro)	0.01 $\mu$ m to 35 $\mu$ m
		Zinc Coating	IS 14126:1994 (RA 2015)	0.01 $\mu$ m to 45 $\mu$ m
		Cadmium Coating	(COLUTEST)	0.01 $\mu$ m to 75 $\mu$ m
		Gold Coating		0.01 $\mu$ m to 8 $\mu$ m
		Tin Coating		0.02 $\mu$ m to 90 $\mu$ m
		Chromium Coating		0.01 $\mu$ m to 28 $\mu$ m
		Brass Coating		0.01 $\mu$ m to 35 $\mu$ m
2.	<b>Metal Finishing Materials Electroplating Bath, &amp; salt</b>			
a.	<b>Silver Cyanide</b>	Ag - Content Potassium Cyanide	Issue No. RTCL/EP-01 Dated 21.05.2015 (Canning Handbook Surface Finishing Technology)	0.5 g/L to 100 g/L 0.5 g/L to 250 g/L
b.	<b>Zinc Cyanide</b>	Zn - Content Cyanide NaOH	Issue No. RTCL / EP - 01 Dated 21.05.2015	0.5 g/L to 100 g/L 0.5 g/L to 200 g/L 0.5 g/L to 100 g/L
c.	<b>Copper Cyanide</b>	Cu - Content Free - Cyanide	Issue No. RTCL / EP - 01 Dated 21.05.2015	0.5 g/L to 100 g/L 0.5 g/L to 100 g/L
d.	<b>Acid Copper</b>	Cu - Content Sulphuric Acid	Issue No. RTCL / EP - 01 Dated 21.05.2015	0.5 g/L to 50 g/L 0.5 g/L to 100 g/L
e.	<b>Nickel Solution (Ni)</b>	Ni - Metal Ni - Sulphate Ni - Chloride Boric Acid	Issue No. RTCL / EP - 01 Dated 21.05.2015	0.5 g/L to 100 g/L 0.5 g/L to 350 g/L 0.5 g/L to 250 g/L 0.5 g/L to 75.0 g/L
f.	<b>Brass Solution</b>	Cyanide Copper (Cu)- Metal Zinc (Zn) - Metal	Issue No. RTCL / EP - 01 Dated 21.05.2015	0.5 g/L to 100 g/L 0.5 g/L to 75 g/L 0.5 g/L to 50 g/L
g.	<b>Gold Solution</b>	Cyanide Gold (Au)- Metal	Issue No. RTCL / EP-01 Dated 21.05.2015	0.5 g/L to 20 g/L 0.5 g/L to 5 g/L

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<b>VI. PAINT &amp; SURFACE COATING</b>				
1.	Paint & enamels pigment & extenders polishes, Powder Coating, Solvent & Thinners (Non – Metallic Finishes on Metal Handicrafts Products / Toys)	Pencil Hardness	IS 101 (Part 5 & Part 1): 1988 (RA 2009)	Qualitative
		Gloss	IS 101 (Part 4 & Part 4): 1988 (RA 2009)	1 GU to 100 GU
		Resistance to Acid	IS 2932:2014	Qualitative
		Resistance to Alkali	IS 2932:2014	Qualitative
		Resistance to Heat	IS 101 (Part 7 & Part 3): 1990 (RA 2011)	Qualitative
		Resistance to Humidity	IS 101 (Part 6 & Part 1): 1988 (RA 2010)	Qualitative
		Resistance to Corrosion (Salt Spray Test / Corrosion Test)	ASTM- B-117:11 G-85 Mod. 2016 ISO 9227:2012 IS 2074:1992	Qualitative
		Resistance to Rubbing	IS: 427: 2013	Qualitative
2.	Migration of Heavy Metals in Toys & Metal Handicrafts Products / Toys	Aluminum	BS:EN:71 Part 3 : 2014	40 mg/kg to 1000 mg/kg
		Antimony	IS : 9873 – 3 : 2017	10 mg/kg to 1000 mg/kg
		Arsenic	ISO: 8124-3:2014	2 mg/kg to 1000 mg/kg
		Barium	ASTM-F-983:2011 / 16	50 mg/kg to 1000 mg/kg
		Boron		50 mg/kg to 1000 mg/kg
		Cadmium		5 mg/kg to 1000 mg/kg
		Chromium		0.1 mg/kg to 800 mg/kg
		Chromium VI		0.01 mg/kg to 500 mg/kg
		Cobalt		5 mg/kg to 1000 mg/kg
		Copper		20 mg/kg to 1000 mg/kg
		Lead		5 mg/kg to 1000 mg/kg
		Manganese		40 mg/kg to 1000 mg/kg
		Mercury		5 mg/kg to 1000 mg/kg
Nickel		5 mg/kg to 1000 mg/kg		
Selenium		10 mg/kg to 1000 mg/kg		
Strontium		50 mg/kg to 1000 mg/kg		

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		Tin		5 mg/kg to 1000 mg/kg
		Zinc		40 mg/kg to 1000 mg/kg
3.	Powder / Paints / Lacquer Coating Thickness Test	Powder Coating	ASTM -B-499:96/14	0.1 µms to 500 µms
		Paint Coating	ASTM -B-499:96/14	0.1 µms to 500 µms
		Lacquer Coating	ASTM -B-499:96/14	0.1 µms to 500 µms
4.	Surface Coating / Coating Material	Total Toxic Metals	ASTM- 645-16 ASTM-E-1479-16 16 CFR 1303 US: EPA Methods 3050B, 3051A & 3052 US:CPSC-CH-E1001-08.1	10 mg/kg to 25000 mg/kg 10 mg/kg to 25000 mg/kg
		Pb, Cd, As, & Cr		
<b>VII. CORROSION TEST</b>				
1.	Salt Spray Test	Resistance to Corrosion (Salt Spray Test / Corrosion Test)	ASTM- B-117:11 G-85 Mod. 2016 ISO 9227:12, IS 2074:92	Qualitative

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# PRODUCTS



# PRODUCTS





## SL. Type of Tests

### 1. Leaching Test

- (a) (Lead, Cadmium, Arsenic)
- (b) (Lead in Surface Coating)
- (c) (Lead & Cadmium as per FDA)
- (d) (Lead & Cadmium as per Prop- 65)

### 2. Metal & Alloys Analysis NDT

(Copper Alloy; Aluminium & Aluminium Alloys; Tin Alloys; Ferro Alloys)

### 3. Multilayer Metallic Plating Thickness Test (NDT)

(Silver, Nickel, Copper, Zinc, Tin, Cadmium, Gold, Platinum and other metals) (Gold Purity) (Curette)

### 3a. Single Layer destructive testing method

**Coulotest method**

### 4. Analysis of Electrolyte

(Silver, Zinc, Copper Bath; Nickel Bath; Chrome and Brass Electrolyte)

### 5. Corrosion resistance Test

- a). Salt Spray Test
- b). Humidity Test

### 6. Lacquering, Powder Coating & Paint Test

(Water Contest, Scratch Hardness Test, Adhesion, Stripping, Consistency, Acid Resistance, Resistance to Heat, Resistance to Water/Warm Water, Thickness of Coating)

## Charges

Rs. 770 /-

Rs. 990 /-

Rs. 2250/- per 6 pcs

Rs. 4400/- per 12 pcs

Except Five Toxic Elements: Pb, Cd, Cr, As, Hg-Rs. 175/- per Element & Rs. 450/- for

Rs. 260/- per coating.

Rs. 260/- per coating.

Rs. 150/- per constituent

For pH - Rs. 70/-

For Density - Rs. 70/-

Up to 24 Hrs Rs. 450/-

& Rs. 200/- for Next 24 Hrs

Rs. 1900/- per sample

TESTING CHARGES

<b>SL.</b>	<b>Type of Teste</b>	<b>Charges</b>
7.	<b>Lacquering, Powder Coating and Paints Coating Thickness Test</b>	Rs. 260/- per Sample
8.	<b>Corrugated Boxes &amp; Paper Test</b>	
	a). Bursting Strength Test	Rs. 370/- per Sample
	b). GSM Test	Rs. 170/- per sample
	c). Drop Test	Rs. 450/- per carton
9.	<b>a). Colour Shade Matching Test</b>	Rs. 380/- per sample
	<b>b) Gloss Test</b>	Rs. 380/- per sample
10.	<b>Wood</b>	
	a). Moisture Test	Rs. 450/- per sample
	b) Density Test	Rs. 170/- Per sample
11.	<b>Water &amp; Waste Water Testing</b>	Rs. 1600/- 2530/- per sample
	(Except BOD, COD, Biological Test)	
12.	<b>Silver Content - SPC/SILVER SALT</b>	Rs. 280/- per sample
13.	<b>Expert opinion in the field of Metal finishing etc.</b>	RS. 1600/- per opinion
14.	<b>Candle Burn Test and WiK Test</b>	Rs. 1270/-
15.	<b>According to RoHS :- Det. Of Lead, Cadmium, Mercury, Hexavalent Chromium in Metal PBDE, PBBB</b>	Rs. 2500/- per sample
16.	<b>Toxic Metal :-Pb, Cd, Hg, Cr, As.</b>	Rs. 550/- per sample
17.	<b>Jewellery Test (Bangle, Ring etc.): - Lead</b>	Rs. 550/- per Element
18.	<b>Det. Of Pb, Cd, Hg, Cr+6 Hg, Ni, As in Heterogeneous Coating based on Directives</b>	Rs. 450/- per Element.
19.	<b>Gold Ornaments</b>	Rs. 570/- per Element.
20.	<b>Flammability Test</b>	Rs. 130/- per set
21.	<b>Base Metal Confirmation</b>	Rs. 1270/- per sample
22.	<b>Metallic Composition (SS/MS) with Grade</b>	Rs. 130/- per sample
23.	<b>Coal Ash Test</b>	Rs. 660/- per sample
24.	<b>Tilt Test</b>	Rs. 380/- per sample
25.	<b>LFBG Test</b>	Rs. 650/- per sample
		Rs. 3800/- per style



## Office the Development Commissioner (Handicrafts)

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## METAL HANDICRAFTS SERVICE CENTRE

(Under Control of Development Commissioner Handicrafts,  
Ministry of Textiles, Govt. Of India)

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