



Profile of...



**TAF** **Ti Anode Fabricators Pvt. Ltd**  
*Innovation in Inert Metals*



- Save Power
- Resist Corrosion
- Reduce Maintenance Cost
- Avoid Product Contamination

- Titanium
- Tantalum
- Niobium
- Zirconium
- Nickel

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## SECTION – 1

### INTRODUCTION

Ti Anode Fabricators Pvt. Ltd., (TAF) offers design, fabrication & supply of Chemical Process Equipments from...

#### Base & Precious metals like....

*Titanium, Ti 6Al4V, Ti-Pd, Tantalum, Niobium, Zirconium,  
Platinum, Nickel, Hastelloy, X750, Nicrofer,  
Monel, Inconel and their alloys.*

*Platinum, Iridium, Ruthenium, Palladium, Ta2O5 etc...*

#### **For...**

1. Chlor-alkali, Desalination & Metal finishing,
2. Cathodic Protection (Impressed Current),
3. Semi-conductors, Electroplating, Anodizing Metal Finishing & PCB Industries.
4. Steel & Pickling Industries,
5. Instrumentation Engineering,
6. Defense, Atomic, Aero & Space Industries,
7. Electro-chlorination Industries.
8. Chemical, Paper Petrochemical & fertilizer Industries,
9. Tantalum Equipments,
10. Prawn Hatcheries,
11. Drugs & Pharmaceutical Industries,
12. Electrical & Electronics Engineering.

We perform the work of the highest attainable quality in accordance with applicable codes, standards and customer specifications. We take the phrase of highest attainable quality quite seriously.

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## SECTION – 2

### **ORGANISATION**

#### **[2 A] GENERAL PROFILE:**

|                     |   |                                                                                                                                                                         |
|---------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name of the Company | : | TI ANODE FABRICATORS PVT. LTD.,                                                                                                                                         |
| Admin & Works       | : | #.48-Noothanchary, Madambakkam,<br>Chennai – 600 073, India.                                                                                                            |
| Telephone           | : | (0091) 44 22781149<br>(0091) 44 22781150                                                                                                                                |
| Fax                 | : | (0091) 44 22781362                                                                                                                                                      |
| E-mail              | : | <a href="mailto:exotic@vsnl.in">exotic@vsnl.in</a>                                                                                                                      |
| Website             | : | <a href="http://www.tianode.com">http://www.tianode.com</a><br><a href="http://www.ptanode.com">http://www.ptanode.com</a>                                              |
| Working Area        | : | Office : 600 Sq.ft.<br>Workshop : 4500 Sq.ft.<br>Stores : 2000 Sq.ft<br>Service Area : 8500 Sq.ft<br>Total Area : 15,600 Sq.ft                                          |
| Govt. Registration  | : | ROC NO. : U28112TN2003PTC052052<br>IEC : 0402017625<br>PAN NO. : ACLPV9812C<br>CST NO. : 771901 / 04-12-2002<br>TNGST NO. : 0942835 / 2002-2003<br>SSI NO : 3303002033E |

#### **[2. B] ORGANISATIONAL PROFILE:**

|                        |   |                     |
|------------------------|---|---------------------|
| Nature of Organisation | : | Fabrication Company |
| Type of Organisation   | : | Private Limited     |
| Year of Formation      | : | 2002                |
| Year of Incorporation  | : | 2003                |

Key Person : Vanajambika Jaykumar  
CEO. Mobile: 0091 44 31035082

Contact Persons : Mr. M. Suyambu  
Mngr. – Finance.  
  
Mr. T. Saravanan  
Mngr. – Quality Assurance.  
  
Mr. T. Ramesh  
Mngr. – Purchase & Stores.

**GENERAL**

Weekly Holiday : Sunday  
No. of Shift : Two  
Fabrication Man hours : 8 hours per shift.  
Nearest Railway Station : Tambaram – 10 Km.  
Nearest Harbour : Chennai Harbour – 30 Km.  
Nearest Airport : Meenambakkam, Chennai – 18 Km.  
Banker's Name : United Bank of India, Chennai Main Branch,  
#117, Armenian Street, Chennai –600 001.  
Current Account No. : 28093  
Capital Invested : 50 lakhs  
Turnover in Rs. : 2001- 2002: 17.00 Lacks  
2003- 2004: 01.44 Crores  
Power in hp : 65 hp  
No. of Employees : Total : 27

**Administration:**

Managerial : 04  
Marketing : 03  
Design : 02  
Planning : 01  
R& D : 01

**Production**

Supervisory : 02  
Skilled Worker : 11  
Unskilled Worker : 03

[2 C ] **TECHNICAL PROFILE**

Standards and code followed : ISO 9000 ASTM, ASME, DIN & BS.

Raw materials handled and their specification : Refer Annexure...  
[a] Chemical & Mechanical Analysis of Ti, Zr, Ta & Nb – Annexure 2C (i)  
[b] Chemical & Mechanical Analysis of Nickel and its Alloys– Annexure 2C (ii)

Inspection & Quality Control Records maintained for : Raw materials.  
Stages of Production.  
Sub Vendor Inspection.  
Final Product.  
Performance Test.

Name of the outside agencies from which additional services are obtained :  
1. Machining a. M/s. SMR Engg.  
b. M/s. KVP Engg.  
2. Radiography a. Jay Inspection Agency

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## ANNEXURE – 2C (i)

### Chemical & Mechanical Analysis of Raw Materials of (Ti, Zr, Ta, Nb)

METAL	TITANIUM GRADE 2	TITANIUM GRADE 7	TITANIUM GRADE 12	TITANIUM GRADE 16	ZIRCONIUM	
Chemical Composition (Max. values unless range is shown)	0.10 C;0.30 Fe;0.03 N;0.25 O;0.015H(Sheet) 0.0125H(Bar);0.0100H(bilief)	0.10C;0.30Fe;0.03 N;0.12/0.25Pd;0.25 O;0.15 H (Sheet);0.125 H (Bar)	0.08 C;0.03 N;0.30 Fe; 0.15 H;0.25 O;0.2/0.4 Mo; 0.6/0.9 Ni	0.08 C;0.03 N;0.25 O;0.30 Fe; 0.04-0.08 Pd;0.015 H(Sheet);0.0125(Bar);0.0100 H(Billet)	4.3 Hf;0.05 C;0.025 N; 0.16 O;0.005 H; Balance Zr	001 C;0.01 Nb*;0.01 Mo;0.001 W alloy;0.01
<b>Mill Annealed Tensile Properties</b>						
Ultimate strength (Psi)	50,000	50,000	70,000	50,000	55,000	41,000
Yield strength (Psi) 0.2% Offset	40,000	40,000	50,000	40,000	30,000	25,000
% Elongation in 2"sheet>0.025 thick	20	20	18	20	16	18
<b>Mechanical Properties (Typical)</b>						
Charpy V-Natch Impact (ft.-lbs) @Rm. Temp	25-40			30-60		
Bend Radius Under 0.070"thk.	2.0xThickness	2.0xThickness	2.0xThickness	2.0xThickness	5.0xThickness	Ductile
0.070"thick over	2.5xThickenss	2.5xThickenss	2.5xThickenss	2.5xThickenss	5.0xThickenss	2.0xThic
Welded Bend Radius	2.0-3.0xThickness	2.0-3.0xThickness		2.5-3.0xThickness	5.0xThickness	
Hardness	R <sub>a</sub> 80	R <sub>a</sub> 80	R <sub>a</sub> 80	R <sub>a</sub> 80	R <sub>a</sub> 80	R <sub>a</sub> 25-65
<b>Physical Properties</b>						
Beta Transus (°F± 25)	1675	1675	1634	1675	1591	N/A
Coefficient of Thermal Expansion 32-212	4.8	4.8	4.8	4.8	5.89	6.5
Expansion (10 <sup>-4</sup> in./in./°F) 32-1500	5.6	5.6	5.6	5.6	7.5	4.1
Density(lbs./cu.in.)	0.163	0.163	0.163	0.163	0.235	0.601
Melting point Approx (°F)	3020	3020	3020	3020	3365	5432
Electrical Resistivity@ R.T 10 <sup>-4</sup> Ω/cm)	56	56	52	52	56	39.7
Modulus of Elasticity Tension (10 <sup>6</sup> psi)	14.9	14.9	15.0	14.9	14.4	27
Modulus of Elasticity Torsion (10 <sup>6</sup> psi)	6.5	6.5	6.2	6.5		
Thermal Conductivity (Bfu/hr./Sq.ft/°F/ Ft.)	9.5 @ Rm.Temp.	9.5 @ Rm.Temp.	11 @ Rm.Temp.	12.5 @ Rm.Temp.	13.0 @ Rm.Temp.	32.0 @ f
Specific Heat (Btu/Lb./°F /Ft.)	0.124	0.124	0.13	0.124	0.068	0.034 @
Weldability	Good	Good	Good	Good	Good	Good
Annealing Full	1300/30 Min-2Hrs;Air cool	1300/30 Min-2Hrs;Air cool	1300/30 Min-2Hrs;Air cool	1300/30 Min-2Hrs;Air cool	1250-1300/ 2Hrs; Air cool	2300
Temp.(° F) Stress Relief	1000-1100/30 Min; Air cool	1000-1100/30 Min; Air cool	1000-1100/30 Min; Air cool	1000-1100/30 Min; Air cool	1000-1100/2Hrs	2300
<b>Typical Applications</b>	For corrosion resistance in the chemical, petrochemical and marine industries, especially in oxidizing environments.	For corrosion resistance where media are oxidizing to mildly reducing; Palladium-stabilized, superior crevice corrosion resistance.	For corrosion resistance where media are oxidizing to mildly reducing and where high strength is required.	For corrosion resistance where media are oxidizing to mildly reducing; Same basic corrosion resistance as Gr.7 but with lower Palladium content for a more economical product.	For corrosion resistance where media are strongly reducing to medium oxidizing.	Best cor typically for stror reduc in



ANNEXURE – 2C (ii)

Chemical & Mechanical Analysis of Raw Materials Nickel and Its Alk

METAL	NICKEL200	NICKEL 201	HASTELLOY 'B2'	HASTELLOY 'C'	HASTELLOY 'C276'	
Chemical Composition (Max.values unless range (percent) is shown)	0.15 C;0.40 Fe;0.35 Si; 0.35 Mn; 0.010S;0.25 Cu; Bal Ni;	0.02C;0.40Fe;0.35 Si; 0.35 Nb; 0.020 S; 0.25 Cu; Bal Ni	0.02C;2.0Fe;0.1Si; 30.0 Mo;1.0Cr; 1.0 Co;1.0Mn; 0.03S; 0.04P;Bal Ni		0.02C;7.0Fe;0.05Si; 4.5W;17.0Mo; 16.5Cr; 2.5Co; 1.0Mn;0.35V; 0.030S;0.030P; Bal Ni	0.1 3. 1.1 Bc
<b>Mill Annealed Tensile Properties</b>						
Tensile strength (1000KN/M2)	379.2	344.7	896.3		792.9	5
Yield strength (1000N/M2) 0.2% Offset	103.4	82.7	400		413.7	2
% Elongation in 2"sheet>0.025 thick	40	40	55		50	5
<b>Mechanical Properties )</b>						
Hardness Rockwell B	70	62	98		80	8
<b>Physical Properties</b>						
Coefficient of Thermal Expansion (10 <sup>-6</sup> K 20°C – 300 °C)	14.3	14.5	11.1		12.8	1
Density(g/cm3)	8.9	8.9	9.2		8.9	8
Electrical Resistivity (10 <sup>-6</sup> Ω/ cm)	8.5	9.5	137		125	1
Modulus of Elasticity (KN/mm2)	207	208	217		208	1
Thermal Conductivity (W/mK)	79	79	11.4		10.6	11
Specific Heat (J/KgK)	456	456	377		407	4
Weldability	Good	Good	Good		Good	C
<b>Typical Applications</b>	Caustic soda Production (Membrane dell cathodes, Evaporation Plants) Vinyl-Chloride monomes (VCM) Production, Organic Chlorination, food Processing, Production of Soap & Detergents		Chemical Process industry where in process using reducing chloride catalyst such as AlCl3 or Where Hcl is Byproduct; Styrene, bisphenol A , Chloroprene, MDI Acetic production		Critical chemical and Petro chemical processes, Pulp and Paper Industry, Scrubbers and other components in flue gas desulfurization and waste incineration plants. Down Hole equipments in sour gas production, Sulfuric acid Coolers and Chlorine Dryers.	P e N H p a C a



### **SECTION -3**

#### **ACTIVITIES:**

TAF is designing & manufacturing the chemical process equipments from **Titanium, Ti6Al4v, Ti-Pd, Tantalum, Niobium, Zirconium, Ruthenium, Platinum, Molybdenum, Nickel, Hastelloy, Monel, Inconel, X-750, Nicrofer, Cobalt, Copper and Duplex SS.**

**For Chlor-alkali, Desalination & Electro dialyses Application:** Insoluble DSA anodes, Platinised anodes, Iridium-palladium based electrodes (anodes & cathodes) for Mercury, Membrane, Diaphragm, Hypo Chlorite, Chlorate & Perchlorate, MnO<sub>2</sub> Cells. And the equipments like Chlorine cooler, Copper flexible, Pipelines & others.

**For Electro Chlorination Industries:** Electrolyzers / Electrode pack consisting Electrodes, Coolers, Fasteners, Rectifiers, GRP vessels, Pumps, Vales, Instrumentation, and Pipe lines for 15.0 grams/Hr to 250 Kgs. per hour capacity. Repairing of existing cells and pumps made by any world leading manufacturers.

**For Cathodic Protection (impressed Current):** CPCC Anode like... Mixed Metal Oxide Coated Titanium Tubular, Ribbon, Probe, Mesh, Wire, Strip, Disc & Rod Anodes. Platinised Niobium & Titanium Wire, Mesh, Probe & Strip anodes to protect the submerged, offshore, deep & conventional structural and storage tanks.

**For Electroplating, Anodizing, Metal Finishing & PCB & Semiconductor Industries:** Anode baskets, Anodizing racks, Fasteners, Immersion heaters, Jigs & fixtures, Heating / cooling coils, Platinised anodes, Storage tanks, Copper Flexible & lined bus bar, Crucibles, Pumps, Valves and its spares like impeller, shaft, sleeves.

**For Chemical, Paper Petrochemical & Fertilizer Industries:** Heat exchangers, Bayonet heaters, GRP products, Separators, Vessels, Agitators, Columns, Tanks, Heating/ cooling coils, Evaporators, Strainers, Centrifugal & dosing Pumps, Blowers, Impeller, Thermowell, Sleeve, Casing, Shaft, Piping, fittings like all range flanges, elbows, return bends, stub ends, tees, reducers and customs built.

**For Steel & Pickling Industries:** We do supply Titanium, Ti-Pd (gr.7), Tantalum, Zirconium, Hastelloy equipments for Hydrochloric acid, Nitric acid & Chromic acid regeneration system. Our equipments are, Acid Inlet Lance, Venturi, Blower, Fasteners, Electric Heater, Heat Exchanger, Storage tank, Pumps, Valves and Distributors Etc.

**For Tantalum Equipments:** Bayonet heater, Heat exchangers, Condensers, Heating / Cooling Coils, Thermocouple protection sheaths, Pump casings, Impellers, Sleeves, Distillation columns, Boilers, Evaporation boats, Clad dip pipes, Paddle stirrers, Agitators, Deep drawn or fabricated crucibles, Furnace parts for use at temperatures up to 2500° C., Repair Kits for tanks, vats & other glass-lined containers.

**For Instrumentation Engineering:** Thermowell & Sensor safety pockets, Seamless & seam welded sleeves, Machined & turned electrodes, Grounding probe/Orifice plates, Sample coolers, Venturi tubes, Flow nozzles, Ball valves, Butterfly valves & Needle valves.

**For Prawn Hatcheries:** Titanium Aqua Heater, Titanium Heating coil, Heat Sensor, Booster pump are supplied from our available stock. In normal Heaters are starting from 0.5 kW. to 3.0 kW. Other capacities are manufactured according to the customer's requirement.

**TAF provide the Field Services:** including Corrosion Consulting, Site erection & repair welding.

We request you to register us as a quality supplier of equipments to be made from said raw materials and send us your valued enquiry for our competitive price.

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## SECTION 4

### QUALITY ASSURANCE



Our Quality policy is simple. "It is the policy of TAF to perform work of the highest attainable quality in accordance with applicable codes, standards and customer specifications." We take the phrase of highest attainable quality quite seriously.

- ❖ ASME Code fabrication.
- ❖ TEMA design standards for Heat exchangers.
- ❖ API standards for tank & Pump fabrication.
- ❖ ANSI B 16.5 specifications for piping.
- ❖ Full NDT capabilities.
- ❖ Complete in-plant testing.
- ❖ Scheduled or emergency repair or replacement services.
- ❖ ASME code-qualified welders on 24 hours call.

#### **Our Plant & services are registered with...**

- ❖ NPC
- ❖ H & G
- ❖ NPOL
- ❖ IGCAR
- ❖ Lloyds Register
- ❖ CVRDE
- ❖ CECRI
- ❖ PROTECH
- ❖ Davey Power gas
- ❖ Inspectorate of India.
- ❖ Moody International.

#### **Ware House stock of:**

Titanium, Ti-Pd, Tantalum, Niobium, Zirconium, Nickel, Hastelloy, Monel, Inconel, X-750, & its alloys Platinum, Ruthenium, Iridium, Palladium, Ta<sub>2</sub>O<sub>5</sub> & other precious metal Salts.

**SECTION – 5**

**PAST RECORD**

| <b>OEM INDUSTRIES</b>                                                                                                                                                                                                                                                                                                          | <b>EPC CONTRACTORS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M/s. Aqua Tech Ltd.<br>M/s. Babcock Ltd.<br>M/s. BEL Ltd.<br>M/s. Bright platters.<br>M/s. Electroset Ltd.<br>M/s. Mickel Bearing Ltd.<br>M/s. Newchem Wear Ltd.<br>M/s. Nile Limited.<br>M/s. Nirvan Chermchemie Ltd.<br>M/s. Swiss Glass Coat Ltd.<br>M/s. Thermax Ltd.<br>M/s. Titanoor Components Ltd                      | M/s. CECRI.<br>M/s. CVRDE.<br>M/s. Davy power gas.<br>M/s. H & G.<br>M/s. IGCAR.<br>M/s. Ispectrate of India.<br>M/s. Loydes register.<br>M/s. Moody International.<br>M/s. NPC.<br>M/s. NPOL.<br>M/s. Protech.<br>M/s. Technimont Icb Ltd.                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>OVERSEAS CLIENTS</b>                                                                                                                                                                                                                                                                                                        | <b>CHLOR ALKALI</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| M/s. A & All plus<br>M/s. Ansaldo<br>M/s. Antykor<br>M/s. APC Ltd<br>M/s. Earthstar Recycling Inc.<br>M/s. Eltek<br>M/s. Green gold<br>M/s. Hidayath<br>M/s. Kosson Rubber<br>M/s. OSG Technology<br>M/s. Perushaan<br>M/s. Polydamic Project BDN<br>M/s. Rich Hopkins<br>M/s. Substract Technology<br>M/s. Tuncay Engineering | M/s. Andhra Sugars Ltd.<br>M/s. Atul Products Ltd.<br>M/s. Ballarpur Industries Ltd.<br>M/s. Bihar Caustic & Chemicals Ltd.<br>M/s. Chemplast Ltd.<br>M/s. Dcw Ltd.<br>M/s. Durgapur Chemicals Ltd.<br>M/s. Gujarat Alkalies & Chemicals Ltd.<br>M/s. Hukumchand jute Industries Ltd.<br>M/s. Jayshree Chemicals Ltd.<br>M/s. Kadakia Alkalies Ltd.<br>M/s. Kanoria Chemical & Industries Ltd.<br>M/s. Modi Alkalies & Chemicals Ltd.<br>M/s. Punjab Alkalies & Chemicals Ltd.<br>M/S. Shriram Fertilizers & Chemical Ltd.<br>M/s. Standard Alkalies Ltd.<br>M/s. Tata Chemicals Ltd.<br>M/s. Travancore Cochin Chemicals Ltd. |
| <b>AERO SPACE &amp; ATOMIC</b>                                                                                                                                                                                                                                                                                                 | <b>FERTILIZER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| M/s. BARC.<br>M/s. Bharat Electronics Ltd.<br>M/s. CEMET.<br>M/s. CVRDE.<br>M/s. IGCAR Ltd.<br>M/s. Ire Ltd.<br>M/s. ISRO.<br>M/s. NFC.<br>M/s. NIOT Ltd.<br>M/s. NPOL Ltd.                                                                                                                                                    | M/s. Gujarat Narmada Valley Fertilizers Co. Ltd.<br>M/s. Gujarat State Fertilizers Co. Ltd.<br>M/s. Hindustan Insecticides Ltd.<br>M/s. Madras Fertilizers Ltd.<br>M/s. Rashtriya Chemicals & Fertilizers Ltd.<br>M/s. Shriram Fertilizers & Chemicals Ltd.<br>M/s. Southern Petrochemicals Corp. Ltd.<br>M/s. Tuticorin Alkalies & Chemical Ltd.                                                                                                                                                                                                                                                                              |

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>STEEL</b></p> <p>M/s. Jindal Strips Ltd.<br/> M/s. Lloyds Steels Ltd.<br/> M/s. Nirvan Chermchemie Ltd.<br/> M/s. Raymonds Steels Ltd.<br/> M/s. Tata Iron and Steel Co. Ltd.<br/> M/s. Tube Products India Ltd<br/> M/s. Utam Steels Ltd.</p>                                                                                                                                                                                                                                                           | <p style="text-align: center;"><b>PULP &amp; PAPER</b></p> <p>M/s. Andhra Pradesh Paper Mills Ltd.<br/> M/s. Ballarpur Industries Ltd.<br/> M/s. Century Pulp &amp; Paper Ltd.<br/> M/s. Hindustan Paper Corp. Ltd.<br/> M/s. Jk Corporation Ltd.<br/> M/s. Orient Paper Mill Ltd.<br/> M/s. Sirpur Paper Mills Ltd.</p>                                           |
| <p style="text-align: center;"><b>CHEMICALS</b></p> <p>M/s. Ashok Organics &amp; Industries Ltd.<br/> M/s. Birla Vxl Ltd.<br/> M/s. Bombay Dying Ltd.<br/> M/s. Colour Chem. Ltd.<br/> M/s. Ghorda Chemicals Ltd.<br/> M/s. Hindustan Organic Chemicals Ltd.<br/> M/s. IPCA Laboratories.<br/> M/s. Kerala Minerals &amp; Metals Ltd.<br/> M/s. Orchid Chemicals Ltd.<br/> M/s. Search Chem. Industries Ltd.<br/> M/s. Tamilnadu Chromates.<br/> M/s. Travancore Chemicals &amp; Mfg. Co. Ltd.<br/> M/s. Vanavil Dyes &amp; Chem. Ltd.</p> | <p style="text-align: center;"><b>CHLORINATOR</b></p> <p>M/s. OSG Technology.<br/> M/s. Substract technology.<br/> M/s. Eltek.<br/> M/s. Sespil.<br/> M/s. UM-AI-Nar Power co.<br/> M/s. Tuncay.<br/> M/s. Titanor.<br/> M/s. Electricchlor.<br/> M/s. Electroset.<br/> M/s. Aquatech.<br/> M/s. Capital Control.<br/> M/s. Power tech.<br/> M/s. Newchemweir.</p> |
| <p style="text-align: center;"><b>PETROLEUM &amp; REFINERIES</b></p> <p>M/s. Indian Petro Chemical Corp.<br/> M/s. Kothari Petro Chemicals Ltd.<br/> M/s. Manali Petrochemicals Ltd.<br/> M/s. National Organic Chemicals Ltd.<br/> M/s. Reliance Industries Ltd.<br/> M/s. Southern Petrochemical Corp. Ltd<br/> M/s. Spic Organics Ltd.<br/> M/s. Tamilnadu Petroproducts Ltd</p>                                                                                                                                                        | <p style="text-align: center;"><b>RAYON</b></p> <p>M/s. A.P. Rayons Ltd.<br/> M/s. Century Rayans Ltd.<br/> M/s. Grasim Industries Ltd.<br/> M/s. NRC Limited.</p>                                                                                                                                                                                                 |
| <p style="text-align: center;"><b>CATHODIC PROTECTION</b></p> <p>M/s. Naval Materials Research Laboratory<br/> M/s. Haven Corrosion Engineering SDN.BHD<br/> M/s. Sargam Metals Pvt Ltd<br/> M/s. Commercial PPE Ltd<br/> M/s. PT Kartini Utama<br/> M/s. Corropol<br/> M/s. Indian Oil Corporation Ltd<br/> M/s. Korea Catholic Ltd<br/> M/s. Scientific Metal Engrs. (P) Ltd,<br/> M/s. BSS technologies</p>                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                    |

SECTION – 6

**INFRASTRUCTURE**

| <b>Equipments Available</b>          | <b>Type/Make</b>   | <b>Quantity</b> | <b>Capacity</b>                                       |
|--------------------------------------|--------------------|-----------------|-------------------------------------------------------|
| <b>HANDLING</b>                      |                    |                 |                                                       |
| A Frame with Chain Pulling block     | INDEF              | 1 no.           | 15 M.T.                                               |
| <b>MEASURING INSTRUMENT</b>          |                    |                 |                                                       |
| Vernier Caliper                      | MITUTOYO           | 2 nos.          | 6", 12" (L.C.02) 20"                                  |
| Dial Vernier Caliper                 | MITUTOYO           | 1 no.           | 8" (L.C.01)                                           |
| Micrometer (Digimatic)               | MITUTOYO           | 1 no.           | 25 to 50 mm                                           |
| Micrometer (Digimatic)               | MITUTOYO           | 1 no.           | 50 to 75 mm                                           |
| Micrometer (Digimatic)               | MITUTOYO           | 1 no.           | 75 to 100mm                                           |
| Inside Micrometer                    | MITUTOYO           | 1 no.           | 50 to 200mm                                           |
| Bore Dial Gauge                      | MITUTOYO           | 1 no.           | 18 to 32 mm                                           |
| Dial Indicator                       | MITUTOYO           | 2 nos.          | Rvo 1 mm, 0.8 mm                                      |
| Magnetic Stand                       | MITUTOYO           | 1 no.           | 8"                                                    |
| Bevel Protractor                     | MITUTOYO           | 1 no.           | 360°                                                  |
| Vernier Height Gauge                 | FORBES             | 1 no.           | 0 – 450mm                                             |
| Surface plate                        | GMT                | 1 no.           | 1 m x 1.6m Gr.I                                       |
| <b>HEAT TREATMENT</b>                |                    |                 |                                                       |
| Furnace                              | BAJAJ              | 1 no.           | 1m x 0.6m x 0.6m                                      |
| Furnace                              | ROYAL              | 1 no.           | 0.3m x 0.3m x 0.3m                                    |
| Furnace                              | ROYAL              | 1 no.           | 0.45 x 0.45 x 3.0m                                    |
| Furnace for Lead                     |                    |                 |                                                       |
| Melting                              |                    | 1 no.           | 300 kgs.                                              |
| Oven                                 | INDUSTRIAL HEATERS | 1 no.           | 0.3m x 0.3m x 1 m                                     |
| Hydro test                           | JAYABHARATH        | 1 no.           | 5000 psi. Max                                         |
| Pneumatic                            | JAYABHARATH        | 1 no.           | 7 kgs./cm.                                            |
|                                      | MAGNAFLUX          | KIT             | KIT                                                   |
| X – Ray Film Viewer                  | NULEX 1000         | 1 no.           | 1000 Watts with dark room                             |
| High Voltage Tester                  | Asian Engg.        | 1no.            | 5 kv                                                  |
| Megger                               | MECO               | 1no.            | 200 Mohms to 1000Mohms                                |
| Multi Meter                          | MECO               | 1 no.           | AC upto 750 Volts<br>DC upto 1000 Volts               |
| <b>Rectifier for Electro Plating</b> | JAYABHARATH        | 1 no            | 0-100 Amps.                                           |
| Digital DC Micro Volts & Ammeter     | TESTRONIX          | 1 no.           | 19.99 micro A to 1000 mA<br>1999 micro V to 1000 Volt |
| Clamp Heater                         | MECO               | 1 no.           | Dc/Ac 600 Amps                                        |

| Equipments Available   | Type/Make                | Quantity | Capacity                 |
|------------------------|--------------------------|----------|--------------------------|
| Hot Air Blower         | BOSCH                    | 1 no.    | 100° to 600°             |
| Compressor             | SWITZER                  | 1 no.    | 10 KG/CM <sup>2</sup>    |
| Plat Bending           | TAF                      | 1 no.    | 6 mm thk., 1000 mm Width |
| Fly Press              | UNION                    | 1 no.    | No.2                     |
|                        | BATALIBOY                | 1 no.    | No.6                     |
|                        | UNOIN                    | 1 no.    | No.10                    |
| Pipe Bender Hand       | TAF                      | 2 nos.   | 100 mm to 1000 mm Dia    |
| Shearing (Hand)        | MMC                      | 2 nos.   | 4", 6" long              |
| Power Hacksaw          | MMT                      | 1 no.    | 200 mm Dia               |
| Cut off Machine        | TAF                      | 1no.     | 300 mm Dia               |
|                        | ESAP                     | 2 nos.   | Up to 50 mm thk.         |
| Pug Cutting            | ESAP                     | 1 no.    | 6" long & min 300 Dia    |
| <b>GRINDING</b>        |                          |          |                          |
| Angle Grinder          | IEC                      | 2 nos.   | 6", 10" Dia              |
|                        | BLACK DEAKER &, KPT      | 4 nos.   | 5", 7" & 9"              |
|                        | NETRON                   |          |                          |
| Flexible shaft grinder | IEC                      | 1no.     | 4" wheel                 |
| Flexible shaft grinder | WOLF                     | 1no.     | Mounted stone            |
| Flexible shaft grinder | ROTOTRIO SUNNER<br>INDIA | 1 no.    | 3000 to 12000 RPM        |
| <b>HEAT EXCHANGER</b>  |                          |          |                          |
| Tube Expander          | Power Master             | 1 no.    | 1"                       |
| Tube Expansion Kit &   | Power Master             | 1 no.    |                          |
| Grooving Tools         | Heatex Tools             | 1 no.    | ¼" ID to 2" ID           |
| Welding Transformers   | GOLD STAR                | 1 no.    | 350 Amps                 |
| TIG Welding Set        | ESAB                     | 2 nos.   | 400 Amps                 |
| SPOT Welding           | ELECTROWELD              | 1 no.    | 15 KVA                   |
| <b>PVC Welding</b>     | SUNBEAM                  | 1 no.    | 25 mm                    |
| Portable Welding       | ESAB                     | 1 no.    | 250 Amps                 |
| <b>MACHINING</b>       |                          |          |                          |
| Lathe                  | MMT                      | 1 no.    | 7'                       |
| Lathe                  | MMT                      | 1 no.    | 4 ½'                     |
|                        | MMT                      | 1 no.    | 9'                       |
| Drilling               | MMT                      | 1 no.    | 1"                       |
|                        | MMT                      | 1 no.    | ¾"                       |
|                        | ITCO TOP                 | 1 no.    | ¼"                       |
| Hand Drilling          | KPT                      | 2 nos.   | ½"                       |
| Rectifier              | ANAND                    | 1 no.    | 100 Amps.                |



Our quality policy is simple. "It is the policy of **TAF** to perform work of the highest attainable quality in accordance with applicable codes, standards and customer specifications." We take the phrase of **highest attainable quality** quite seriously.

- ▶▶ ASME code fabrication.
- ▶▶ TEMA design standards for Heat exchangers.
- ▶▶ API standards for tank & pump fabrication.
- ▶▶ ANSI B 16.5 specifications for piping.
- ▶▶ Full NDT Capabilities.
- ▶▶ Complete in-plant testing.
- ▶▶ Scheduled or emergency repair or replacement services.
- ▶▶ ASME code-qualified welders on 24 hours call

▶▶ **Our Plant & Services are registered with...**

+ NPC + H & G + NPOL + IGCAR + Lloyds Register  
 + C V R D E + C E C R I  
 + PROTECH + Davey Power gas  
 + Inspectorate of India + Moody International.

▶▶ **Ware House stock of:**

Titanium, Ti-Pd, Tantalum, Niobium, Zirconium, Nickel, Hastelloy, Monel, Inconel, X-750, & Its Alloys. Platinum, Ruthenium, Iridium, Palladium, Ta2o5 & other precious metal Salts.

**We prevent the corrosion with ...**

- |            |             |            |              |             |
|------------|-------------|------------|--------------|-------------|
| Titanium ● | Zirconium ● | Monel ●    | X-750 ●      | Duplex SS ● |
| Tantalum ● | Nickel ●    | Inconel ●  | Copper ●     | And their ● |
| Niobium ●  | Hastelloy ● | Nicrofer ● | Molybdenum ● | Alloys ●    |

**In ...**

- |                            |   |                 |   |                  |   |
|----------------------------|---|-----------------|---|------------------|---|
| Chlor - Alkali             | ▼ | Fertilizers     | ▼ | Instrumentation  | ▼ |
| Offshore & Oil exploration | ▼ | Ship Building   | ▼ | Atomic & Defense | ▼ |
| Chlorination               | ▼ | Petro Chemical  | ▼ | Nuclear & Poser  | ▼ |
| Electrodialysis            | ▼ | Metal Finishing | ▼ | Steel & Paper    | ▼ |
| Cathodic protection        | ▼ | Refineries      | ▼ | Aerospace        | ▼ |

**On-site Repair welding of...** Titanium lined Urea synthesis reactor / strippers, Repair of Pinholes, Reinforcement and Replacement of C & L pad Plates, Weep hole pad plates, and build-ups of Co2 Nozzle. **Repair & refurbishment of...** Mercury, Membrane & diaphragm cell anodes in Chlor - Alkali Industries.

**Our product mix includes...**

DSA / MMO Titanium metal anodes. Mixers, Bayonet Heater, Heating cooling coils.  
 Platinised Titanium & Niobium anodes. Shell & Tube Heat exchangers, & Strainers.  
 Electrolyzers - Sodium hypo generation. Tank, Column, Pressure vessels & Reactors.  
 Anodes for ICCP cathodic protection. Pumps, Blowers, Impellers, Shaft & sleeves.  
 Tantalum repair kits & Thermowell. Anode Baskets, Jigs & fixtures & Fasteners.

