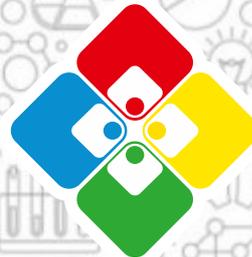


**PERFECT**  
The name to trust



**PERFECT**  
The name to trust



We @ PERFECT Test  
Metals | Rubbers | Plastics



TC-5751

**Perfect Metallurgical Services Pvt. Ltd.**

[www.perfectmspl.com](http://www.perfectmspl.com)



PERFECT..... About 30 years back, **Mr. D.R.Shukre** and **Mr. Ramnath Swamy** embarked on a journey of entrepreneurship with affluent experience and high spirit.

Since then, PERFECT has kept earning patrons' respect by providing accurate, trustworthy and prompt services at reasonable cost with sincerity and integrity. We have been always listening to the patrons so closely and courteously to comprehend their requirements. That has enabled us to meet their expectations and in turn upgrade our standards. Our patrons feel at ease at PERFECT observing their jobs being tested. The strong bond we share with our patrons is the backbone of PERFECT.

PERFECT was conferred with ISO 9002 by KPMG in 2002.

Further, in 2009 PERFECT was accredited by NABL as per ISO/IEC 17025 for the scope of METAL testing. PERFECT has kept on improving and enhancing the scope of accreditation for PLASTIC and RUBBER testing.



PERFECT caters to patrons for metal, plastic and rubber testing which is necessary at every life cycle stage of material i.e., for design, procurement, research and development, qualification, product quality and failure investigation. PERFECT determines various parameters of material like chemical, mechanical, microstructures, metallographic and corrosion properties.

Today PERFECT is a pre-eminent infrastructure and state of the art facilities to fulfil the requirements of the patron. Services of PERFECT are approved by many national and international organizations, third party inspection agencies, central government of India and state government of Maharashtra.

It gives immense joy to see PERFECT thriving day by day with its efficient and loyal team. PERFECT takes this opportunity to thank our valued patrons. We are grateful and honoured for the trust you have placed in us.

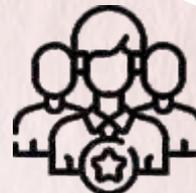
Together,  
We have long way to go.....  
Lots of milestones to be achieved.....  
Dreams to be fulfilled.....  
Thank you.



Quick, committed service



Facility of Sample pick up  
and Delivery of Test Certificate



Experienced | Enthusiastic | Expert team



State of the art testing facility



Variety of tests under one roof



Patron friendly environment



Consistent quality



Wide range of  
reference standards, CRM's available



Consistent performance history in  
proficiency test, Assured competency



Pre-eminent Infrastructure



Celebrating 30 years of Trust



Highly affordable cost



At PERFECT we use world class test equipments / facilities, wide range of CRM's from MBH, BAS England to calibrate & Intermediate checks of our spectrometers, variety of reference standard solutions certified by NIST USA and large library of reference standards. Laboratory emphasize on competency of lab technicians who make use of these equipments / facilities.

On request PERFECT carries out PMI testing at site which is useful for segregation and grade identification.

- ✓ Optical emission spectrometer
- ✓ Atomic absorption spectrometer
- ✓ PMI
- ✓ Carbon sulphur analyzer
- ✓ Electrolysis (Platinum Electrodes)
- ✓ Wet analysis
- ✓ Ash content
- ✓ Mercurous nitrate test
- ✓ Mass of coating ( zinc, phosphate, etc )
- ✓ Specific gravity



## ❖ Salt Spray Test

- ✓ **ASTM B 117** : NSS ( Sodium Chloride test solution | Assessment of rust period )
- ✓ **ISO 9227** : NSS ( Sodium Chloride test solution | Assessment of rust period | Determination of mass loss )
- ✓ **IS 9844** : Neutral salt spray test for assessment of the quality of coatings

Laboratory provides photographs of test specimen before, intermediate, after test as per requirement.

At PERFECT competent laboratory technicians use various calibrated test equipments, instruments and gauges to perform following and many other tests on materials like plates, bars, wires, pipes, TMT/TOR bars, wires/thin foils, articles, weldments, etc.

As a requirement of standard and / or on demand of valued patron PERFECT issues real time graphs of material behaviour while testing, photographs, etc.

For calibration PERFECT uses CRM's from NIST, USA. Calibration activity of major equipments at PERFECT witnessed by most of the reputed third party inspection agencies like LRA, TUV, DNV, IRS, BVIS, etc. and government authority Steam boilers.

- ✓ Tensile Test ( offset method, YS, UTS, % Elongation, % Reduction Area )
- ✓ Bend Test ( 3 point guided bend : Base metal, Root bend, Face Bend, Side Bend )
- ✓ Izod Impact Test As Per IS / BS
- ✓ Charpy Impact As Per IS / BS (Temperature + 100°C to Minus 196°C)
- ✓ Charpy Impact As Per ISO / ASTM (Temperature + 100°C to Minus 196°C)
- ✓ Torque / torsion test
- ✓ Rockwell Hardness ( HRA, HRBW, HRC, HRF )
- ✓ Brinell Hardness ( 10/3000, 10/1000, 10/500, 2.5/187.5 kgs )
- ✓ Vickers Hardness ( HV 1,5,10,20,30,50 kgs )
- ✓ Micro Vickers Hardness ( HV 1,0.5,0.3,0.2,0.1,0.05,0.02,0.01 kg )
- ✓ Superficial Hardness ( HR15N, HR30N, HR45N, HR15TW, HR30TW, HR45TW )
- ✓ Hardness By Portable Tester ( HRA, HRB, HRC, HRF, HBW, HV )
- ✓ Nick Break Test
- ✓ Flattening / Flaring / Flanging Test / Crush Test
- ✓ Compression Test of springs / articles
- ✓ Proof Load Test ( Nuts / Bolts ) / Wedge Load Test ( Bolts )
- ✓ Reverse Bend Test / Reverse Flattening Test
- ✓ Breaking Load Test / Pull Test / Push Test On Assemblies / Jobs
- ✓ Tube To Tubesheet Mockup : Pull Out Test / Push Out Test
- ✓ Fracture Test / Peel Test On Fillet Weld
- ✓ Shear Test On Cladded Plates / Shear Test On Brazing / Shear Test On Spot Welding
- ✓ Erichsen Cupping Test





At PERFECT we carry out various types of Metallographic | Microstructure Examination | Corrosion Testing of Metals according to IS, BS, ASTM, ASME, ISO, DIN, etc standards For every test, PERFECT has got separate or multiple setups according to relevant standard to cater to the urgency of our patrons.

- ✓ Ferrite content test
- ✓ Micro structural examination
- ✓ Macro structural examination
- ✓ Minimum Leak Path in weld
- ✓ Stereo microscopy
- ✓ Surface finish / roughness test
- ✓ Coating Thickness test
- ✓ Decarb layer / Case depth test ( Microscopic method / Hardness method )

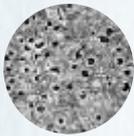


PERFECT performs variety of corrosion tests as described below,

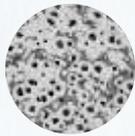
As a requirement of the standard or our patron, PERFECT issues photographs of test results and /or tests conducted, using image analyser.



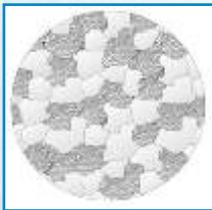
Cast Iron with  
Flake Structure



Ductile Cast Iron with  
Pearlite Structure



Ductile Cast Iron with  
Ferrite Structure



## ❖ Inter-granular Corrosion (IGC) Test as per ASTM A 262

- ✓ **Practice A :** Oxalic Acid Etch Test
- ✓ **Practice B :** Ferric Sulphate - Sulphuric Acid Test
- ✓ **Practice C :** Nitric Acid Test
- ✓ **Practice E :** Copper - Copper Sulphate - 16 % sulfuric acid test
- ✓ **Practice F :** Copper - Copper Sulphate - 50 % Sulphuric Acid

## ❖ ASTM A 923 Corrosion Tests

(Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels)

- ✓ **Test Method A :** Sodium Hydroxide Etch Test for Classification of Etch Structures of Duplex Stainless Steels
- ✓ **Test Method B :** Charpy Impact Test for Classification of Structures of Duplex Stainless Steels
- ✓ **Test Method C :** Ferric Chloride Corrosion Test for Classification of Structures of Duplex Stainless Steels

## ❖ ASTM G 28 Corrosion Tests

(Detecting Susceptibility to Intergranular Corrosion in Wrought, Nickel-Rich, Chromium-Bearing Alloys)

- ✓ **Method A,** Ferric Sulfate-Sulfuric Acid Test
- ✓ **Method B,** Mixed Acid-Oxidizing Salt Test





## ❖ Pitting and Crevice Corrosion Tests as per ASTM G 48

(Pitting and Crevice Corrosion Resistance of Stainless Steels and Related Alloys by use of Ferric Chloride Solution)

- ✓ **Method A** : Ferric chloride pitting test
- ✓ **Method B** : Ferric chloride crevice test
- ✓ **Method C** : Critical pitting temperature test for nickel-base and chromium-bearing alloys
- ✓ **Method D** : Critical crevice temperature test for nickel-base and chromium-bearing alloys
- ✓ **Method E** : Critical pitting temperature test for stainless steels
- ✓ **Method F** : Critical crevice temperature test for stainless steels

## ❖ ASTM G 123 Corrosion Tests

(Evaluating Stress-Corrosion Cracking of Stainless Alloys with Different Nickel Content in Boiling Acidified Sodium Chloride Solution)

## ❖ Chloride Stress Corrosion Tests as per ASTM G 36

(Evaluating Stress-Corrosion-Cracking Resistance of Metals and Alloys in a Boiling Magnesium Chloride Solution)

## ❖ ASTM A 763 Corrosion Tests

(Detecting Susceptibility to Intergranular Attack in Ferritic Stainless Steels)

- ✓ **Practice W**, Oxalic acid etch test
- ✓ **Practice X**, Ferric sulfate-sulfuric acid test
- ✓ **Practice Y**, Copper-copper sulfate-50 % sulfuric acid test
- ✓ **Practice Z**, Copper-copper sulfate-16 % sulfuric acid test

## ❖ ISO 3651-1

Corrosion test in nitric acid medium by measurement of loss in mass (Huey test)

## ❖ ISO 3651-2

- ✓ **Method A**, 16 % sulfuric acid/copper sulfate test (Monypenny Strauss test)
- ✓ **Method B**, 35 % sulfuric acid/copper sulfate test
- ✓ **Method C**, 40 % sulfuric acid/ferric sulfate test





At PERFECT we perform tests as per various national and international codes for Welding Procedure Qualification Record ( PQR )

- ✓ ASME Section IX
- ✓ ASME Section VIII
- ✓ ISO 15614-1
- ✓ ISO 15614-2
- ✓ ISO 15614-8
- ✓ ISO 15614-12
- ✓ AWS D 1.1
- ✓ AWS D 1.6
- ✓ IS 7307



At PERFECT we perform tests as per various national and international codes for Welder Qualification ( WPQ )



- ✓ ISO 9606-1
- ✓ ASME Section IX
- ✓ AWS D 1.1
- ✓ AWS D 1.6
- ✓ IS 7310

According to Indian Boiler Regulation PTC testing as per Class I, Class II, Class III ( SIB ), Welder qualification and check test of material

Production test coupon testing as per IS 2825 : Unfired pressure vessels

**Testing of spot weld :** qualification of machine | Welding Procedure Qualification Record | Welder Qualification

**Electrode qualification :** Qualification testing demonstrates that when a structure is exposed to the type of service environment in which it is expected to operate, the overall system will meet all of its performance criteria.

**Tube To Tubesheet Mockup :** As per ASME Section IX, ASME Section VIII

Test as per NACE MR0175 / NACE MR0103

## ❖ Plastics

PERFECT has a facility and competency to test critical chemical properties and mechanical properties of plastics ( PETE, HDPE, PVC / Vinyl, LDPE, PP, PS, Nylon, etc. ) Plastic testing equipments, instrument and gauges are calibrated by NABL accredited laboratory.

- ✓ Tensile Test with long travel extensometer / Breaking load test
- ✓ Flexural stress / modulus Test
- ✓ Izod Impact Test As Per ISO / ASTM
- ✓ Charpy Impact Test As Per ISO / ASTM
- ✓ Shore Hardness
- ✓ Vicat softening temperature test
- ✓ Heat deflection temperature test
- ✓ Melt flow index / Melt flow rate test
- ✓ Specific gravity / Density test
- ✓ Ash Content
- ✓ Water absorption
- ✓ Polymer identification



## ❖ Rubbers

PERFECT has a facility and competency to test critical chemical properties and mechanical properties of rubber ( NR, NBR, BR, SBR, Neoprene, EPDM, Viton etc. ) Rubber testing equipments, instrument and gauges are calibrated by NABL accredited laboratory.



- ✓ Breaking load test / Tensile Test with long travel extensometer
- ✓ Shore Hardness
- ✓ Hot Air Aging test ( Tensile / Hardness )
- ✓ Effects of liquid ASTM oil, Alkali, D.M.Water ( Tensile / Hardness / Surface area / Volume / dimension )
- ✓ Specific gravity / Density test
- ✓ Ash content
- ✓ Compression set
- ✓ Adhesion test
- ✓ Polymer identification



While the journey of more than 30 years towards the excellence and endeavours of team, PERFECT has achieved and celebrated milestones of approvals | recognitions.

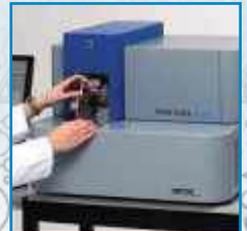
### ❖ Approvals | Recognitions

- ✓ PERFECT accredited by NABL as per ISO/IEC 17025
- ✓ Steam Boliers, State Government
- ✓ VQAW, Central Government
- ✓ CQAE, Central Government
- ✓ DRDO, Central Government
- ✓ Controllerate of Naval Armament
- ✓ Ordnance Factory, Dehuroad
- ✓ RDSO, Ministry of Railways



Competent laboratory technicians of PERFECT carry out witness testing under most of the inspection agencies and authorities.

- |         |        |         |
|---------|--------|---------|
| ✓ EIL   | ✓ LRA  | ✓ QUEST |
| ✓ CEIL  | ✓ TUV  | ✓ IQS   |
| ✓ RITES | ✓ DNV  | ✓ ICS   |
| ✓ BARC  | ✓ BVIS | ✓ IIB   |
| ✓ ISRO  | ✓ ABS  | ✓ EEE   |
| ✓ NPCIL | ✓ IRS  |         |
| ✓ NTPC  | ✓ TPL  |         |
| ✓ CIRT  | ✓ TOYO |         |






# Succinct What We Do ?

## In-House Testing at PERFECT

### Material Testing at Every Life Cycle Stage



#### Design

Determining material properties for ultimate design by experienced lab technicians



#### Procurement

Testing material for quality assurance / control



#### Qualification

Qualifying materials welders / consumables machines to enhance product quality



#### Testing

Standardized or customized tests to check quality of various components & materials



#### Failure Analysis

Verification of material properties to improve product after failure

## Site Testing on demand by PERFECT

- ✓ Coating thickness Testing
- ✓ Ferroxyl Test as per ASTM A380

- ✓ PMI Testing
- ✓ Ferrite Testing
- ✓ Insitu Metallography

- ✓ Hardness Testing
- ✓ Surface roughness Testing



We @ PERFECT test  
Metals | Rubbers | Plastics

## Perfect Metallurgical Services Pvt. Ltd.

Plot No.3B+3 / Part 19, D1 Block, MIDC, Chinchwad, Pune 411 019 ( MH ) India.

7722081386 | 7722081387 | 8605016983 | 9309465719

perfect.communicate@gmail.com www.perfectmspl.com | CIN : U71200PN2023PTC225937

