



*Professional testing service with accuracy,
reliability and repeatability*

Raghavendra Spectro Metallurgical Laboratory (RSML) is a leading material testing laboratory providing metallurgical and chemical testing facilities to its numerous clients for over a decade. Established in 1998, under the leadership of **[REDACTED] & Sri Rajkumar Mutgi**, RSML has become a trusted testing laboratory for innumerable clients. The company possesses not only the latest technological instruments but also the most knowledgeable and experienced hands to offer customized solutions. We provide a complete range of services which allows you to use RSML as a single source for most of your testing needs. We are a very well established company located at Peenya industrial area, the hub of Bangalore's steel and metal industry. It is managed by the qualified and experienced metallurgists and chemists who are well versed in testing of samples as per national and international standards.

Testing activity at RSML both chemical and mechanical fields is accredited by **NABL**, Department of Science and Technology, Government of India, New Delhi **as per ISO /IEC 17025**. The laboratory is also approved by **Karnataka State Pollution Control Board** for its water testing facilities.

For any manufacturing industry which is committed to achieve customer satisfaction, inspection and testing of materials is essential. Testing of incoming materials, in process intermediates and outgoing finished products, is required to ensure quality output and helps in manufacturing products and services of excellent quality.

RSML is rendering services to various industries in the field of material testing which includes:

- i. Chemical Analysis of Metal, Minerals & Ores, Chemicals, including gold, silver and rare elements.(by instrumental and conventional wet methods).**
- ii. Metallography (Micro/Macro) Structure and image Analysis.**
- iii. Water and oil analysis, ROHS testing.**
- iv. Mechanical Testing : Tensile, impact, and Hardness (Brinell, Rockwell and Vickers).**

The vast experience of RSML personnel in the field of chemistry and Metallurgy is available for solving various problems in production, quality control service and failure investigations. It is indeed a pride to inform all our customers that our laboratory has been approved by Ministry of Defense, Rites, BEML, BEL and to name a few private esteemed companies like WIPRO, Hindustan Motors, Ingersoll-Rand, Karmobiles, Delphi International, Kenna metal, TUV, ITC, etc.

RSML assures you service with a stamp of reliability so that your engineering process is assured of quality.

A. Chemical Testing

RSML is equipped with two arc/spark optical Emission Spectrometers capable of high precision application, Chemical analysis by OES provides a quick and accurate analysis of metals and alloys. The equipment is capable of analysing iron base alloys including cast iron & all grades of steels, copper & its alloys, aluminium & its alloys, nickel & its alloys, tin & its alloys.



- The new generation method gives you exhaustive, precise results all in jiffy. The fully computerized and automated process ensures quick transfer of data so that reports are generated in least possible time.

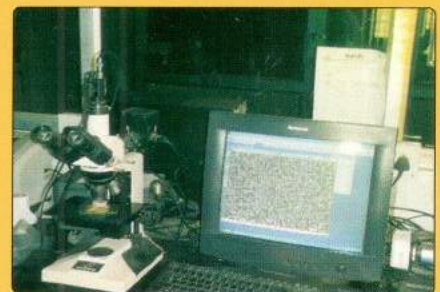
Optical Emission Spectrometer ensure:

- Quick and exhaustive analysis
- Analysis of ferrous, non-ferrous (Aluminium, Copper, Nickel, Zinc and Tin based) Metals and their Alloys.
- Complete analytical statistical processing for high accuracy.

B. Metallography (Micro/Macro Structure/ Image Analysis)

Equipped with NIKON EPIPHOT 200 metallurgical microscope ideally suited to the needs of manufacturing and research and development in the field of metallurgy supported by Clemex Vision Image Analysis P.E. 5.0

- This high-resolution optical microscope with computer interface is equipped with high resolution CCD camera with user friendly Clemex software for Photography and image analysis .
- General microstructure study .
- Inclusion rating .
- Decarb depth and case depth measurements .
- Grain size .
- Nodularity & count in S.G irons .
- Graphite type in cast irons .
- Weld structure analysis .



C. Digital Vickers Micro Hardness Tester

This micro hardness tester is most suitable for hardness measurements on small samples like thin plate, foils, miniature components, plated articles, etc.



D. Mechanical Testing

1. **Universal Testing Machine (600 KN and 1000 KN)** is available for estimating the strength and deformation characteristics of all kinds of materials, such as steel and other materials.

Load tests are also carried out on weld joints, plastics, rubber, wood etc.

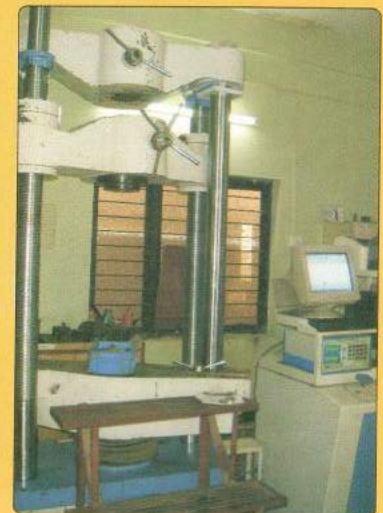
2 Tensometer

For tensile testing on sub size specimens with additional accessories to carry out other tests like cupping tests, bending, spring rating, rubber tensile testing, wire testing etc.



Other tests using UTM:

- a. Testing of standard and threaded specimen.
- b. Testing of flat specimen.
- c. Testing of wire ropes.
- d. Brinell hardness test.
- e. Transverse Rupture test.
- f. Bending tests.



3. Impact test: CHARPY/ IZOD METHOD



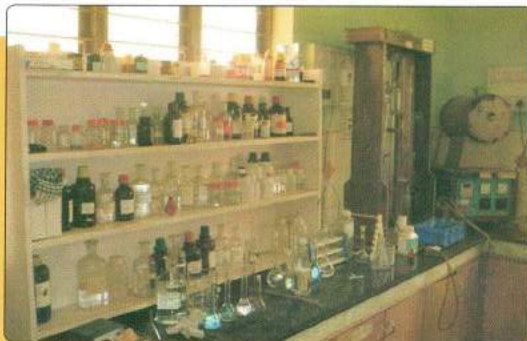
Impact testing machine is available for Charpy and Izod impact test according to IS: 1757-1988, IS: 1499-1977, IS: 1598-1977 and BS: 131 part II & III. Tests are carried out at room temperatures and sub-zero temperatures (up to -50°C).

4. Broaching facilities for preparation of “U” & “V” notch is available in-house.

E. REMELT furnace

The 2701 model electric arc re-melt furnace is designed to produce solid homogeneous chilled samples from irregular metal piece drillings, chipping, and metal powders for chemical analysis by optical emission spectrometer.

F. Wet laboratory



Conventional / traditional method for analysis of metals and alloys, chemicals, mineral and ores, water, effluents, cement etc.

G. Corrosion testing

- Salt spray testing equipment is available for checking corrosion resistance property of coating / plated articles.
- Salt Spray Corrosion tests are carried out as per ASTM B 117, IS : 101 & ISO : 9227 , IS:9844 .
- The Salt Spray Corrosion Tests include :
 - i. Neutral salt spray test (NSS)
 - ii. Acetic acid salt spray test (ASS)



- Intergranular Corrosion Testing is carried out as per ASTM A262 for austenitic stainless steels .

H. Wear Metal in Oils

Wear Metals in Oils can be tested through ICP.



I. RoHS

RoHS (Restriction of Hazardous Substances) compliance test for Lead, Mercury, Cadmium and Hexavalent Chromium in Metals ppm/ppb levels is carried out using ICP_OES ICP for automobile parts , plastics , electrical and electronic equipments, etc.

J. Potable & Effluent Water

Water testing to IS standards is carried out for potability etc. Effluent water both treated and untreated can be tested through ICP.

Karnataka State Pollution Control Board has recommended our laboratory for empanelment in testing water and effluent water.

K. FTIR Rubber Testing

RSML is in process of expanding facilities to include rubber and polymer testing.



You may also contact the following persons.

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