



Geological & Metallurgical Laboratories

(A Division of IRCLASS Systems & Solutions Pvt Ltd)

An ISO/IEC 17025 accredited lab by NABL



NABL
Accredited Laboratory
TC-6835 and CC-2571



2 μ m

FIB Imaging = SEM

EHT = 7.00 kV

Signal A = SEI

Date :19 Mar 2018

Mag = 5.00 K X

WD = 10.2 mm

FIB Lock Mags = No

Time :15:48:20

About Us

Geological and Metallurgical Laboratory (GML), established in 1980 based at Bangalore is a renowned ISO/IEC 17025 NABL accredited lab in the areas of Chemical, Mechanical, Metallurgical Testing and Calibration. GML also offers NDT-UT/LPT/MPI/RT, Metallurgical consulting, onsite calibrations, Failure Analysis and Training as value added services to the industry.

GML LAB is fully equipped with conventional and advanced equipment for testing of Ferrous and Non Ferrous metals & alloys, Rubber, Polymers, Plastics and Construction Materials (Civil) of varied sections, shapes and sizes according to National / International standards or any other client specific requirement.

GML has clientele base of more than 1000 and also has approval from various PSUs, Regulatory Bodies, R&D Centers, Academic Institutions, Inspection Bodies such as DGAQA, HAL, NPCIL, Naval Inspectorate etc.

in 2015, GML became a division of IRCLASS



CHEMICAL TESTING

Chemical analysis of ferrous and non-ferrous metals and alloys such as minerals, ceramics, polymers, coal, water etc. Chemical analysis is carried out by arc emission spectrometry, C & S analyzer, ONH analyzer, UV visible spectrophotometer, ICP OES and wet conventional methods.

DSC / TGA / XRD analysis

MECHANICAL TESTING

Tensile, Hot Tensile, Impact, Bend and Hardness Tests, Dimensional Inspection of steel tubes, plates and welded wire mesh, Static load test in compression for helical compression springs, Test on Tubes - Drift Test, Flattening/Crushing Test, Pullout load test on crimped wires, Proof load for nuts, Customer specific load tests on components and sub-assemblies and various tests on welds

METALLURGICAL TESTING

Macro structural studies of metallic materials, Grain flow studies, inclusion rating, Grain Size, Case depth, delta ferrite content, Sensitization tests on welds, Mass of Zn in Phosphate coatings, IGC tests (Practice A,B,C & E), Compound (White Layer) thickness, Micro crack density, unknown material identification by SEM/EDAX studies, evaluation of welds as per applicable codes/specific customer requirements. Environmental testing such as Neutral salt spray As per ASTM B117 / ISO 9227 and Copper accelerated acetic acid salt spray (CASS) test as per ASTM B 368



FAILURE ANALYSIS

Metallurgical Investigations with in-depth failure analysis including SEM/EDAX analysis to find out the root cause of failure and suggestion to avoid future reoccurrences.

Some recent failure case studies:

1. Premature Blade failure of External Radial Fan
2. Failure of Electric Resistance Welded (ERW) Pipe used for Fire Fighting
3. Cracked FG260 grade Grey Cast Iron Section
4. Discoloration of Rectifier Diode
5. Failure in Bridge-RH ½ BEAM Section of UB305
6. Pinion shaft failure during engine endurance testing
7. Manganese phosphate morphology variation
8. Hydrogen embrittlement failure in point holder
9. Failure of Cam Strut of Automotive Engine observed during durability test due to Oil Leak
10. Scouring mark in brass forging

CIVIL TESTING

Specific tests performed on Cement, Fine/Coarse aggregates, Concrete Cubes, Cores, Beams and Cylinders, Concrete Blocks Hollow/Solid, Building Bricks, ceramic tiles Glazed Stoneware pipes, Natural Building stones, Pavers Block and Concrete Design Mix.

CALIBRATION

Mechanical Calibration of Measuring Instruments and Pressure Gauges.

TRAINING

Conducts various in-house and open-house training courses on "Material Testing" such as Chemical analysis, Tensile, Impact testing, Rubber, polymer testing, Microscopic analysis, Weld Examination, Case Depth, Hardness testing, Weld examination, Grain Size and Environmental Testing etc.

Lab & Office

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