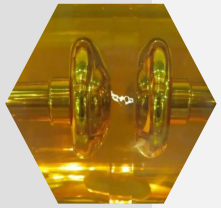
OIL TESTING

1 BVD Oil Transformer



- Breakdown Voltage Test (BVD) is performed for verifying the dielectric strength of the oil of the transformer.
- Breakdown voltage is measured by observing at what voltage, sparking strands between two electrodes immersed in the oil, separated by a specific gap.
- Oil Type : Transformer oil

2 Oil Viscosity Test

- This test is a measurement of a lubricant's resistance to flow at a specific temperature.
- Gravity causes the lubricant to flow through the viscometer tube. More viscous grades of oil take longer to flow than thinner grades of oil.
- Oil Type : Lube oil, Engine oil

3 Interfacial Tension Test

- Interfacial tension between the water and oil interface is the way to measure the attractive molecular force between water and oil.
- Determine the presence of polar contaminants and oil decay products.
- Oil Type : Transformer oil

4 Particle Counter

- Particle counters are used for oil contamination analysis (Measure the number of particles in used oil).
- Part of a proactive condition-monitoring program - It can indicate early-stage signs of abrasive wear that lead to failure.
- Oil Type : Lube oil

5 Moisture Test

- Moisture Test is used to measure the amount of water in oil determined directly by titration with Karl Fischer reagent.
- Presence of moisture could lead to premature corrosion and wear, an increase in the debris load resulting in diminished lubrication and premature plugging of filter.
- Oil Type : Lube oil, Transformer oil, Engine Oil

6 Total Acid/Base Number Test

- Total Acid Number (TAN) - is a measure of acid concentration present in a lubricant.
- Total Base Number (TBN) - is a measure of alkaline concentration present in a lubricant.
- Oil Type : Lube oil, Transformer oil, Engine Oil

GET IN TOUCH WITH US

Scan QR Code below to visit our website !

+609-858 2169

mtalab@mta-laboratory.com

htttps://www.mta-laboratory.com/

MTA LABORATORY SDN BHD

MTA Laboratory

C-20 GF Jalan Raja Udang 1,
River Front Business Centre,
24000 Kemaman Terengganu, Malaysia.

MTA LABORATORY SDN BHD

TOTAL SOLUTION PROVIDER

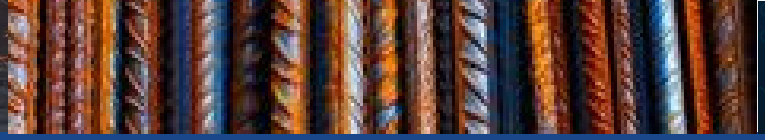
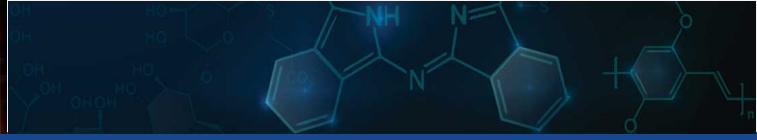
FOR MATERIAL TESTING & ANALYSIS

MTA

ilac-MRA

STANDARDS MALAYSIA ACCREDITED

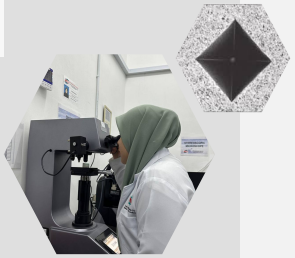
SAMM 1058

MECHANICAL TESTING

1 Micro and Macro Hardness Test

- Measure the hardness of materials at microscopic scale.
- Applicable for Rockwell, Brinnel and Vickers test methods.
- Wide range of test force available (from 0.5gF to 1000gF) for micro hardness and >1000gF for macro hardness.

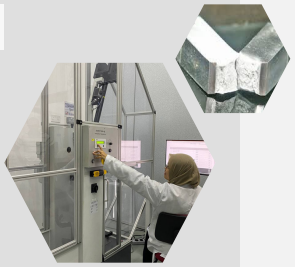


2 Tensile and Bending Test

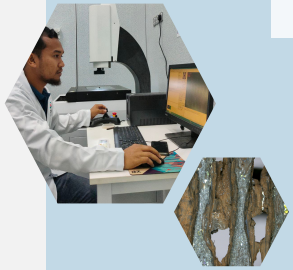
- Tensile test provides quantitative data of material's strength and behavior.
- Capable of testing samples up to 1000 kN (100 tonnes) of force.
- Bend test allows for the determination of material's ductility, bend strength, fracture strength and resistance to fracture.

3 Charpy Impact Test

- Measure the amount of energy absorbed by the specimen during fracture.
- Different hammer weights are available to suit the different tests and international standard.
- Capable of testing sample at ambient until subzero temperature.



4 Dimensional Examination



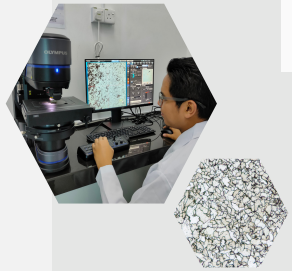
- Fast measurement speeds, high precision, high resolution and large measurement ranges.
- Non-contact measurement technology which capture multiple images of a measured object to obtain the 3D size and morphology information.

METALLOGRAPHIC EXAMINATION & CHEMICAL ANALYSIS

1 Scanning Electron Microscope & Energy Dispersive Spectroscopy

- Provide morphological information.
- Magnification over 1000000 times.
- Equipped Energy Dispersive Spectroscopy (EDS) is integrated with the instrument - Used to identify the presence of element in the sample.

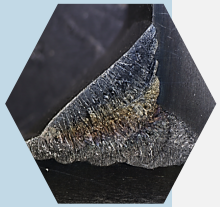
2 Macro and Micro Metallographic Examination



- Inspect the microstructure of the material
- Magnification of 140x Macro to Micro versatility
- Material analysis
  - Phase analysis
  - Grain intercept
  - Count and measure

3 Macro Etching Examination

- A non-destructive testing technique used to examine the macrostructure of metallic materials.
- It involves etching the surface of a metal sample to reveal its macroscopic features, such as grain size, inclusions and segregation.
- For welds, etching a the cross section may reveal internal discontinuities, weld profile, extent of penetration and the quality of weld.



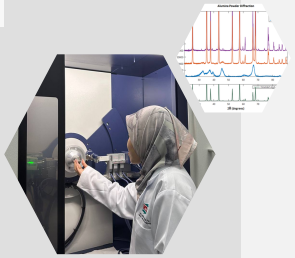
4 Spark Spectroscopy

- Fast, precise and highly sensitive analysis of elemental composition of metal solid samples.
- Fe-base, Ti-base and Ni-base materials.
- Provide spectral range 200nm-800nm and shortest time analysis 10s.
- Low detection limits of wide range of element.

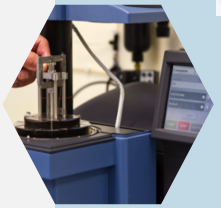
MATERIAL PROPERTIES

1 X-Ray Diffraction (XRD)

- Measuring the intensities and scattering angles of the X-rays that leave the material.
- Application:
  1. Determine the crystallographic structure of a material by irradiating a material with incident X-rays
  2. Measuring the weight fraction of the compound present in the sample.



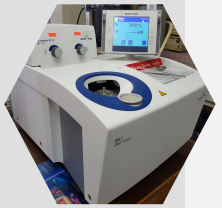
2 Dynamic Mechanical Analysis (DMA)



- Provide information on the transitions of materials and characterize bulk properties of the material.
- Determine glass transition of polymers or the response of a material to application and removal of a load, as a few common examples.

3 Differential Scanning Calorimeter (DSC)

- Provide quantitative & qualitative information about physical and chemical changes that involve endothermic or exothermic processes.
- The main application of DSC is in studying phase transitions, such as melting, glass transitions, or exothermic decompositions.



4 Fourier Transform Infrared Spectroscopy (FTIR)

- Identify compounds and the general type of material being analyzed when there are unknowns.
- Characterize unknown materials such as purity of inorganic sample especially in polymer composition (e.g., films, solids, powders, or liquids)
- Recognize contamination on or in a material (e.g., particles, fibers, powders, or liquids)