

Structure and Materials Test Laboratory.

Preface

- The Structure and Materials Test Lab. was established to support the testing of metals, composite, chemistry and rubber etc. within the CSIST. In 1994, it acquired the Taiwan Accreditation Foundation (TAF) certificate of accreditation. The accreditation Number is TAF-0091.
- This Lab. also acquired the certification of aircraft and engine company in U.S. In 2005, it passed the PRI/Nadcap accreditation and certified as the GEAE supplier. It also had accreditation of Allied-Signal for 41 materials test, Pratt & Whitney for 16 materials test, and Boeing for four materials test.

Structure and Material Tests Lab.

- **Mechanical Tests Lab.**
 - Fatigue
 - Rockwell Hardness Test
 - Brinell Hardness Test
 - Fracture Toughness
 - Tension



Tensile Test Machines

Structure and Material Tests Lab.

- **Metallography Lab.**
 - Grain Size
 - Decarburization Depth
 - Measurement
 - Macroetch Test
 - Inclusion Content Test
 - Coating Thickness
 - Microhardness



Microscope

Structure and Material Tests Lab.

- **Static & DADT Test System**



Load Control Channels : 40 chs
Data Acquisition Channels : 144 chs
Max. Force: 220KN

Structure and Material Tests Lab.

- **Chemistry Lab.**
 - Stainless Steel Elemental Analysis
 - Low Alloy Steel Elemental Analysis
 - Carbon Steel Elemental Analysis
 - Aluminum Alloy Elemental Analysis



SPARK-AES



C/S



N/O



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Structure and Material Tests Lab.

Composite Materials Test Lab.

Polymer and Composite Materials

- Tension
- Compression
- In-Plane Shear Test
- Bend Resistance



Tester Material Strength

Structure and Material Tests Lab.

- **Rubber Tests Lab.**
 - Shore hardness tests
 - Tension tests
 - Tearing strength tests
 - Ageing tests
 - Immersion tests
 - Vulcanization rate tests
 - Compression set tests



**Moving Die
Rheometer**



**Tensile Strength
Testing machine**

Service Items For Lab.

- Chemical composition analysis
- Mechanical properties testing
- Metallographic inspection
- Micro-hardness and hardness test
- Salt spray test
- Differential thermal analysis
- Heat treatment of metal specimen
- X-ray diffraction analysis of metals
- Fuel/oil analysis
- Surface treatment techniques
- Material selection and process evaluation
- Material analysis and verification of parts
- Failure analysis and life prediction
- Prototype development of composite parts
- Composite patch repair technology
- Adhesive bonding technology
- Formulation design and productions of rubber parts

