

**MIDHANI**

**AERONAUTICAL MATERIAL TESTING LABORATORY**

**(AMTL)**



**MISHRA DHATU NIGAM LTD**  
(A Govt. of India Enterprise, Ministry of Defence)

## Aeronautical Material Testing Laboratory (AMTL)

AMTL has been established adjacent to the Tamhankar Lake near MIDHANI. The laboratory is being operated by MIDHANI on behalf of DRDO as part of the Kaveri Engine Development Program for the Light Aircraft. It is unique facility which houses latest state-of-art testing machines for carrying out a wide variety of specialized mechanical test on aero –engine components/materials. The laboratory was inaugurated by Dr P Rama Rao, Secretary to Government of India, Department of Science & Technology on April 24, 1994.



(Dr Tamankar lake )

In 1989-90, the GTX 35 VS Material Committee decided that an AMTL should be established for providing coverage to the testing requirements of the GTX program and particularly those related to the type certification of components , MIDHANI was considered as an ideal choice for location and management of the laboratory, having regard to MIDHANI's expertise in testing of special Alloys. Till date approximately 50 nos. of Aero materials were type tested.

## TESTING SERVICES OFFERED BY AMTL and MIDHANI

### MECHANICAL TESTING

- Tensile testing
  - ◆ at ambient temperature
  - ◆ at elevated temperature up to 1100°C
  - ◆ at subzero temperature down to - 100°C
- Low cycle fatigue at up to 1000°C
- Stress rupture testing at up to 1050°C
- Creep strain determination at up to 1050°C
- Rotating bending fatigue testing at ambient & temperatures up to 1000°C
- Plain strain fracture toughness( $K_{IC}$ ) testing
- $J_{IC}$  Testing
- Measurement of fatigue crack propagation rates.
- Impact testing
- Hardness testing

### METALLOGRAPHY

- Specimen preparation
- Optical microscopy
- In-situ Metallographic
- Phase Analysis by Micro hardness testing

### ANALYSIS

- X-ray fluorescence spectrometry
- Semi-Quantitative analysis using Mobile Optical Emission Spectrometry

### OTHER SERVICES

- Electro discharge machining for
  - Sample blank extraction
  - Chevron notch making
  - Other operations involved in test piece machining
- Precision Specimen Preparation Centre

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