Failure Analysis
Premature Bearing Failure

M+P Labs applies a wide range of material characterization techniques, combined with years of experience, evaluating rotating equipment components for the power generation and aerospace industries to identify the root causes of premature bearing failure.

BEARING COMPONENTS

Balls, rollers, journal pads, raceway, babbits, bearing faces, housings, retaining rings, pre-load rings , etc.

IDENTIFY COMPOSITION OF MATERIALS/ SOURCE IDENTIFICATION

- Debris in bearing, housing, or filter
- Deposits on journal pad, raceway, face
- Corrosion products
- Verification of specified materials:
  - alloy/heat treatment
  - polymer
  - lubricant

POTENTIAL DEFECTS

- Cracks
- Pits/dents
- Inclusions
- Loss of babbit
- Spalling/flaking
- Noisy bearing
- Seized bearing

IDENTIFY ROOT CAUSES OF DEFECTS

- Rolling contact fatigue/excessive loading
- Fracture initiation site
- Over heating
- Corrosion
- Electrical arcing

OIL, GREASE, LUBRICANT ANALYSIS

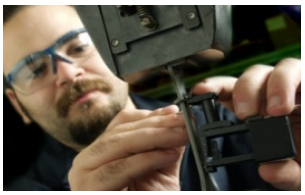
- Identify metal chips
- Particulate content and identification
- Detection of contaminants
- Quantification of detrimental elements (nuclear)
- Water/moisture content
- Thermal analysis
- Viscosity, dropping point, cone penetration
- Oxidation by FTIR

METALLOGRAPHY & METALLURGICAL ANALYSIS

- Widely recognized for quality of mounts
- Microstructural analysis:
  - grain size
  - porosity
  - microhardness

MECHANICAL TESTING

- Tension
- Hardness
- Compression loading
- Dimensional verification



SPECIMEN PREPARATION

- Sectioning, machining, wire EDM
- CNC lathe, mill, and grinder

m+p labs

TESTING | ANALYSIS | CONSULTING

All testing is performed in compliance with the quality requirements mandated by:

ISO 17025

Accredited Nadcap Materials Testing Laboratory

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