

FAILURE ANALYSIS

Written by Kamoutsi Eleni

Monday, 29 November 2010 10:18 - Last Updated Wednesday, 29 December 2010 19:47

The major service provided by LoM is Failure Analysis

Failure Analysis at LoM

Why Failure Analysis?

Despite all the advancements in the development and testing of materials, failures do occur – because of unanticipated failure mechanisms, faulty design, improper materials selection and heat treatment, abuse of machinery during service (e.g. not following proper operating procedures or maintenance schedules) or a critical manufacturing defect escaping detection during the quality assurance procedures.

Failure analysis is performed to determine the cause of damage so that:

- Measures can be taken to prevent failure in the future, and
- To assign legal responsibility for the damage

How do we analyze failures?

At LoM, we apply a series of procedures to identify the cause of damage. These include visual inspection, optical and scanning electron microscopy and fractography, chemical analysis as well as mechanical testing to verify the microstructure and strength of the material. The above procedures reveal the quality of the material, the quality of the fabrication process and possible abuse during service.

What Types of Failures?

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- Ductile and brittle fractures
- Fatigue failures
- Distortion failures
- Wear and erosion failures
- Corrosion and stress corrosion cracking
- Elevated-temperature failures (creep)
- Hydrogen attack and embrittlement

Range of equipment

- Shafts
- Sliding and rolling bearings
- Lifting equipment (e.g. cables)
- Mechanical fasteners
- Springs
- Tools and dies
- Gears
- Boilers
- Heat exchangers
- Pressure vessels
- Pipelines
- Marine components
- Reactors

Who can benefit from Failure Analysis ?

- Chemical and petrochemical companies
- Manufacturing and metalworking companies
- Maritime and transportation companies
- Energy production and distribution companies
- Food processing companies

Ask the experts

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The Laboratory of Materials (LoM) possesses the expertise (equipment + knowledge + experience) to conduct the most demanding failure analysis projects. LoM has been active in failure analysis since 1992. The long list of references is a guarantee for the quality and reliability of our service.

How to contact LoM?

LoM (Laboratory of Materials)
Department of Mechanical Engineering and Industrial Engineering
University of Thessaly
Pedion Areos, 38334 Volos, Greece
Phone/Fax: +30421074061
E-Mail: hgreg@mie.uth.gr, Website: www.materials.mie.uth.gr

Contact person: Prof. G.N. Haidemenopoulos, Director of LoM