MPM Technologies, Inc.

Failure Analysis

INTRODUCTION

MPM performs failure analyses to determine the root cause of in-service equipment failures. MPM often combines conventional failure analysis techniques (metallography, SEM, etc.) with analytical methods (finite element analysis and crack growth analysis) to verify that the loading can produce the observed crack initiation, growth, and fracture. In some instances, this approach has led to the discovery that the crack growth mechanism is not the same as the mechanism that led to crack initiation (for example, fatigue initiation followed by SCC crack growth).

FAILURE ANALYSIS CAPABILITIES

Depending on the particular failure analysis, MPM may use any of the following capabilities:

- Metallography to characterize the microstructure
- Electron microscopy to examine the fracture surface
- Electron microprobe to measure the chemistry of microstructural features
- Wet chemical analysis for bulk material chemistry determination
- Mechanical property testing
- Finite element analysis to calculate stresses due to applied loads or residual stresses due to fabrication processes such as welding
- Fracture mechanics analysis to calculate stress intensity factors
- Material analysis to suggest preventative measures and possible material replacement
- Measurement of residual stresses through the use of strain gages and machining operations to relieve or modify stresses
- Building and testing mock-ups

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FOR MORE INFORMATION

If you would like a price quotation or additional information concerning MPM's services or products, please contact us at the below listed address:

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