

29-30 August 2019:

Rubber Fatigue Analysis with Endurica

For many companies, validating the service life for an elastomeric product is the most time-consuming and expensive stage of the product development process. The physical testing requires investment in prototypes that will be destroyed and lengthy trials that execute on expensive equipment. This course shows how Endurica software can be applied to virtually evaluate fatigue performance and solve design issues at the concept stage. After this 2-day course, you will be ready to use the software to diagnose and solve fatigue issues.

Course Objectives

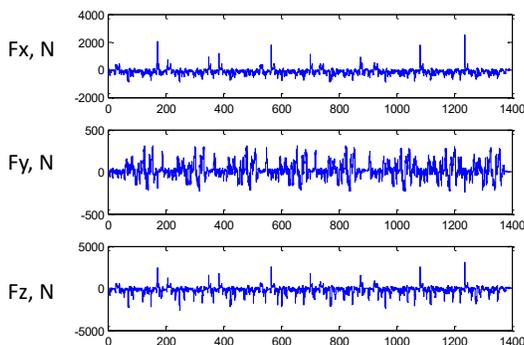
- Understand key ingredients of successful fatigue analysis for rubber
- Be able to select and specify material models that accurately describe elastomer stress-strain and fatigue behavior.
- Understand principles needed for accurate fatigue analysis: fracture mechanics, critical plane analysis, rainflow counting, damage accumulation, incremental analysis, residual life calculation.
- Set up a Finite Element model to ensure accurate fatigue analysis.
- Use Endurica CL, DT and EIE to solve highly realistic durability applications

Format

The course features lectures and hands-on exercises focused on specifying, executing and interpreting numerical simulations of fatigue behavior.

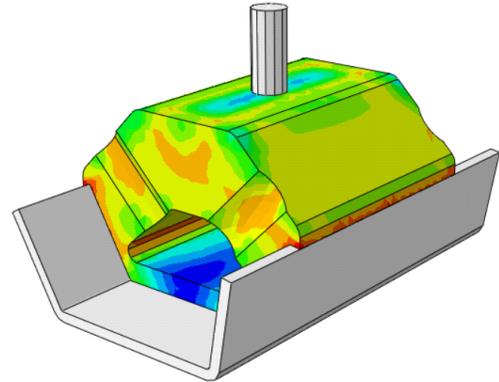
Instructor

Dr. Will Mars is an international authority on damage mechanics in elastomers. He brings more than two decades of experience developing product testing and simulation methods in the rubber industry. He is the editor of *Rubber Chemistry & Technology*.



PRICE - £1000 plus VAT

Course Location: Rubber Consultants
Tun Abdul Razak Research Centre
Brickendonbury, Hertford
United Kingdom, SG13 8NL



Agenda

Day 1: 8:15 – 4:45 pm

- Overview of software capabilities and workflows
- Setting up the stress-strain model
- Using material models for fatigue - fully relaxing
- Using material models for fatigue - nonrelaxing and strain crystallization
- Applications: bushing under 2-channel road load signal, exhaust mount, silicone prosthetic
- Calibrating crack precursor size

Day 2: 8:15 – 4:45 pm

- FEA for life prediction
- Endurica interfaces to Abaqus/CAE, Ansys Workbench, MSC/Marc
- Hands-on: transmission mount analysis
- Endurica CL: Analysis of multiaxial, variable amplitude loading
- Hands-on: tire analysis
- Endurica DT: Incremental analysis, block cycle schedules, histograms, residual life, cyclic softening
- Endurica EIE: Nonlinear mapping and interpolation for rapid computation of full-length multichannel load signals

Endurica CL™
Fatigue Analysis Software