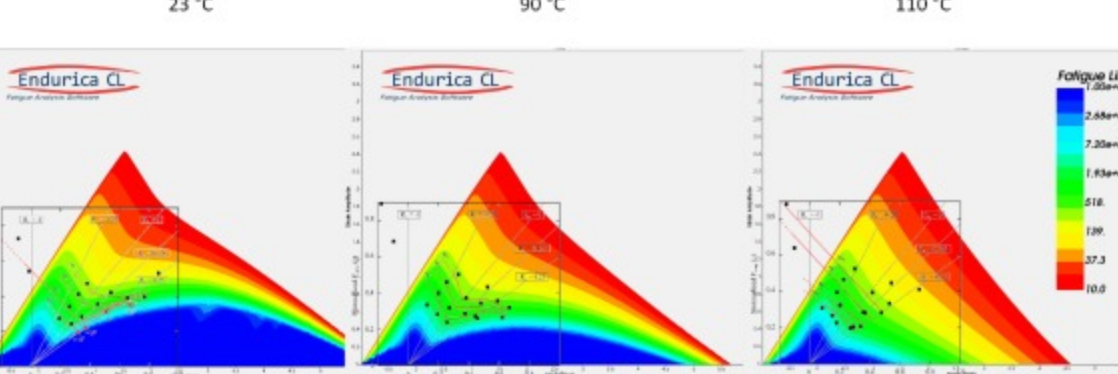


## SPEAKING ENDURICAN *Endurica* Get Durability Right

### Defining the Temperature Dependence of Strain Crystallization in Endurica



405 words | 2 minute read

Crystallization requires the suppression of molecular mobility, which in natural rubber can happen either by reducing the temperature or by increasing the strain. Crystallization of natural rubber can be extremely beneficial to durability. Nonrelaxing conditions (ie R=0) can increase life by factors of more than 100! So, what happens if you have both high mean strain and high temperature? [READ MORE](#)

### What is the Price of Standing Still

724 words | 3 minute read



"We have always done it this way." No longer simply a hated phrase, this statement is a warning of impending disaster. Entropy – the disorder that happens when energy disperses and systems simply fall into chaos – happens when things do not change. But it's a slow process you don't see day-to-day. Continuing with traditional "build and break" development methods instead of embracing CAE and simulation has many long-term risks but it will only be after stagnating for some time that rubber parts manufacturing firms, and even the entire rubber industry, will realize the pitfalls. [READ MORE](#)

# Endurica has

### The latest news from our Development Manager, Jesse Suter

262 words | 1 minute read

In the past six months, the Endurica software has seen significant enhancements centered around the new fatigue solver, Katana, affecting all our major products: Viewer, EIE, DT, and CL.

- Endurica Viewer received many new visualizations when reading a Katana output file. These include:
- Crack size calibration plots
  - Fatigue life sphere contour plot (formerly known as "damage sphere")
  - Strain plots for engineering and logarithmic strain (for both 6-component and principal strain output)
  - Stress plots for engineering and Cauchy stress (for both 6-component and principal stress output)
  - Crack growth rate material analysis plots
  - Stress-strain material analysis plots
  - New data table button to view chart result values as numbers in a table

Endurica EIE is now able to read Katana files as data sources for the EIE map. This enables users to work entirely with Katana file formats. EIE received the ability to read both Katana JSON files as well as Katana database files.

This was also the time to bring all of Endurica DT's features over to the Katana architecture. Katana can now restart previously executed fatigue analyses, which enables our co-simulation workflows like cyclic softening, ageing, and self-heating. All of these workflows have been ported over to the Katana architecture, and supporting files are included in the software installation package.

Katana's Endurica CL received improvements to memory management to reduce memory consumption and improve runtime, and a new "residual strength" output has also been added.

With all these additions and enhancements, the Katana architecture is now being strongly recommended for all new and existing software users.

## WINNING ON DURABILITY GETTING THE MOST FROM CRACK GROWTH TESTING

**LIVE WEBINAR: FRI, APR 14, 2023 at 9 am EDT (13:00 GMT)**  
 RSVP: [ENDURICA.COM/WORKFLOW](#) Featuring Dr. Tom Ebbott, Endurica, Vice President



289 words | 1 minute read

Having an impact with your durability analysis and predictions starts with good materials data. Methods for rubber crack growth testing have improved significantly in recent years. You can now get reliable data and analysis for even the most demanding cases like filled natural rubber compounds. Join us to learn about the recent advances and how to get the most from your crack growth testing and analysis!

- Find out:**
- What are the physics governing crack growth in rubber?
  - How does the choice of specimen geometry impact your results?
  - How can you get reliable results, even for strain-crystallizing materials?
  - How can Endurica procedures and software enhance test result accuracy and lab productivity?
  - How can you use this data to predict fatigue life in your product?

[Learn More and Register](#)

### Coming Events 2023

**Characterizing Elastomer Fatigue Behavior for Analysis and Engineering**

**REGISTER NOW!** March 6-10, 2023 - Live, Online - [More Information](#)

**SOLUTIONS FOR ELASTOMER DURABILITY**

# tire technology EXPO 2023

visit **C217** [endurica.com](#)

TALK WITH OUR EXPERTS

March 21-23, 2023 - Hanover, Germany [More Information](#)

**CLEMSON UNIVERSITY GLOBAL TIRE INDUSTRY CONFERENCE**

April 18-20, 2023  
Greenville, South Carolina

April 18-20, 2023 - Greenville, SC, USA - [More Information](#)

Spring Technical Meeting  
April 25-27, 2023 -Warrensleville Heights, Ohio, USA - [More Information](#)

May 3-4, 2023  
Novi, Michigan | USA

May 3-4, 2023 - Novi, Michigan, USA - [More Information](#)

**SIMULIA Regional User Meeting EuroCentral**

Congress Park Hanau  
May 9-11, 2023

May 9-11, 2023 - Hanau, Germany - [More Information](#)

University of Edinburgh

May 9-11, 2023 - Edinburgh, Scotland - [More Information](#)

### Attention ALL Fatigue Ninjas

**I Speak Endurica**

Get Durability Right

**FATIGUE NINJA FRIDAY**

**SEQUENCE EFFECTS IN RUBBER FATIGUE**

FRIDAY, MARCH 17, 2023 @ 9:00 AM EDT

All Endurica users are invited to join us for our next Fatigue Ninja Friday training webinar. This free training service keeps our Fatigue Ninjas up to date on the latest in Rubber Durability simulation.

Sometimes the order of events matters, and sometimes it doesn't. The new Katana architecture of the Endurica DT solver gives you the tools you need to deal with sequence effects. It is all about blocks and steps.

Attendees will learn:

- When do sequence effects matter?
- What causes sequence effects in rubber?
- How to specify material behavior.
- How to specify your loading schedule using blocks and steps in Katana.
- How to track damage development.

It's easier than ever to capture and quantify these effects in your analyses. This live webinar will show you how and provide answers to your questions as well.

If you are a user who has not yet received an invitation to this webinar, [click here](#) to let us know we are missing you in our invitation process.

**Rubbernecking at Endurica: an interesting thing that makes us look twice**

This squishy material could be the next big step in computer brain implants

Researchers from Harvard and MIT say their hydrogel (a type of polymer material that can absorb large amounts of water without dissolving) scaffold could be the secret to melding minds and machines. It may also help us learn more about how the brain works.

[Check it out.](#)