

NON-RELAXING FATIGUE MODULE



Recommended for cases where cyclic minimum loading is greater than zero and material may strain crystallize

Test is run under a range of nonrelaxing ($R > 0$) conditions

Note: It is required to run FPM-C in order to run this Module.

Under nonrelaxing loads, some elastomers exhibit enhanced fatigue life / slowed crack growth due to strain crystallization effects. The effect is measured using crack arrest experiments in which a crack growing initially under fully relaxing loads is gradually operated under increasingly nonrelaxing loads. This information is required when constructing rubber's Haigh diagram for a crystallizing material.

Experiment Overview

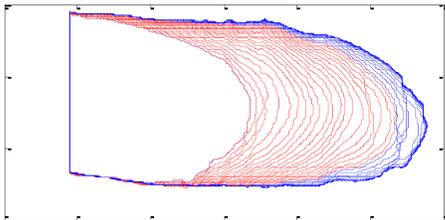
- fatigue crack growth arrest procedure with minimum strain sweep
- number of slabs needed for test: 1

Use with

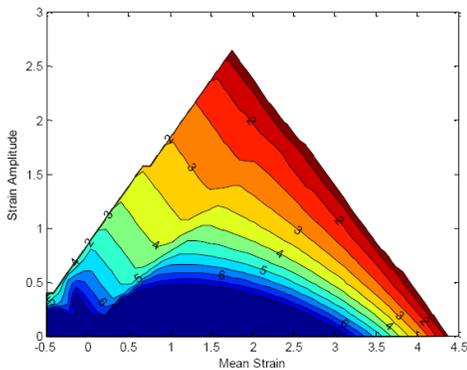
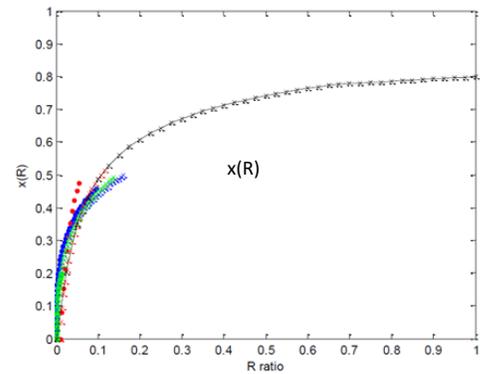
- Mars-Fatemi Strain Crystallization Law
- X(R) Strain Crystallization Law

Analysis and Reporting / Deliverables

- crack arrest history $c(N)$ for nonrelaxing cycles
- strain crystallization functions $F(R)$ and $x(R)$
- Haigh diagram showing sensitivity to minimum strain of crack nucleation life



At left, Crack tip images obtained during crack arrest experiments. Red images show the crack tip while growing under fully relaxing conditions. Blue images show the crack tip while growing under nonrelaxing conditions.



FPM-NR	Non-Relaxing Fatigue Module at 23°C	\$3,590
<i>Additional Options</i>		
FPM-NR-HOT	Temperature Upcharge for >23°C Non-Relaxing Module	\$770
	Indicate temperature with range of 23°C to 150°C	
FPM-NR-COLD	Temperature Upcharge for <23°C Non-Relaxing Module	\$1,390
	Indicate temperature with range of -40°C to 23°C	