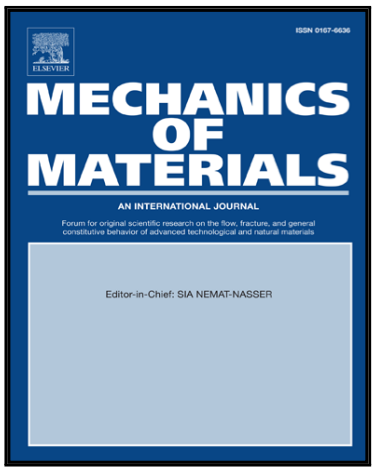

Radiation induced degradation of silica reinforced silicone foam: experiments and modeling

Hui Fang , Jianguo Li , Hongbin Chen , Bo Liu , Wei Huang , Yilun Liu , Tie Jun Wang

PII: S0167-6636(16)30088-6
DOI: 10.1016/j.mechmat.2016.11.006
Reference: MECMAT 2670

To appear in: *Mechanics of Materials*

Received date: 12 June 2016
Revised date: 19 November 2016
Accepted date: 23 November 2016

Please cite this article as: Hui Fang , Jianguo Li , Hongbin Chen , Bo Liu , Wei Huang , Yilun Liu , Tie Jun Wang , Radiation induced degradation of silica reinforced silicone foam: experiments and modeling, *Mechanics of Materials* (2016), doi: 10.1016/j.mechmat.2016.11.006

Highlights

- A series of uniaxial tension tests are performed for the gamma irradiated SRSF with γ-radiation dose from 0 to 600 kGy.
- The tensile modulus of SRSF increases with the increase of radiation dose, while the fracture strength and fracture strain generally decrease.
- The alternation of mechanical properties mainly comes from the evolution of polymer network.
- A constitutive relation of irradiated SRSF is proposed by incorporating the radiation induced polymer network evolution.