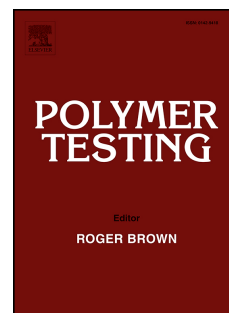


Accepted Manuscript

Effect and mechanism of ureido-modified MQ silicone resin and platinum on tracking and erosion resistance of silicone rubber

Wanjuan Chen, Xingrong Zeng, Xuejun Lai, Hongqiang Li, Zhijie Pan



PII: S0142-9418(18)30543-9

DOI: [10.1016/j.polymertesting.2018.07.001](https://doi.org/10.1016/j.polymertesting.2018.07.001)

Reference: POTE 5534

To appear in: *Polymer Testing*

Received Date: 20 April 2018

Accepted Date: 4 July 2018

Please cite this article as: W. Chen, X. Zeng, X. Lai, H. Li, Z. Pan, Effect and mechanism of ureido-modified MQ silicone resin and platinum on tracking and erosion resistance of silicone rubber, *Polymer Testing* (2018), doi: 10.1016/j.polymertesting.2018.07.001.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Effect and mechanism of ureido-modified MQ silicone resin and platinum on tracking and erosion resistance of silicone rubber

Wanjuan Chen^{a,b}, Xingrong Zeng^{a,*}, Xuejun Lai^a, Hongqiang Li^a, Zhijie Pan^b

^aCollege of Materials Science and Engineering, South China University of Technology, Guangzhou 510640, China

^bCollege of Materials Science and Energy Engineering, Foshan University, Foshan 528000, China

Corresponding Authors:

Prof. Xingrong Zeng

E-mail: psxrzeng@gmail.com, tel&fax: +86-20-8711-4248.

ABSTRACT: How to effectively enhance the tracking and erosion resistance of silicone rubber is a significant topic in high-voltage insulation. In this work, ureido-modified MQ silicone resin (UHMQ) was synthesized and employed to improve tracking and erosion resistance of silicone rubber in combination with platinum (Pt). The effect and mechanism of UHMQ/Pt on tracking and erosion resistance were studied via inclined plane test, leakage current curves, scanning electron microscopy, thermogravimetry and thermogravimetry-Fourier transform infrared spectrometry. When 5~7 phr of UHMQ and 0.33 phr of Pt catalyst were added, the tracking and erosion resistance of silicone rubber were greatly improved. In this case, all specimens passed the inclined plane test at 4.5 kV with low eroded mass and undamaged surfaces. The thermal stability of silicone rubber containing UHMQ/Pt was also much higher than that without, and the leakage current and discharging frequency on the surface of silicone rubber were markedly decreased with the introduction of UHMQ/Pt. This was attributed to UHMQ/Pt catalyzing radical crosslinking of silicone chains under arc discharging so that a protective barrier was established on the surface to resist arc

Download English Version:

<https://daneshyari.com/en/article/7824367>

Download Persian Version:

<https://daneshyari.com/article/7824367>

[Daneshyari.com](https://daneshyari.com)