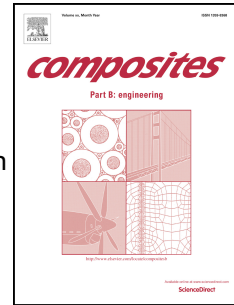


Accepted Manuscript

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PII: S1359-8368(16)31432-9

DOI: [10.1016/j.compositesb.2016.11.038](https://doi.org/10.1016/j.compositesb.2016.11.038)

Reference: JCOMB 4731

To appear in: *Composites Part B*

Received Date: 27 July 2016

Revised Date: 28 September 2016

Accepted Date: 15 November 2016

Please cite this article as: Zang L, Chen D, Cai Z, Peng J, Zhu M, Preparation and damping properties of an organic–inorganic hybrid material based on nitrile rubber, *Composites Part B* (2016), doi: 10.1016/j.compositesb.2016.11.038.

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Preparation and damping properties of an organic–inorganic hybrid material based on nitrile rubber

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abstract: In the work, new type composites of acrylonitrile butadiene rubber (NBR) and polyurethane-sericite (PU-sericites) hybrid materials was prepared by melt blending method. The PU-sericite hybrid phase was formed via the reaction of -NCO groups of -NCO terminated PU prepolymer and -OH groups of sericites. It was indicated by dynamical mechanical analysis that the damping property of NBR decreases as the amount of PU increases, whereas the mechanical properties at low temperature are enhanced. When PU of 10 wt% was added in, a better damping property can be obtained. The damping property of NBR / PU composites would decrease when adding in sericites, however, the mechanical properties at low temperature would be improved. With PU-sericites hybrid added, the compatibility between sericites and NBR/PU composites would be enhanced and the quasi-interpenetrating polymer network structures would be formed, resulting in a better mechanical property of NBR/(PU-sericites) composites.

Keywords: polymer blends and alloys, acrylonitrile butadiene rubber, polyurethane, sericites, hybrid materials

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