

[Journal of Macromolecular Science, Part B](#) >  
[Physics](#)

Volume 48, 2009 - [Issue 6](#)

98 | 7 | 0  
Views | CrossRef citations to date | Altmetric

Original Articles

# The Construction of Sandbag Microstructure in Polyamide 6/Ethylene-Propylene-Diene Terpolymer/Nanometer Calcium Carbonate Ternary Composite

Xu Wang, Xiao-Dong Wang & Xiang-Bin Xu

Pages 1212-1221 | Received 01 Nov 2008, Accepted 05 Apr 2009, Published online: 03 Nov 2009

 Cite this article  <https://doi.org/10.1080/00222340903276881>

Sample our  
Physical Sciences  
Journals  
>> [Sign in here](#) to start your access  
to the latest two volumes for 14 days

 [Full Article](#)  [Figures & data](#)  [References](#)  [Citations](#)  [Metrics](#)

 [Reprints & Permissions](#)

[Read this article](#)

 [Share](#)

## Abstract

A sandbag microstructure was constructed in Polyamide 6(PA6)/ethylene-propylene-diene terpolymer (EPDM)/nanometer calcium carbonate (nano-CaCO<sub>3</sub>) ternary composites by the addition of maleinated EPDM (EPDM-g-MA) to reduce the interfacial tension between EPDM and PA6 and EPDM and nano-CaCO<sub>3</sub>. Scanning electron microscopy (SEM) observation and differential scanning calorimetry (DSC) analysis revealed that the microstructure of the ternary composites evolved from the initial separated EPDM and nano-CaCO<sub>3</sub> dispersion structure to the sandbag structure and finally to the separated dispersion structure again with the increase of EPDM-g-MA

content in the elastomer phase. The mechanical results showed the composites with the sandbag microstructure exhibited excellent toughness and stiffness.

Keywords:

EPDM-g-MA

interface tension

nanoparticle

PA6

sandbag microstructure

ternary composite

## Acknowledgments

The authors gratefully acknowledge the financial support of this work by the Nature Science Foundation of China (Contract Number: 50573067).

## Related research

People also read

Recommended articles

Cited by  
7

## Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

## Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

## Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

## Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

## Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2026 Informa UK Limited [Privacy policy](#)

[Cookies](#) [Terms & conditions](#) [Accessibility](#)

Registered in England & Wales No. 01072954  
5 Howick Place | London | SW1P 1WG

 Taylor and Francis  
Group