



Journal of Macromolecular Science, Part B >

Physics

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

93 | 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-CaCO₃) ternary composites by the addition of maleinated EPDM (EPDM-g-MA) to reduce the interfacial tension between EPDM and PA6 and EPDM and nano-CaCO₃. 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-CaCO₃ 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 © 2025 Informa UK Limited [Privacy policy](#) [Cookies](#) [Terms & conditions](#)

[Accessibility](#)

 Taylor and Francis Group

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