

Transilvania University of Brasov  
Materials Science and Engineering Faculty  
Materials Engineering and Welding Department

Proposed topic for doctoral studies admission contest – September 2019

PhD field: Materials Engineering

PhD supervisor: Prof. dr. ing. Mircea Horia Țierean

**Topic: Researches on reducing the flammability of polymeric materials**

Aspects to be solved:

- polymers burning;
- flame retardation mechanisms – flame retardants for polymeric material;
- toxicity of smoke produced by burning polymers containing flame retardants.

Recommended bibliography:

1. Fire-Safe Polymers and Polymer Composites, U.S. Department of Transportation, 2004, <http://www.tc.faa.gov/its/worldpac/techrpt/ar04-11.pdf>
2. Development and Testing of Flame Retardant Additives and Polymers, U.S. Department of Transportation, 2007, <https://www.fire.tc.faa.gov/pdf/ar0725.pdf>
3. Cubleşan V., Propagarea arderii la materialele combustibile solide în interiorul incintelor, Teză de doctorat UTCB, 2011, <https://www.docdroid.net/q6ww/teza-doctorat-valentin-cublesan.pdf>
4. Szolnoki B., Development of novel flame-retarded epoxy resins and their composites, PhD thesis, Budapest University of Technology and Economics, 2014, [https://repozitorium.omikk.bme.hu/bitstream/handle/10890/1388/tezis\\_eng.pdf?sequence=3&isAllowed=y](https://repozitorium.omikk.bme.hu/bitstream/handle/10890/1388/tezis_eng.pdf?sequence=3&isAllowed=y)
5. Chen J., Gao X., Review on the Fundamentals of Polymer Combustion and Flammability Characteristics for Hybrid Propulsion, Journal of Polymer and Biopolymer Physics Chemistry, 2(4), 2014, <http://pubs.sciepub.com/jpbpc/2/4/4/index.html>
6. Van Wabeeke L., Flame retardant plastics: a general review, International Polymer Science and Technology, Vol. 29, No. 2, 2002, <http://www.polymerjournals.com/pdfdownload/848369.pdf>
7. Chivas C., Bertrand J.P., Malvaux C., Marlair G., Tack K., Smoke toxicity from combustion products based on polymers containing flame retardant additives, The flame retardants Conference 2006, Feb 2006, Londres, United Kingdom. pp.59-69. ffineris-00976169f, <https://hal-ineris.archives-ouvertes.fr/ineris-00976169/document>