

COST Action MP1105

2012 | 2016

COST MP1105
FLARETEX



Sustainable flame retardancy for textiles and related materials based on nanoparticles substituting conventional chemicals

Objectives

- To build a European multidisciplinary Knowledge Platform on Sustainable Flame Retardancy
- To facilitate the rapid development and commercialisation of fire safe textiles and related materials of low toxicity and ecotoxicity, using available / new technologies
- To promote cooperation between researchers from different scientific disciplines

Working Groups

- **WG1-Novel Flame Retardants:** New and environmentally friendly (halogen-free) nanobased Flame Retardant (FR) systems are investigated and/or developed. Synergistic effects derived from combining nanoparticles with conventional FRs and their potential effectiveness are studied. Molecular modelling of thermal degradation will be applied in order to get new insights into the mechanisms by which new FRs affect the flammability of textile (based and related) materials.
- **WG2-Toxicological/environmental aspects:** FRs obtained in WG1 are being investigated for their fire toxicity, ecotoxicological and environmental impacts (LCA). The risks and benefits of using flame retardants in consumer products will be analysed both qualitatively and quantitatively. In general, the appropriate human exposure and environmental life cycle risks will be assessed.
- **WG3-Processing/Applications/Commercialisation:** Application processes (such as plasma coating, spinning, sol-gel, (photo)chemical, ...) of the novel FRs to textiles or textile related materials are being studied, developed and optimised. The general aim is to minimise the amount of novel FRs but still assuring the best fire performances of the treated materials. Work in WG3 will facilitate the mechanism to commercialise the best products/processes through intensive cooperation with the industrial partners.
- **WG4-Testing/Standardisation:** According to the requirements needed for the different application (sub)sectors, new test methods and performance standards can be developed. Durability tests for the novel FR will be standardised as well. Flammability tests might be superseded by fundamentally based small-scale test methods for making material property measurements that can be used as input to validated end-use computer models.

Main Achievements

- Establishment of an extensive network (at the moment 189 researchers from 23 COST countries are participating).
- Set-up of WGs, international networking and new collaborations.
- Organisation of 4 workshops, 1 jointly with MP1206, and 7 STSMs in the 1st year.
- Remarkable scientific outputs related to the use of natural and hybrid nanoparticles for flame retardancy and the use of DNA from herring sperm as an efficient green flame suppressant and retardant for cotton fabrics.

Gender Balance and Early Stage Researchers

- Objectives: To maintain a good gender and age balance in all Action activities.
- Status: 41% female participants and 21% Early Stage Researchers.

Dissemination

- Creation of the Action website where presentations of workshops are published.
- Presentation of Action poster and distribution of Action flyer at international events.
- Publication of conference proceedings and book of abstracts.

Materials,
Physics &
Nanosciences
(MPNS)



Participating countries: 23

AT, BE, BG, CH, CZ, DE, DK, EL, ES,
FI, FR, HR, IT, LT, NL, PL, PT, RO, SI,
SK, SE, TR, UK

Internat. Collaboration:

ZA

Contact details

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