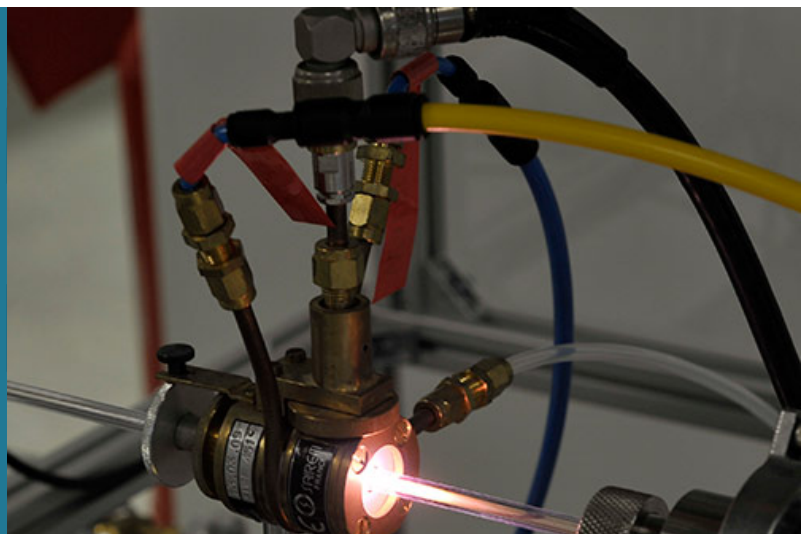


## FR-COATINGS

New Nanocomposite Coatings for Fire Retardant Applications



### Inspiration

Organic polymers are intrinsically flammable and therefore any commercial polymer needs to be modified to prevent or delay fire propagation. This is usually carried out by means of incorporating fire retardant fillers into the polymer. However, an alternative and innovative way to provide flame-retardant properties to the polymer is to perform deposition of flame-retardant coatings on polymer material. Furthermore, this coating does not modify the bulk properties or the processing of the polymer substrate and can be applied easily to any polymer substrates.

### Innovation

The FR-Coatings project aims to develop a halogen-free nanocomposite flame retardant coating deposited by plasma technology. Among all plasma discharges, we will use atmospheric pressure plasma, which has become a promising technology for in-line processing.

### Impact

The coating composition will include compounds based on phosphorus and nitrogen elements which trigger several fireproofing actions in condensed and gas phases. Furthermore, incorporation of nanoparticles into the coating can provide synergistic fire retardant effects.

### Partners

Paul Sabatier University (FR) , Blaise Pascal University (FR) , Ecole nationale supérieure de chimie (FR)

### Financial Support

Fonds National de la Recherche

### Contact

5, avenue des Hauts-Fourneaux  
L-4362 Esch-sur-Alzette  
phone: +352 275 888 - 1 | [LIST.lu](http://LIST.lu)

Dr Abdelghani LAACHACHI  
([abdelghani.laachachi@list.lu](mailto:abdelghani.laachachi@list.lu))  
© Copyright April 2025 LIST

LUXEMBOURG  
INSTITUTE OF SCIENCE  
AND TECHNOLOGY

