# GREENER FIREPROOF PLASTICS

## DESCRIPTION OF INVENTION

The European Commission put additional restrictions to the use of halogen-based flame retardants starting from 2020, due to their harmful effects on health and the environment. Organophosphorus Flame Retardants are therefore rising as one of the most promising alternatives for plastic fireproofing in a wide range of applications, particularly aromatic derivatives containing the P(=O)-heteroatom moiety, such as DOPO-derivatives. Nevertheless, synthetic pathways for these compounds requires the use of highly impactful agents towards the environment (e.g. carbon tetrachloride [CCl4], a carcinogen compound and with ozone-depleting and greenhouse gas effect). Inventors have identified an efficient, industrially scalable and more sustainable process (TRL4) for functionalization of molecules such as 9,10-dihydro-9-oxa-10-phosphaphenanthrene-10-oxide (DOPO) and dibenzo[d,f][1,3,2]dioxaphosphepine 6-oxide (BPPO).

## BUSINESS APPLICATIONS

Flame retarded thermoplastic materials (e.g. ABS, PS, SAN, TPU, PMMA)
Flame retarded polymeric resins and coatings (e.g. PUR, NIPU, Epoxy, Acrylic)
Automotive
Building
Aerospace
Electrical and electronic equipment

## TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

With this new synthesis method, it will be possible to produce greener flame retardants through a more efficient industrially scalable and more sustainable process, avoiding harmful impacts on the environment. These compounds have a good flame retardant effect in both gas and condensed phase and can be applied in multiple structural diversifications.
More economically efficient and industrially scalable strategy
More sustainable process

## STATE OF TECHNOLOGY DEVELOPMENT

TRL4

## INDUSTRIAL PROPERTY RIGHTS

EUROPEAN PATENT (EP21383062) available for licensing

## RELATED IMAGES

## CONTACT INFORMATION

AIMPLAS, Instituto Tecnológico del Plástico

## GREENER FIREPROOF PLASTICS

C/ Gustave Eiffel, 4
València Parc Tecnològic
46980 Paterna (Valencia
T. +34  961366040
F. +34  961366041
E-Mail: techboost@aimplas.es
Web: www.aimplas.es