

**A8.2****Updated status of the FIPEC project (Fire Performance of Electrical Cables)**

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Résumé

Le projet FIPEC est un projet de recherche subsidié par la Communauté Européenne DG XII et par différents câbliers et fournisseurs de matériaux pour câbles électriques, par des utilisateurs des dits produits et par différents centres de recherche. Le projet FIPEC comporte des essais de différents niveaux, à la base d'essais à petite échelle (essai au cône calorimètre sur câbles et matériaux), suivis par des essais à large échelle (suivant la norme CEI 60332-3 avec en plus la mesure de débits calorifiques (HRR) et des fumées (SPR)), et enfin des essais à échelle réelle.

Abstract

The FIPEC project is a research project funded by DG XII of the European Commission and co-financed by a large number of European cable manufacturers, cable material manufacturers, cable users and governmental research bodies. The FIPEC project has different levels of testing ranging from small scale, cone calorimeter test procedure developed for cables and materials, a large scale test procedure based on IEC 60332.3 developed using HRR and SPR measurements and a to real scale test.

Introduction

The FIPEC project [1][2][3] has the following objectives:

- Develop or modify fire test methods for electrical cables offering improvements on existing IEC test methods
- Develop or adapt the cone calorimeter test in order to be able to use it for small scale testing of electrical cables.
- Develop a correlation model for the prediction of fire performance of electrical cables based on the results of small-scale tests.
- Develop bases for a calculation model for the prediction of realistic fire performance of electrical cables, in some key constructions, based on the results of small-scale tests on materials.
- Investigate the validity of models comparing the output form models with realistic design fire test data.

The experimental work will be carried out at different scales and linked by correlation and fire modelling studies which will form the scientific foundations for standards upon which the fire performance measurements can be based.

The experiments will be carried out at four scales ranging from small material samples to real scale cable installations:

- 1 Real-scale scenario tests carried out on model electric cable installations
- 2 Full-scale standard tests carried out on cable trays (based on IEC 60332-3; smaller than 1)
- 3 Small-scale tests on cables carried out in a cone calorimeter
- 4 Small-scale tests on materials carried out in a cone calorimeter

The work will be carried out as a series of managed work items and will take 3 years.

Testing approach

Within the FIPEC project, work package 1 investigated the main cable installation practices in Europe such as type of cable trays, type of cables, construction of cables, cable materials, loading levels and types of fixing, etc. The major scenarios for study have been identify to be Power plants, Vehicles (trains, ships and aircraft), Tunnels and Occupancies (e.g. underfloor voids, ceiling voids and riser shafts).