

transfeu^{flame}

> A European step forward
for engineering fire control



A European Project supported through the Seventh Framework Programme
for Research and Technological Development.



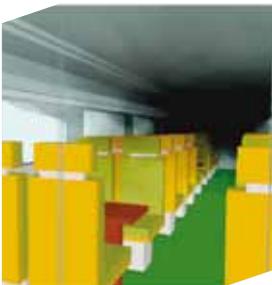
CHALLENGE

Public Transport Guided Systems are one of the safest transport modes; however, there is still the risk that a fire could break out. Toxic effect level measurement of materials and their toxicity classification is very critical and also difficult to assess in estimating real safe evacuation conditions of passengers.

The current prescriptive approach gives solutions in fire safety design of railway vehicles or waterborne vessels. The new prescriptive classification of products is based on dynamic measurements of various material toxic effects is needed, and will be more accurate.

The consideration of larger, complex vehicle structure designs together with the presence of more complex phenomena, due to combined effect of toxic emission, heat release, smoke distribution and active / passive safety on vehicles, implies the utilisation of an alternative holistic approach. This global or "holistic" approach is possible using a performance-based fire safety methodology, which provides more flexible and economic solutions. This new holistic approach can propose a range of alternative and complementary fire safety strategies using innovative advanced materials able to achieve the design objectives of rail vehicles and other means of transportation, like marine craft.

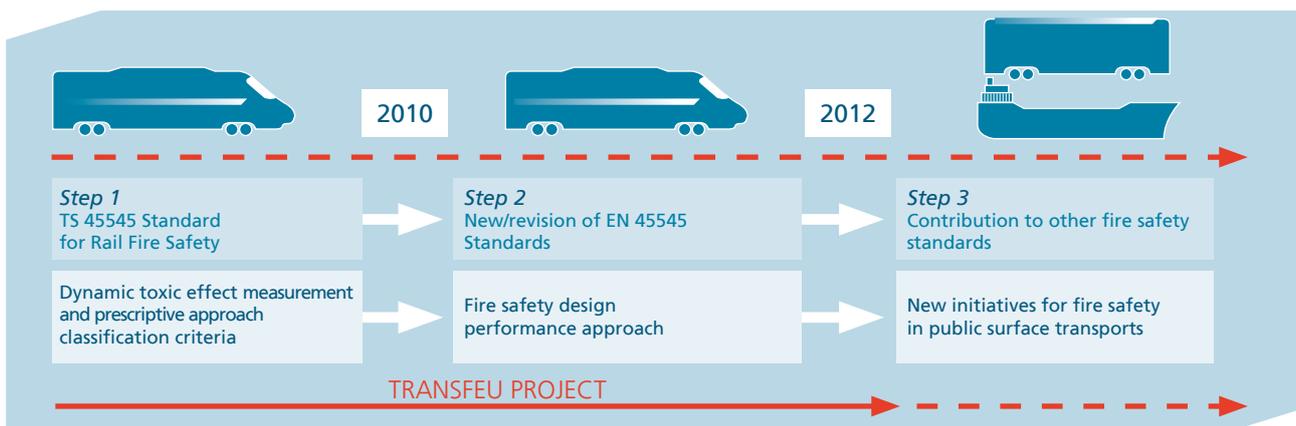
OBJECTIVES

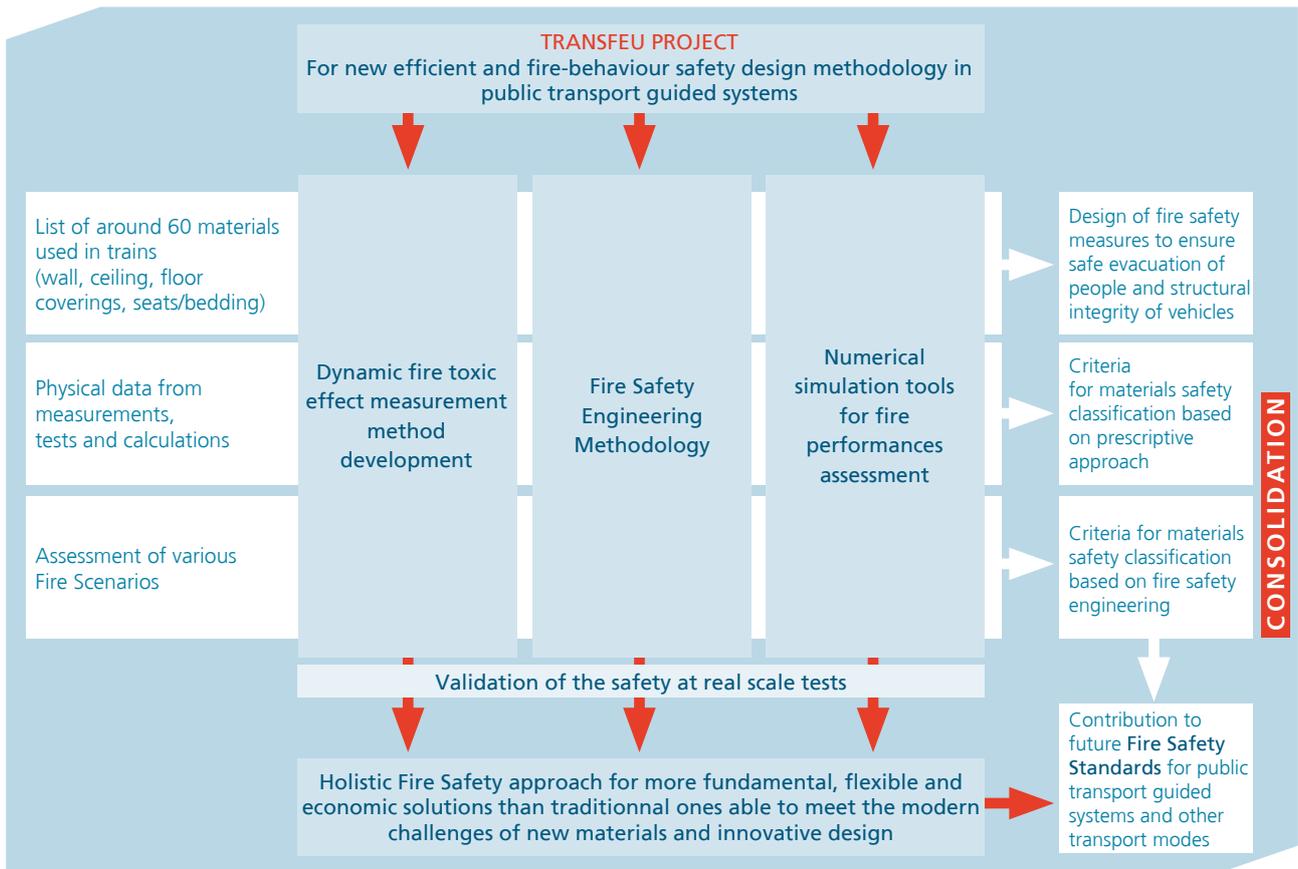


The main goal of TRANSFEU is to develop a **holistic approach of fire safety-performance based-design methodology able to support efficiently European surface transport standardisation**. In particular, the project will directly contribute to the finalisation of the CEN EN 45545 Part 2 for a dynamic measure of toxicity and to use FSE and simulation as a possible alternative to current Fire safety regulation and standard (TSI and TS 45545).

It will be based on:

- A new, accurate measurement tool for toxic gas fire effluents under dynamic conditions for Public Transport Guided Systems. This new tool will allow a continuous record of toxic gas concentrations versus time to be determined;
- A deeper understanding and measurement of underlying dynamic phenomena governing fire initiation, growth under typical railway vehicle scenarios, which can predict the real scale burning behaviour of products and assemblies;
- The adoption of fire safety engineering methodology that offers the necessary modelling tools for establishing realistic and acceptable economic levels of fire safety without unnecessary constraints in vehicle or vessel design. This will be supported by the development of original simulation tools;
- The application and validation of the tests, methods and tools in public transport guided systems fire safety scenarios and standardization with potential to other surface transports.





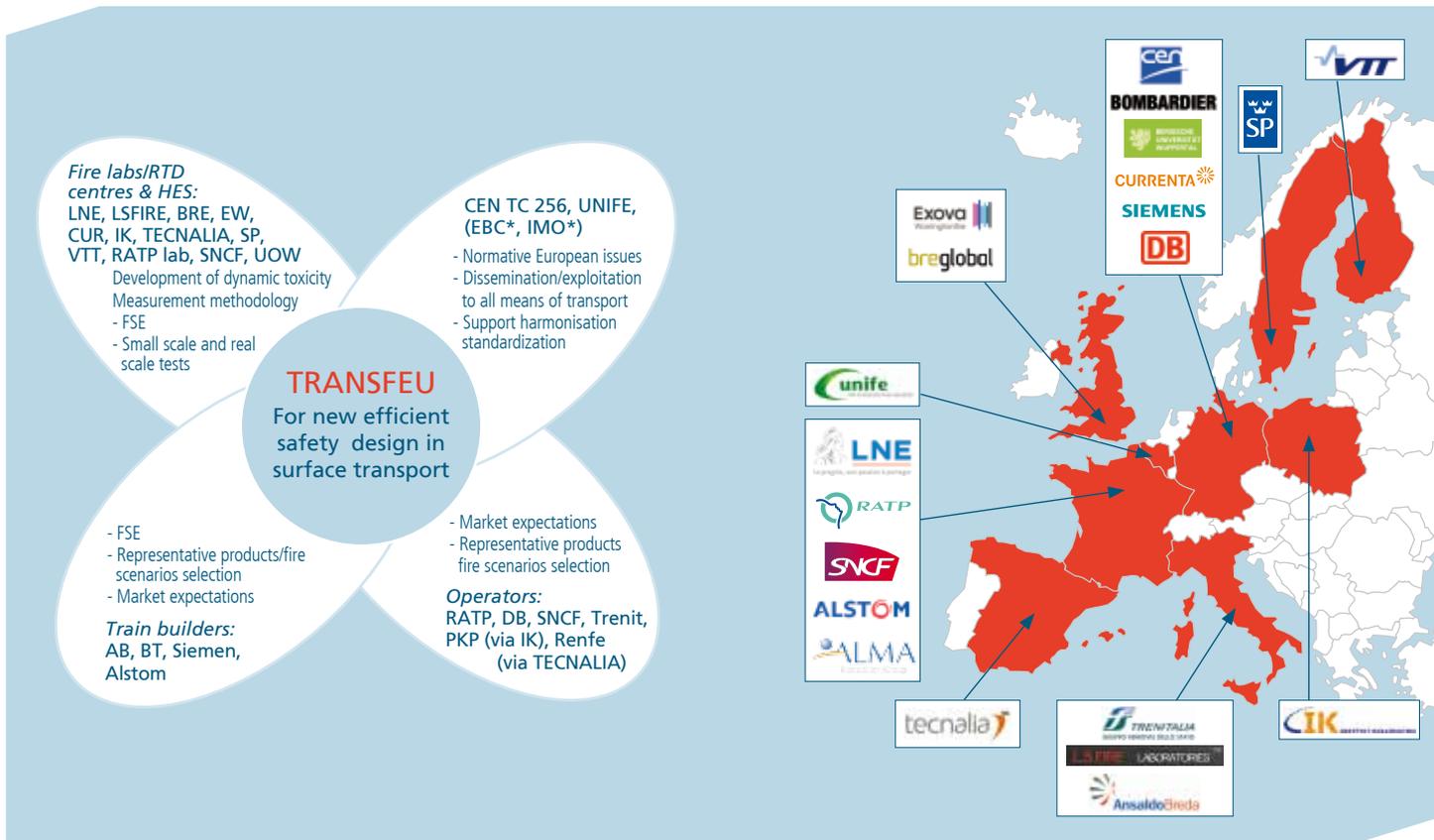
TRANSFEU is one of the most important effort (also in economic terms) addressing the safety of passengers and crew in the event of a fire. It will be used to finalize the EN 45545-2 standard as it will close the open points in the CR TSI, SRT TSI and HS TSI. TRANSFEU will define the EN standard for conducting the measurements and classifying the products. Then models will be developed to predict the fire behaviour and growth in public transport guided systems fire scenarios.

IMPACT

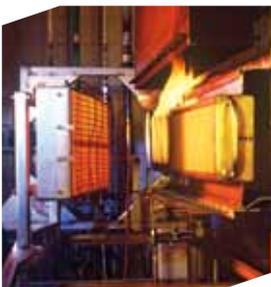
The project gathers the leading European railway manufacturers, railway operators, research organisations and standardization bodies with their interdisciplinary expertise across Europe. More precisely, the expected results are:

- New generation of realistic dynamic measurement methodology of the emission of toxic fumes in case of fire
- Cost-effective methods and modelling tools for fire safety design able to predict realistic fire behaviour and the time to reach critical conditions within passenger rail vehicles. Simulation tools will provide fire guidance on the design, on fire safety measures and a way to explore alternative designs
- Validation of the new fire safety methods and tools in railway scenarios and of the toxic fire effluents classification criteria from products used on trains
- Significant contribution to future fire safety standards for all means of surface transport.





ACKNOWLEDGMENT



The Transfeu project is supported by the European Commission through the Seventh Framework Programme (FP7, 2007-2013). The Transfeu project addresses the thematic area "sustainable surface transport". The project started on 1st April 2009 and will last 42 months.

Transfeu Transport Fire Safety Engineering in the European Union Collaborative project

Total cost: 5 547 813 €
EU contribution: 3 684 606 €
42 months



CONTACT

Coordinator:
Alain Sainrat
Laboratoire national de métrologie et d'essais (LNE)
alain.sainrat@lne.fr
Tel: +33 1 30 69 10 00

www.transfeu.eu