

Healthy Workplaces Good Practice Awards 2018-2019

CASE STUDY



Eliminating hazardous solvents from the analysis of reclaimed material in the road repair and construction sector

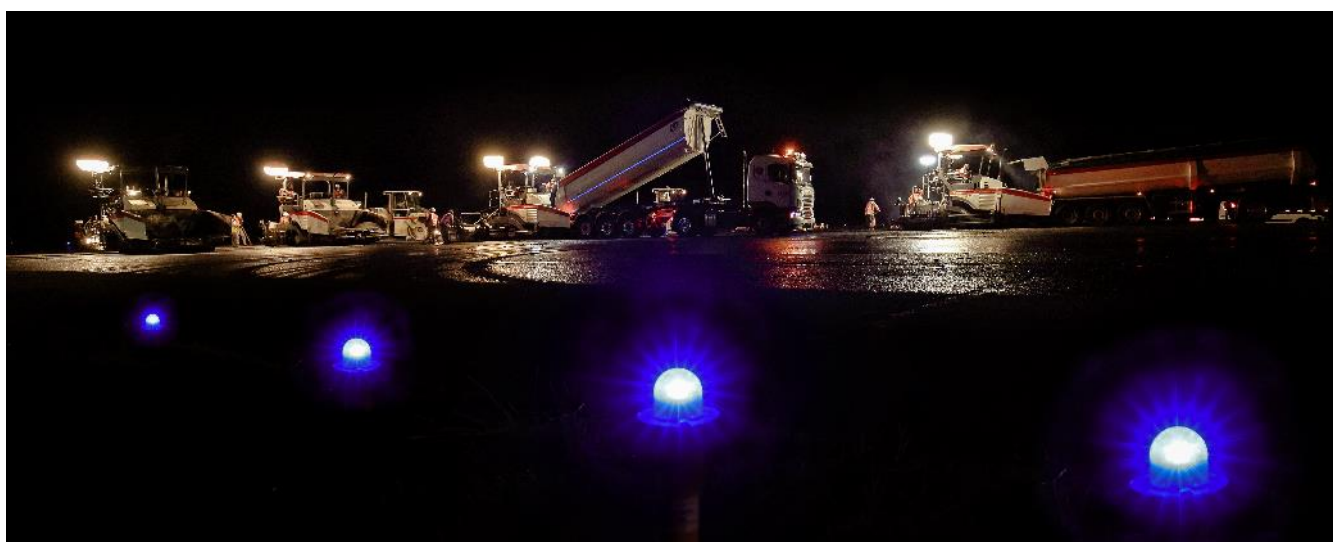


ORGANISATION/COMPANY
Eiffage Infrastructures

COUNTRY
France

SECTOR
Road and motorway construction

TASKS
Laboratory analyses of samples of asphalt-containing mixtures taken from French roads



Source: Eiffage Infrastructures.

Background

Eiffage Infrastructures is responsible for maintaining the quality of the French road network and is involved in new road construction as well as renovating existing roads.

Each year, around 35 million tonnes of asphalt taken from French roads is analysed by Eiffage Infrastructures' laboratories to determine whether or not any of this material can be recycled and re-used. The standard analysis required the use of perchloroethylene, an organic solvent classified as carcinogenic, mutagenic and reprotoxic, putting thousands of laboratory workers at risk of exposure to this dangerous substance.

Aims

To develop a procedure for the analysis of asphalt-coated road aggregates that eliminates the exposure of laboratory technicians to perchloroethylene in line with the prevention policy of Eiffage Infrastructures.



Source: Eiffage Infrastructures.

What was done and how?

An innovative method — known as Analysis Safe — for the characterisation of reclaimed road materials was developed. This method is based on infrared spectrometry and completely eliminates the need for hazardous organic solvents. A simple infrared spectrometer with a diamond attenuated total reflection attachment is used to determine the oxidation indices of the reclaimed asphalt, which can then be used to characterise the physical properties of the material.

What was achieved?

The Analysis Safe method eliminates the need for the use of solvents in the analysis of reclaimed asphalt. As a result, the thousands of laboratory technicians who analysed such road materials every day are no longer at risk of exposure to perchloroethylene. In addition, because the method uses only a simple infrared spectrometer, it also has the advantage of significantly reducing the amount of laboratory equipment required. Moreover, with the new method, asphalt-coated aggregates can be characterised in fewer steps, taking only 10 minutes rather than almost 2 hours. The elimination of the use of perchloroethylene also has benefits for the environment.

Success factors

The method was developed in line with the prevention policy of EIFFAGE Infrastructures, which is to design and use products or methods that have the lowest impact on health, remove or substitute any product with carcinogenic, mutagenic or reprotoxic properties as soon as it is technically possible.

Transferability

The method is fully transferable to other companies and Member States.

Costs and benefits

Worker health and the environment are protected. Savings in terms of time and money are made in relation to the management, storage and disposal of an organic solvent. The new process involves less equipment and fewer steps, and takes less time. As a consequence, laboratory productivity has increased by 30 %. It also eliminates the negative environmental impact of this hazardous organic solvent.

Key features of good practice example

- The innovative Analysis Safe method completely eliminates the use of the carcinogenic, mutagenic and reprotoxic solvent perchloroethylene in the characterisation of reclaimed road asphalt, thus eliminating risks to worker health and the environment.
- The new technique has not only improved conditions for workers but has resulted in savings in terms of time, money and resources, and an increase in productivity.
- This is an example of risk elimination — developed and successfully implemented as a result of the company's commitment to occupational safety and health — that is transferable to other companies and Member States.



Source: Eiffage Infrastructures.

Further information

Further information can be found at

<https://www.eiffageinfrastructures.com>

Eiffage Infrastructures is an official campaign partner of the Healthy Workplaces Campaign:

<https://healthy-workplaces.eu/en/campaign-partners/eiffage-infrastructures>.

'Company policy is to remove or substitute any carcinogenic, mutagenic or reprotoxic product as soon as technically possible.'