Nu-phalt in association with GASTEC at CRE

From the onset as Nu-phalt developed our Infra-red road repair system, safety was a key element of the design and operation process.

Such is the confidence we have of the safety critical aspects of our system, the decision was made to instruct GASTEC to independently assess our vehicle and infra-red road repair system to the most stringent tests against best industry practice and relevant safety standards.

GASTEC are an independent respected energy and environmental product testing company and have over 50 years' experience in appliance testing and certification to satisfy regulatory requirements.

GASTEC were instructed to consider both principle and practical applications of the system including performance, safety and technical construction/assembly aspects - i.e. is the equipment;

- Suitable for its intended use
- Safe for use and maintained in a safe condition
- Used only by people who have received adequate instruction and training
- Accompanied by suitable safety measures (eg: protective devices, suitable safety warnings etc).

GASTEC's proposal was to perform an overall safety assessment of the gas system used within Nu-phalt's road repair system to provide evidence as to whether the system meets the objectives of safety against best industry practice and relevant safety standards. The safety assessment was based around the following activities:

- An initial review of UK legislation and Codes of Practice that may be relevant to the Road Repair System.

- A general risk assessment of the entire gas system, taking into account production testing, operator instruction, routine maintenance activities and expected life of control and safety devices used in the system.

- A review of evidence of conformity from suppliers of control and safety devices used in the system (to verify that appropriate standards and tests have been applied for this application). Verification that compliance with appropriate safety standards and requirements is part of the purchasing contract made with key suppliers.

- Physical testing and inspection of the gas system and associated control systems (where identified, this inspection was based around existing codes of practice, such as BS EN 1494: 2002, Specification for the installation of LPG systems for habitation purposes in leisure accommodation vehicles and in other road vehicles, BS EN 1596: 1998, Specification for dedicated LPG appliances – Mobile and portable non-domestic forced convection direct fired air heaters, BS EN 203-1:2005, Gas heated catering equipment. Part 1: Safety requirements, including:

    - Soundness and construction of entire gas system;
    - Provision and design of control and safety devices;
    - Normal and abnormal fluctuation of gas supply pressure;
    - Ignition and flame safeguard performance;
    - Safety under variations in gas quality and composition;
    - Normal and abnormal fluctuation of electrical supplies;
    - Combustion quality (CO emissions) under normal and abnormal conditions
    - Safety under wind and rain conditions;
    - Temperatures of user controls and parts likely to be accidentally contacted;
    - Gas cylinder storage and ventilation

The GASTEC assessment was undertaken in a two stage approach.

Stage one involved Technical representatives from GASTEC visiting our office to review the fundamental design and assembly of the product and complete an initial review of the technical literature, methodology and component list and back-up information.

Stage two comprised of a formal risk assessment review of the system, a successful outcome is a report encompassing a Technical Construction File. Following which a declaration of conformity is prepared which declares fitness for purpose.

In August 2008, a Nu-phalt vehicle and system was delivered to GASTEC's testing laboratory in Cheltenham, Gloucestershire where the exhaustive tests were undertaken.

All tests were successfully completed following which the Technical Construction File was completed and formally issued. Contained within our Technical file is GASTEC's assessment report confirming that our Gas Heated Road Repair system Vehicle meets the relevant safety requirements of the Gas Appliance Directive and that no dangerous or unsafe (in terms of gas) situations were identified during the assessment.