

8 New European Fire Classification System

- 8.1 Many different fire tests are used to assess the fire performance of construction products. "Reaction to fire" tests are appropriate to help establish the fire performance of construction products used to line the walls and ceiling of rooms. The important features are ease of ignition and contribution to any fire already started in a room. Other tests, such as "resistance to fire", are important in assessing the ability of a wall construction, for example, to impede the progress of a fire between rooms or to the outside. Still other fire tests, such as whole room or roof tests, are used to assess potential fire damage and spread. Some are national, whilst still others are set by independent bodies acting for the insurance industry.
- 8.2 Throughout the EU there are currently a large number of different tests used for assessing the "reaction to fire" of construction products. These variations across national boundaries mean that translation or performance comparison of a product when assessed by different methods is impossible, leading to barriers to trade. Additionally these test methods are often linked to national regulatory requirements so pan-European changes are not easy.

- 8.3 A new system has been developed to assess the "reaction to fire" for wall and ceiling linings. This has been negotiated with the national fire regulators of the EU countries by the European Commission. It is based on a classification system with a supporting set of test methods. No European system has yet been agreed to assess "resistance to fire" performance, or "reaction to fire" for flooring or building services products.
- 8.4 It is the "reaction to fire" classification that is of importance to insulation for ductwork in building services applications. However, it is not yet applicable to ductwork since, amongst other things, the method of mounting and fixing for fire testing has not yet been agreed. Hence, although references may be made to the Euroclass system for "reaction to fire", it can not be officially used until the test method and the European standard in which it lies, pr EN 14314 (Thermal insulation products for building equipment and industrial installations - Factory made phenolic foam products), has been approved.

The 'reaction to fire' classification is not yet applicable to ductwork.

8.5 Classification Document BS / I.S. EN 13501 (Reaction to Fire)

- 8.5.1 When the Euroclass system for "reaction to fire" of building services products is approved, the classification of a material will depend upon its performance in defined tests, or a defined combination of tests. There will be seven "reaction to fire" classes, ranging from the highest (best) Class of A1 to the lowest (worst) class of F.

These figures (A1, etc) may be used in lieu of those which have been employed in the UK, Ireland and Europe for many years – i.e. spread of flame, combustibility, limited combustibility, etc.

Issues to Consider

8.6 Euro-classification and Rigid Phenolic Insulation

In an effort to get some correlation between the new European fire tests and the existing BS tests (BS 476-6 and BS 476-7) a research program was undertaken. This investigation was funded jointly by the DETR and industry and carried out at the Warrington Fire Research establishment.

Rigid phenolic insulation, in the form of rigid boards, was included in this research program and easily achieved a Class B rating.

Rigid phenolic insulation easily achieved a class B rating.



Tests carried out at unnamed premises and sponsored by a mineral fibre manufacturer on a low density (20 kg/m^3) open cell phenolic insulation that is not suitable for construction applications have yielded a Class C result.

This is an example of the misunderstandings that exist on the use and performance of insulation products. It illustrates that it is of vital importance that the fire performance of insulation products is seen in the context of their end use. The testing of products with insufficient relation to their end use is misleading.

8.7 Euro-Classification and Mineral Fibre

It should be noted that contrary to material circulated by the mineral fibre industry, not all mineral fibre products will achieve an A1 classification.

Many faced mineral fibre products may only achieve an A2 or B classification. Results from the first round robin on the SBI test revealed that paper faced mineral fibre product may even be in class E or F. Some higher density mineral fibre products may only achieve a B, the same as rigid phenolic insulation.

Many faced mineral fibre products may only achieve an A2 or B classification and some higher density mineral fibre products may only achieve a B classification, the same as rigid phenolic insulation.

8.8 Replacement of the Historical Class O / Low Risk System

There are no plans to replace the historical classification system used in the UK and Ireland. The historical system remains for now but Class O / Low Risk can be achieved either by BS 476 tests or the Euroclass system.

Class O / Low Risk correlates with Class B.

It is known that there are controversial aspects to the new tests, such as the FIGRA (i.e. initial heat release divided by time), which may lead to unexpected classifications because of early burn off of a surface layer – such as a paint coating. Therefore, it is unlikely that products that are currently Class O / Low Risk will be discriminated against, in terms of their acceptance for use in buildings, merely on account of the new classification system. In that sense, the use of simple conversion tables is a gross over simplification and should be avoided.