

8th August 2023

Subject: Fire regulations, coatings, individual layers and systems

Attn: To whom it may concern

In response to the Grenfell Tower disaster of June 2017, revisions were made to domestic building regulations and related documents ('**Building Regulations**') with the aim of improving fire safety.

This letter summarises the position of Fosroc International Limited ('**Fosroc**') with regards to the use of a 'system classification' approach to fire rating under BS EN 13501 in the context of the application of Dekguard S in conjunction with product(s) of a better fire rating to the exterior of a building over 11m in height under the Building Regulations¹.

Background

Approved Document B

Approved Document B (fire safety) volume 1: Dwellings, 2019 edition incorporating 2020 and 2022 amendments ('**Approved Document B**'), specifies that: (i) 'Relevant buildings' as defined in regulation 7(4); and (ii) all 'residential' purpose group 1 and 2 buildings more than 11m in height, must have exterior walls that meet a Class A2 s1 d0 or better fire rating as per BS EN 13501. This limits the use of acrylic based anti-carbonation coatings (which have a fire rating of Class B s1 d0) on such buildings. Prior to the recent changes to the Building Regulations, such coatings had been in common use for over 30 years.

BS EN 13501

Section 11.7 of BS EN 13501 sets out the requirements of 'homogeneous' and 'non-homogeneous' products. Non-homogenous products are broken down into 'substantial' (being applied at >1mm) and 'non-substantial' (being applied at <1mm) components. By these definitions, a topcoat of Class B s1 d0 is a 'non-substantial' component, and a fairing coat of better fire rating is a 'substantial' component.

The minimum performance requirements necessary to achieve Class A2 s1 d0 differ for homogenous products and non-substantial components of non-homogenous products. For homogenous products, a PCS of <3.0 MJ/kg is required when tested to EN 1716. However, non-substantial components of non-homogenous products are permitted a PCS of <4.0 MJ/m² (note the difference in units – MJ/kg and MJ/m²).

Dekguard S

Fosroc achieved a PCS for Dekguard S of 16.75 MJ/kg. This is higher than the <3.0 MJ/kg requirement that is necessary for homogenous products to achieve a Class A2 s1 d0 rating. Therefore, as set out in its UK Declaration of Performance document dated 30 June 2022, Dekguard S obtained a Class B s1 d0 rating when tested as per EN 13501-1. However, if the result is converted to MJ/m², a value of 2.84 MJ/m² is obtained. This satisfies the <4.0 MJ/m² requirement for a non-substantial component of a non-homogenous product to achieve Class A2 s1 d0.

In view of the above, it might be argued that an external wall 'system' which uses Dekguard S as a 'non-substantial' component in conjunction with a 'substantial' component of better fire rating (e.g. Renderoc ST05) could achieve a fire rating of A2 s1 d0 or better for the purposes of the Building Regulations². However, for the reasons set out below, Fosroc **disagrees** with that analysis:

1. The definition of a 'non-homogenous' product in EN 13501 states that: '*It is a product composed of one or more components, substantial and non-substantial*'. The term 'component' in the definition implies a part without which the product as a whole cannot function. That is not the case with a fairing coat and a coating, where both are sold separately for different purposes. Therefore, Fosroc does not believe that when used in conjunction with one another such products constitute a 'non-homogenous product' for the purposes of EN 13501. Instead, Fosroc's view is that such products would more likely be considered as two 'homogenous' products, such that the requirement to satisfy a PCS of <3.0 MJ/kg would apply to both products separately.

¹ For example, the application of a topcoat of Class B s1 d0 in conjunction with an under layer (e.g. a cementitious fairing coat) with a better fire rating in an attempt to achieve an average rating of A2 s1 d0 or better.

² The analysis and argument can also be applied to other acrylic based Dekguard range products with a Class B s1 d0 rating.



constructive solutions

2. Fosroc considers that applying an acrylic coating over a fairing coat of Class A2 or A1 fire rating is akin to applying the same coating over normal concrete (which also has a Class A1 fire rating). If applied over normal concrete, the coating would be classified as a homogenous product, in which case the coating's inherent Class B s1 d0 rating would apply such that it could not be used on a building of more than 11m in height as per the Building Regulations. As the coating would be the first component exposed to fire, rather than the undercoat, Fosroc's view is that its inherent Class B s1 d0 rating must be considered in isolation.
3. BS EN 13501 states that: '*Compliance with a British Standard cannot confer immunity from legal obligations*'. This implies that Approved Document B takes precedence. To that end, Fosroc notes:
 - a. Any exterior wall of 'relevant buildings' and all 'residential' purpose groups 1 and 2 buildings more than 11m in height should have a classification of Class A2 s1 d0 or better. This suggests that any material applied to the exterior wall (such as a protective coating) should inherently conform to this minimum requirement.
 - b. Approved Document, Appendix B, para. B4, states: '*NOTE: Regulation 7(2) limits components used in or on the external walls of certain buildings to materials achieving class A2 s1 d0 or class A1 (see Section 10)*'. This statement is clear – each component within a system must achieve class A2 s1 d0 to be permissible.
4. The Mayor of London's Building Safety Standards include the following statement:

'The Building Regs 2010 (as amended) require control over combustible items in the external walls of relevant buildings. All new buildings/conversion of existing buildings should apply those combustibility restrictions regardless of their height. More specifically, external walls of all buildings (of any height) should contain only materials of Class A2 s1 d0 or Class A1 in accordance with BS EN 13501-1:2007+A1:2009.'

This provision contains no reference to 'systems', only 'materials', implying that if a system were used, each material within that system must be assessed individually.

We trust that this letter outlines Fosroc's position. Please contact us in case any clarifications are required.

This letter does not constitute legal advice. It is important that you appreciate your overarching duties to your clients on current/future projects (pursuant to statute, contract or under common law). Should you use Dekguard S or any other Fosroc product as part of or in connection with an external wall system, it is your responsibility to establish the overall fire rating classification of that system pursuant to BS EN 13501-1.

Yours Sincerely

A handwritten signature in blue ink, appearing to read "Jon Potter".

Jon Potter

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