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CPR (Construction Products Regulation)

The Construction Products Regulation (CPR) initiative was introduced for cables in 2017. Since then, there's been some confusion about what cable to specify and use across different installations and environments, what the legal requirements are, and what documentation should be made available.

This guide has been created to simplify the process, and to help you make the right product selection – first time, every time.

Cables are classified based upon their reaction to fire, which can cover flame spread, heat release, smoke production, and flaming droplets & smoke acidity. This can be seen in the table below.

Classification	Reaction to Fire	Additional information	Sub Classifications		
			Smoke Emissions to BS EN 50399 & BS EN 61034-2	Burning Droplets to BS EN 50399	Acidity of Smoke to BS EN 60754-2
Aca	Non-combustible	At time of going to press there are no cables that meet these two Classifications	N/A	N/A	N/A
B1ca	Minimal flame propagation & heat release and unlikely to contribute to fire		This test is based on how clear the smoke is when it's released during the test. s1a : Transmission of the smoke produced is above >80% s1b : Transmission of smoke produced is between >60% and <80% s1 : Little smoke is produced and if the cable passes this test it can be tested further for s1a & s1b s2 : Average amounts of smoke produced s3 : Doesn't meet any of the above criteria	This test measures how many burning droplets fall from the cable during the test. d0 : There are no burning droplets or particles during the test d1: If there are flaming droplets or particles they last no longer than 10 seconds d2 : Doesn't meet any of the above criteria	This is a test that measures how acidic the smoke that is produced is. a1 : Conductivity is below < 2.5 µS/mm and pH level above > 4.3 a2 : Conductivity is below < 10 µS/mm and pH level above > 4.3 a3 : Doesn't meet any of the above criteria
B2ca	Low flame propagation, & heat release	These classes also go through additional testing for Smoke Release, Flaming Droplets & Acidity of Smoke whilst there are ongoing factory audits and regular re-testing.			
Cca	Reasonable flame propagation & heat release				
Dca	High flame propagation & heat release	This classes also goes through additional testing for Smoke Release, Flaming Droplets & Acidity of Smoke but no factory auditing takes place.			
Eca	Propagates fire & heat release is not measured	This is a simple vertical flame propagation test with no further testing and no factory audit.	N/A	N/A	N/A
Fca	Doesn't pass Eca	This will have failed the Eca test due to combustible materials being used in the product.	N/A	N/A	N/A

Example	Cca	The cable performs well during the flame propagation test and releases some heat.
	s1a	The smoke that is released is above 80% opacity and performs extremely well
	d1	There are flaming droplets or particles but none last longer than 10 seconds
	a1	The smoke is not very acidic

At time of printing there are no cables in the market that meet the Aca or B1ca standard. All cables that meet the B2ca or Cca level will have been through a rigorous flammability test. The test also measures the amount of heat released during the test. Furthermore, the factory where the cable is manufactured is independently audited to assess its procedures and processes. This all adds another layer of complexity to the regulation. Cables that pass the 'higher' classes continue to go through testing and auditing in order to maintain the classification that it achieved originally.

If a cable has been classified as Dca, it will have gone through the same rigorous flammability and heat release test. However, auditing of the factory will not have taken place, and therefore it cannot achieve anything higher than a Dca classification - irrespective of the flammability & heat release test result.

Cables classified as Eca will have been subjected to a simple 60-second vertical flame test under BS EN 60332-1-2, with no factory audit.

Cables classified as Fca haven't passed Eca, and are either cables not designed for use as building wires, or they're made from combustible materials such as PE that are suitable for outdoor use only.

What to look for when specifying cables

All cables classified between Eca and Aca have been tested at an Approved Body (AB) test house in the UK, so you can be confident that it's a fully independent process. Declarations of Performance (DoP) must be available for any product classified.

Each reel of cable should have its own CPR label, which shows the buyer the CPR classification, any relevant subclasses, the DoP number and the Approved Body that tested the product, and other useful supporting information.

In the UK it's the specifier's or installer's responsibility to choose the most appropriate product, and to ensure that it carries the correct labelling, documentation, and testing. Generally speaking, the more difficult the building is going to be to evacuate, the higher the class of product that should be considered for the application.

Wiring Regulations, BS6701 & Class Cca s1b, d2, a2

In the wiring regulations, BS7671 guidance on CPR is to consult BS6701:2016+A1:2017. In this publication it's recommended that cables intended for permanent installation behind walls, above ceilings, or below floors - or where access to them is limited, meet a minimum requirement of Cca s1b, d2, a2. This has led to an increase in the requirement for cables to meet this classification. Please ask our expert team about the products available.

Summary

It's the responsibility of the individual specifier, installer or building designer to satisfy themselves that they're specifying or using the most appropriate product for the application.

Wherever possible, use products that are Low Fire Hazard, LSNH, LSHF, LSOH, and OHLS, and that meet the correct CPR classification.

Ensure that your cable is supplied with a CPR label and request your DoP.

Finally, always confirm with your supplier the classification that they're quoting or supplying *before* you receive your product.