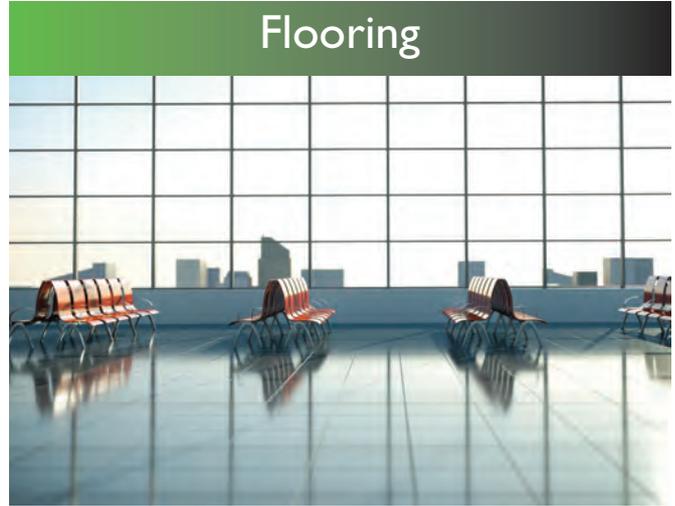


Natural-FR

fire retardant ● zero-halogen ● green
low smoke ● low toxic ● sustainable



a development from the
Tun Abdul Razak Research Centre

Natural-FR is a sustainable, zero-halogen, low smoke, low toxic rubber compound based on natural rubber.

Natural-FR has been developed at the Tun Abdul Razak Research Centre (TARRC - the UK research and promotion centre of the Malaysian Rubber Board) based on a modified natural rubber grade that is renewable.

It starts its journey from the latex of the natural rubber tree “*Hevea Brasiliensis*”. **Natural-FR** can be used to meet material flammability criteria in industrial rubber products and has passed the flammability requirements for floor composites and flexible rubber-metal units as specified in the new EU standard EN45545-2 (2013).

Measurement	Standard	Natural-FR black, tested on 9mm thickness	Natural FR coloured, tested on 6mm thickness
Maximum average rate of heat emission (MARHE)	ISO5660-1 : 25kWm ⁻²	29	
Smoke density, Ds max	EN ISO 5659-2 : 25kWm ⁻²	97	138
Smoke Toxicity,CITg	EN ISO 5659-2 : 25kWm ⁻²	0.22	0.23
Flame Spread,Critical Heat Flux at extinguishment, CHF(min)	EN ISO 9239-1 kWm ⁻²	≥10.8	≥10.9
	EN ISO 11925-2: Exposure = 15s	B _{FL}	B _{FL}
Smoke density	BS6853:1999 Annex D8.6 m ² /m ²	314	
Dry slip, PTV*	BS 7976-2	58	
Four months after installation slip test results - Dry	BS 7976-2	64	
Wet (water) slip, PTV*	BS 7976-2	44	
Four months after installation slip test results - Wet	BS 7976-2	43	

*Average Pendulum Test Value for a profiled surface

Natural-FR in third party laboratory testing has passed the following criteria for a flooring application, and is authorised for use in entrance matting in London Underground stations.

- Smoke density
- Heat release rate
- Ignitability
- Smoke toxicity
- Flame spread
- Dry & wet slip resistance



Limiting Oxygen Index (LOI) for Natural-FR BS EN ISO 4589-2:1999	
Natural-FR black, tested on	Flammability (%)
6mm thickness	54.3
4mm thickness	48.3
Natural-FR coloured, tested on	
4mm thickness	44
6mm thickness, low hardness version	34.9

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