HIGH PERFORMANCE POLYMERS

RadiciGroup portfolio for railway applications according to en 45545-2

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RadiciGroup is one of the world's leading producers of a wide range of specialty chemicals, high performance polymers and advanced textile solutions.

The Group offers a complete range of engineering polymers to meet the needs of many industrial sectors. We have long-standing experience in manufacturing compounds for railway applications that have been successfully tested according to EN 45545-2.

Material	Thickness mm	R21	R22	R23	R24	R26
RADIFLAM A FRX	0.8		HL3	HL3	HL3	HL3
PA66 unfilled halogen-free V0	1.6		HL3	HL3	HL3	HL3
RADIFLAM S FR	0.75		HL2	HL3	HL3	HL3
PA6 unfilled halogen-free V0	1.5		HL2	HL3	HL3	HL3
RADIFLAM A RV250HF	2	HL3	HL2	HL3	HL3	HL3
PA66 GF25 halogen-free V0	3		HL1	HL2	HL3	HL3
RADIFLAM A RV300HF	2	HL3	HL2	HL3	HL3	HL3
PA66 GF30 halogen-free V0	3		HL1	HL2	HL3	HL3
RADIFLAM S RV250HF	2	HL3	HL2	HL3	HL3	HL3
PA6 GF25 halogen-free V0	3		HL1	HL2	HL3	HL3
RADIFLAM S RV300HF	2	HL3	HL2	HL3	HL3	HL3
PA6 GF30 halogen-free V0	3		HL1	HL2	HL3	HL3
RADIFLAM S RV250K AE C	1				HL3	HL3
PA6 GF25 halogenated V0	3				HL3	HL3
RADIFLAM S RV250 FR	1	HL3	HL3	HL3	HL3	HL3
PA6 GF25 halogen-free V0	3	HL3	HL3	HL3	HL3	HL3
RADILON S RV200FR2	1	HL1	HL1	HL2	HL3	
PA6 GF20 halogen-free V2	3	HL1	HL1	HL2	HL3	
RADILON A HS 164	1	N/A	N/A	N/A	HL2	N/A
PA66 unfilled V2	3				HL2	

Other materials may be available on request. For colours, please ask Marketing and Technical Service.

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The design of rolling stock and the products used shall incorporate the aim of limiting fire development should an ignition event occur so that an acceptable level of safety is achieved.
If the objectives defined in Clause 4 of EN 45545-1:2013 are met, then there should be a high probability that in the event of a fire, passengers and staff will be able to escape from the fire unaided and be able to reach a place of safety.

Hazard levels (HL 1 to HL 3) have been determined using a product of the relation between operation categories and design categories defined in EN 45545-1, as described in Table 1. Hazard levels are used in Table 5 for Material Fire Safety requirement classification.

Operation category	Design category			
	N: Standard vehicles	A: Vehicles forming part of an automatic train having no emergency trained staff on board	D: Double decked vehicles	S: Sleeping and couchette vehicles
1	HL1	HL1	HL1	HL2
2	HL2	HL2	HL2	HL2
3	HL2	HL2	HL2	HL3
4	HL3	HL3	HL3	HL3

EN 45545, the European standard "Railway applications - Fire protection on railway vehicles", classifies applications to assess risk and sets material requirements according to the risk level.

The applications are divided into four operation categories and four design categories:

Operation Categories

OC 1: Overground operation with minimum delay in stopping and fast evacuation
OC 2: Operation in tunnels or elevated structures with fast side evacuation available
OC 3: Operation in tunnels or elevated structures with slower side evacuation available
OC 4: Operation in tunnels or elevated structures with no side evacuation available

Design Categories

N: Standard vehicles
A: Automatic train vehicles with no emergency staff
D: Double decked vehicles
S: Sleeping cars

The highest risk applications are naturally for sleeping cars, where passengers would have to be woken before they could be evacuated, and operations where side evacuation is not possible.
The material requirements for these higher risk HL3 applications concern the characteristics of flammability, smoke emission and toxicity, the highest risk.

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Giu/2022