

THERMOSET COMPOSITES AND EN 45 545 STANDARD

SMC, BMC, HL1,HL2, HL3, M1, F0, F1, FIRE, SMOKE, FIRE RETARDANCY, WINDOWS FRAMES, LUGGAGE RACK, PILLAR, SIDE PANELS, SEATS, ELECTRICAL BOXES, RAILWAYS MARKER, ELECTRICAL INSULATION, INNOVATION.

IDI's Thermoset BMC and SMC are already being used in the production of a large variety of train and railway parts. One of the many reasons for this is their adaptability, allowing them to be moulded to produce high volumes of small parts (grammes) or larger parts (kilos). Another advantage of course is that both SMC and BMC can be used when a high level of fire retardancy is needed.

SMC and BMC are intrinsically, insulating materials which present excellent thermal and dimensional stability with a high corrosion resistance. IDI's products also have the added benefit of being able to be mass pigmented in an assortment of colours and shades ensuring uniformity batch after batch.

Parts moulded using IDI's Thermoset Composites can be produced in a wide range of thicknesses. Wall thicknesses within the part can be varied and reinforcements can be integrated and inserted. The moulded item is easily cleanable and can be bored, bonded and painted and has a high quality surface.

All these characteristics allow molders to produce a very large range of parts for train and railways applications. Windows frames, luggage rack, pillar, side panels, seats, electrical boxes, but also railways marker, electrical insulation parts are currently produced. For train transport application SMC, BMC permit designers to develop special parts with high level of fire retardancy! These characteristics are reached using green raw materials in accordance with RoHS and REACH regulation (100 % of SMC and BMC IDI production are halogen-free). The new European fire and smoke standard has been studied by IDI and R&D project has been managing in order to propose innovative solutions to our customers.

IDI PRODUCTS BEFORE EN 45 545-2

Each country has its own standard and classification for train transportation application presented in the table below with the different Products from IDI Composites Europe.

	Category Standard	SMC BMC
Fire	S4	IDI Trans A
	M1	IDI Trans B
	BS 476 Class1	IDI Trans C
Smoke	SR2	IDI Trans D
	F0	IDI Trans E
	BS 6853 Class 1b	IDI Trans F

IDITrans is a family of grades dedicated to Train Transportation application.

EN 45545 REQUIREMENTS & NEW PRODUCTS

The new European Fire and Smoke regulation EN 45545 will be applied early this year. The goal of this standard is to guarantee the safety and evacuation of passengers, accompanying staff and to cover potential emergencies.

The European standard is divided into the following seven categories:

- Part 1:** General
- Part 2:** Requirements for fire behaviour of materials and components
- Part 3:** Fire resistance requirements for fire barriers – rejected, revision and partitions
- Part 4:** Fire safety requirements for rolling stock design
- Part 5:** Fire safety requirements for electrical equipment
- Part 6:** Fire control and management systems
- Part 7:** Fire safety requirements for flammable liquid and flammable gas installations

Part 2 – EN 45545-2 – defines the demands, in terms of reaction to fire, that railway products should meet. All materials must

meet stringent criteria (FIRST criteria) in terms of Flame spread, Ignitability, Rate of heat release, Smoke opacity and Toxicity emitted during a fire.

The fire reaction tests aim to qualify and classify the products according to their final applications (electrical equipment, seating, flooring, ceilings, etc.) - R1 to R25 category. The operation and design (type of train or metro or tramway) categories defined in Part 1 are used to establish hazard levels (HL1 less severe to HL3 most severe) which are used as the base of a classification system. For each hazard level, Part 2 specifies the test methods, test conditions and reaction to fire performance requirements.

Operation Category	Design category			
	N	A	D	S or DS
1	HL1	HL1	HL1	HL2
2	HL2	HL2	HL2	HL2
3	HL2	HL2	HL2	HL3
4	HL3	HL3	HL3	HL3

IDI PRODUCTS NOW!

IDI's R&D team have been busily developing innovative solutions for you in accordance with the new European fire and smoke standard EN 45 545. These products are available from our plant in Vineuil, France.

HL1	IDI TRANS HL1	SMC or BMC
HL2	IDI TRANS HL2	SMC or BMC
HL3	IDI TRANS HL3	SMC or BMC

MORE INFORMATION



IDI COMPOSITES EUROPE
 VINEUIL (41) - FRANCE
 J. Mantet-Gay / H. Magnaud
 Phone: 00332 54 55 55 54
 Mail: sales-europe@idicomposites.com
 www.idicomposites.com