

Test report No. P60-09-0428

Fire testing

RST Rail System Testing GmbH
Fire Lab
Philipp-Pfarr-Str. 10
D-16761 Hennigsdorf
Tel. +49 33 02 – 499 82-60
Fax +49 33 02 – 499 82-19
E-mail: gert.schmidt@rst-labs.de
Internet: www.rst-labs.de

Test engineer: Mrs. Seidler signs: SG/sm
Date: 08.09.2009

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Manufacturer/Customer: POLKAR Polyester Urunleri San.ve Tic.A.S
Ulukent Sanayi Bölgesi 1, 10002 Sk. No.: 2, 35663 Menemen- Izmir/Türkiye

Receiving date: 31.08.2009
Test date: 07.09.2009

Test specimen: Fibreglas Reinforced Polyester, 5 mm thickness

Material or combination of materials: Fibreglas Reinforced Polyester produced by RTM Method and using Nonfire Gelcoat and Nonfire Polyester

Side of specimen to be tested by flame: on the Gelcoat-side

Test specification: Examination according to DIN 54837 (12/2007)
"Testing of material, small parts and components for rail vehicles
- Determination of burning behaviour using a gas burner"

Objective of test: Evaluation according to DIN 5510, Part 2 (05/2009)

Test results:
Inflammability class: S 4
Smoke development class: SR 2
Class of the capacity of forming drops: ST 2

According to DIN 5510 part 2 chapter 5.2.1 the presented test report for requiring component parts by delivery must not older then three years.

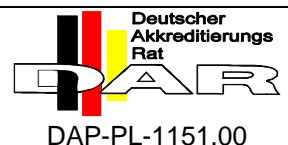
This report consists of 4 pages.

Gert Schmidt
Head of Fire Lab

The results refer only to the specimens mentioned above.
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Test Laboratory

This accreditation applies to the test procedure mentioned in the document.



Results:

Air temperature [°C]/ rel. air humidity [%]: 23 / 50
 Dimensions of sample length [mm]: 500
 width [mm]: 190
 thickness [mm]*): ≈5
 weight [g]*): 907

*) Average value of all samples, minimum and maximum of thickness measurement

Conditioned in laboratory: Normal climate DIN 50014 - 23/50-2

Duration of climatisation : > 48 h

Test chamber: Big combustion box in accordance with DIN 50050 Part 2

		1	2	3	4	5	average
Ignition of sample	Time (s)	6	4	6	5	6	
Afterburning of sample *)	Duration (s)	5	10	11	12	7	9
Afterglow of sample *)	Duration (s)	-	-	-	-	-	
Height of flames	Maximum (cm)	35	30	35	30	30	
	Reached after s	100	70	140	85	90	
Falling - off of parts of sample *)	Falling yes / no	no	no	no	no	no	
	Burning duration of burning (s)	-	-	-	-	-	-
Smoke density	Maximum (%)	19,5	11,5	12,3	9,0	18,5	14,2
	reached after (s)	191	188	190	189	188	189
	Integrale (% x min)	7,2	6,6	5,9	5,4	7,4	7
Destroyed area	Length (cm)	18	18	18	16	17	17
Fire on sample extinguished *)	Time (s)	-	-	-	-	-	
Burning through of the sample	yes / no	no	no	no	no	no	

*) delete if not applicable "-"

Notes: none

Signum test engineer:

Short description of the test method according to DIN 54837:

The surface (5 cm of the lower edge) of a vertically arranged test sample will be exposed to the flame of a gas burner during 3 minutes. After removing the flame, the test sample is observed for added 2 minutes. The duration of the after burning, the smoke density and the dropping behaviour will be evaluated. On following the size is measured of the area destroyed by the fire of the test sample.

Requirements to the average values for the classification according to DIN 5510, part 2:

Inflammability class	Length of the destroyed area [cm]	Duration of after burning [s]
S 2	≤ 30	Further burning until the test end is admissible, afterwards it will be extinguished
S 3	≤ 25	≤ 100
S 4	≤ 20	≤ 10
S 5	0	0

- Smoke-development-classes (SR 1 and SR 2)

	Integral of the luminous attenuation [%·min]
SR 1	≤ 100
SR 2	≤ 50

- Class of the capacity of forming drops (ST 1 and ST 2)

Class of the capacity of forming drops	Observations
ST 1	drops or apostatizes burning
ST 2	drops or apostatizes not or not afire (Dripping of with burning duration ≤ 20 s admissible)

Signum test engineer:



sample before testing



sample after testing

Signum
test engineer: