BASF – Fire Safety Technology

BASF
The Chemical Company

Test Report No.: 8828 / 30768 Date: 18.04.2011

BASF SE
Brandschutztechnik
G-KTF/EG - A521
D-67056 Ludwigshafen

Test according to

DIN 5510 Part 2 : 2009-05

Preventive fire protection in railway vehicles - Part 2: Fire behaviour and fire side effects of materials and parts; Classification, requirements and test methods
Test according to DIN 54837 : 2007-12 Testing of materials, small components and component sections for rail vehicles - Determination of burning behaviour using a gas burner

Client:

Henkel AG & Co. KGaA Heidelberg
Standort Heidelberg
Henkel-Teroson-Strasse 57

69123 Heidelberg

The results refer exclusively to the tested samples.

As an accredited Test Laboratory, the BASF SE Fire Safety Technology Test Centre is authorized to conduct fire tests in accordance with DIN EN ISO/IEC 17025 : 2005.
DAR-Register-No.: DGA-PL-6430.06

Deutscher Akkreditierungs Rat
DAR
DGA-PL-6430.06

ID number EBA (German Rail): EBA – 012 / 07 / 10 –

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Receipt of order: 10.06.2010
Receipt of samples: 28.12.2010
Date of test: 20.01.2011

1. Material: (Information supplied by client)

Terostat MS 939 FR

Colour: Black

Field of application: Direct Glazing

2. Summary of results and classification:

Length of damaged area	**9,0 cm**	**Combustibility**	**S4**
Afterflame time	**0 s**		
Integral of smoke development	**1 %•min**	**Smoke development class**	**SR2**
Falling debris	**no burning droplets / debris**	**Dripping class**	**ST2**

Remarks:
Corrected version of report from 31.01.2011.
Note: This report is valid for 3 years according to DIN 5510-2 (2009:05), if not differently regulated by the responsible authority.

Any conclusions we draw about the fire safety of the materials we test are based exclusively on the results of the test under the conditions described.
The extent to which such conclusions can be applied to non-tested material under non-standard conditions is the sole responsibility of the customer and is done so at his own risk.

BASF Fire Safety Technology

Dr. Henn
Head of Laboratory

Ludwigshafen, 18.04.2011

Kaiser
Technician

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3. Material:

Information supplied by client

Terostat MS 939 FR

Additional details from test laboratory

Adhesive in aluminium profile

4. Samples:

Sample size (determined by BASF test laboratory):

Length:	500*	[mm]	Weight:	[g]
Width:	10,0*	[mm]	Weigt per unit area:	[kg/m²]
Thickness:	5,0*	[mm]	Density:	[kg/m³]
Outer diameter:		[mm]	Remarks: *Dimension of adhesive	
Inner Diameter:		[mm]		

Pre-conditioning:

	Conditions	Duration days
Client: (Information supplied by client)		
Test Laboratory:	Standard 23/50-1 DIN 50014	23

Sample preparation:

Exposed surface: Adhesive

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5. Test results:

Test apparatus: DIN 50 050		Sample:	1	2	3	4	5	Avg.
Ignition	at	[min:s]	1:01	0:54	1:02	1:09	0:58	1:01
	Afterflame time	[s]	0	0	0	0	0	0
Glowing	at	[min:s]	1:05	1:13	1:18	1:25	1:14	1:15
	Afterglow time	[s]	0	0	0	0	0	0
Flame height	Maximum	[cm]	7	7	7	7	7	7
	at	[min:s]	3:00	3:00	3:00	3:00	3:00	3:00
Falling debris	at	[min:s]	---	---	---	---	---	
	Burning duration	[s]	---	---	---	---	---	---
Smoke density	Maximum	(%)	1	1	1	1	1	1
	at	[min:s]	3:05	3:06	3:05	3:15	3:05	3:07
Integral of smoke development		[% *min]	1	1	1	1	1	1
Max. length of damaged area		[cm]	9	9	9	9	9	9,0
Termination by extinguishing at		[min:s]	---	---	---	---	---	
Burning or melting through the sample		[yes/no]	no	no	no	no	no	

Observations:

6. Test equipment:

Test apparatus	PK	0011
Sliding gauge	MB	0036
Balance	MW	0003
Light measurement system	ML	0003
Data aquisition	MC	0007
Burner nozzle	BN	0002
Mass flow meter	MG	0045

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7. Requirements:

Standard	Criteria	Classification
DIN 5510 Part 2	**Combustibility class**	
	Length of damaged area: ≤ 30 cm Afterflame time: Burning to the end of test and extinguishing allowed	S2
	Length of damaged area: ≤ 25 cm Afterflame time: ≤ 100 s (no single value ≥ 120 s)	S3
	Length of damaged area: ≤ 20 cm Afterflame time: ≤ 10 s	S4
	Length of damaged area: 0 cm Afterflame time: 0 s	S5
	Smoke development class	
	Integral of smoke development: > 100 %•min	SR1 not achieved
	Integral of smoke development: ≤ 100 %•min	SR1
	Integral of smoke development: ≤ 50 %•min	SR2
	Dripping class	
	Burning droplets / debris	ST1
	No burning droplets / debris *	ST2

* A classification as ST2 can also be achieved in case of burning droplets/debris, provided that the average time of afterburning is ≤ 20 seconds

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8. Pictures: