I. Test item

Product:	Fire limitation blanket
Type (Model, Item No., etc.):	CFB2186
State of Construction:	new
Manufacturer:	Prosol UK Sales and Distribution Ltd
Country:	United Kingdom
GRN (Goods Receipt Number):	1781
GR Date (Goods Receipt Date):	10.12.2024



Issue date of test report: 13.05.2025

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A. Abou Alfeh

Test Report created by: A. Abou-Alfeh

ACCREDITED TESTING LABORATORY PZT

II. Description of test sample

Product name:	FIRE CLOAK™ – Electric Vehicle Fire Blanket
Type: (Model, Item No., etc.)	CFB2186
Size according to the manufacturer's specifications	Lengths 8 m Widths 6 m
Weight according to the manufacturer's specifications	28 kg
Colour	Base material: silver - grey
Materials used according to the manufacturer's specifications	Glass fibre fabric (Product Code: FBM8060) with fire resistant silicone coating to both sides: raw fabric – 420 g/m² (± 5% tolerance) coated fabric – 520 g/m² (± 10% tolerance)
Applicable documents	/*1 Document No.: WIL - 550219 dated 14/03/2025, Element Materials Technology /*2 Manufacturer's declaration of PFAS-free materials dated 11/04/2025 /*3 Certificate No.: 27775/01 Issue 01 dated 14/03/2025, Particle Technology Ltd. /*4 Document No.: FIRES-CR-072-25-AUPE dated 29/04/2025 /*5 Manufacturer's declaration of chemical resistance dated 11/04/2025

III. Period of conformity testing: 18.12.2024 to 13.05.2025

IV. General notes

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V. Client

Name: Prosol UK Sales and Distribution Ltd
Address: 14-16 Gleadless Road
Sheffield
Country: United Kingdom

Contact person: Andy Coulton
Tel. no.: +44 (0)114 255 7700
E-Mail: andy@prosol.co.uk
WEB: www.prosol.co.uk

VI. Accredited testing laboratory

PZT GmbH
Bismarckstraße 264 B
26389 Wilhelmshaven

Tel. No.: +49 (0)4421 / 70340
E-Mail: office@pzt-lab.de

VII. Standards / requirements:

DIN SPEC 91489:2024-11	Requirements for fire limitation blankets for use with electric vehicles

VIII. Environmental conditions during testing

The climate was monitored during the tests. The requirements according to the applicable standards were adhered to.

IX. Measuring instruments

The measuring instruments are calibrated on a regular basis; the measuring aids are maintained on a regular basis.

X. Abbreviations

P requirement fulfilled
F requirement not fulfilled
N/A not applicable
N/T not tested

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Summary of results

Test results

5 General requirements

5.1 Design — P

Requirement A fire limitation blanket can consist of one or more composite layers of material.

Result The fire limitation blanket consists of a single layer of material.

5.2 Marking on the top / bottom side of blanket — N/A

Requirement Fire limitation blankets can have a top and bottom side made of different materials. If this is the case, the sides shall be marked accordingly.

Result The fire limitation blanket consists of a single material.

5.3 Design — P

Requirement Fire limitation blankets shall be rectangular, with a square also to be considered as a rectangle.

Result The blanket is rectangular.

Length: 8 m
Width: 6 m

5.4 Weight — P

Requirement The weight of the fire limitation blanket shall be specified in the manufacturer's information.

Result The weight is specified in the manufacturer's information.

5.5 Tolerances — P

Requirement The dimensional tolerances shall be specified in the data sheet and be ≤ 5%.

Result Tolerance values are specified in the technical documentation: ± 5%

5.6 Loops **P**

Requirement

a) be positioned on at least all four corners of the fire limitation blanket;
b) be at least of low ignitability in accordance with DIN EN 13501-1 (alternatively in accordance with FMVSS 302);
c) be of different colours for non-square fire limitation blankets, so that the removal direction can be clearly identified. The loop straps at the pulling side shall be red; and
d) be able to enclose a cylinder with a diameter of at least 0,15 m.

Result

a) Four loops are present
b) low ignitability in accordance with FMVSS 302 /*1
c) The loop straps at the pulling side are red, the others are black
d) Enclose a 15 cm cylinder

5.7 Markings **P**

Requirement

a) the respective centre point of the sides of the fire limitation blanket; and
b) for fire limitation blankets that can only be used on one side, markings for the top and bottom side.
The markings for positioning of the fire limitation blanket are not required to have increased heat protection.

Result

a) There are four markings in the centre of the sides
b) Not applicable

5.8 Edges **P**

Requirement

Open sewing edges shall be protected against detachment of threads.

Result

Open sewing edges are protected with a silicon coating against detachment of thread.

5.9 Service life **P**

Requirement

Manufacturers shall specify in the manufacturer information the product service life of a fire limitation blanket during which its functionality is guaranteed without use in the event of fire and in accordance with the conditions specified in the manufacturer’s information.

Result

Specification in the manufacturer’s information: available

5.10 Reusability / disposal **P**

Requirement The necessary information for this must be provided by the manufacturer in the accompanying manufacturer's documentation.

Result Specification in the manufacturer's information: available

5.11 eCall **P**

Requirement It shall be specified on the fire limitation blanket whether the fire limitation blanket is radio frequency permeable (e.g. eCall/mobile radio).

Result Specification on the product label of the fire limitation blanket: available

5.12 Deformation **P**

Requirement Fire limitation blankets shall be rolled completely around a (100 ± 10) mm diameter bar, and along any axis parallel to adjacent sides.

Result Conditioning and testing climate:
(20 ± 10) °C, (60 ± 10) %
Conditioning time: 24 h
Result: easily rollable

5.13 Applicability **P**

Requirement To prove the applicability, the manufacturer shall demonstrate the use of each model of fire limitation blanket by a maximum of two people on a vehicle with a width of at least 1,9 m, a height of at least 1,5 m, and a length of at least 4,75 m within 30 s. For this purpose, the fire limitation blanket shall be in its storage container before the test is started. The entire process shall be documented with video recordings. The use shall be demonstrated with both a dry and a wet vehicle.

Result The requirement has been met by trained personnel. The testing process was documented with video recordings.

5.14 PFAS **P**

Requirement Due to the ongoing regulatory activities regarding perfluoroalkyl and polyfluoroalkyl substances (PFAS), PFAS-free materials should be used wherever possible in the design of fire limitation blankets.

Result /*2
The manufacturer declares that only PFAS-free materials used.

5.15 Storage container **P**

Requirement A fire limitation blanket shall be stowed in a storage container that ensures that the functionality of the fire limitation blanket is permanently maintained. The storage container shall guarantee at least IP65 protection according to DIN EN 60529 (VDE 0470-1). The size of the storage container shall be selected in such way that the fire limitation blanket can be stowed away manually after multiple use as intended.

Result /*3
The fire limitation blanket is stored in a sufficiently large carrying bag, which ensures that its functionality is preserved over time and allows for manual repacking after repeated use.

5.16 Scope of delivery of the fire limitation blanket **P**

Requirement The scope of delivery of the fire limitation blanket shall always include a suitable storage container that meets the requirements described in 5.15. This requirement does not apply if a fire limitation blanket is replaced.

Result The fire limitation blanket is supplied including a suitable storage container that fulfils the requirements described in section 5.15.

5.17 Polybag **P**

Requirement To ensure the identification of the covered vehicle, the fire limitation blanket shall be delivered with a transparent, waterproof document pouch for the identification of the vehicle, which can hold at least an unfolded A4-sized piece of paper. This document pouch does not need to have an increased heat protection.

Result Document pouch is available.

6 Thermal resistance

6.1 Thermal resistance, DIN SPEC 91489, Annex A

Requirement

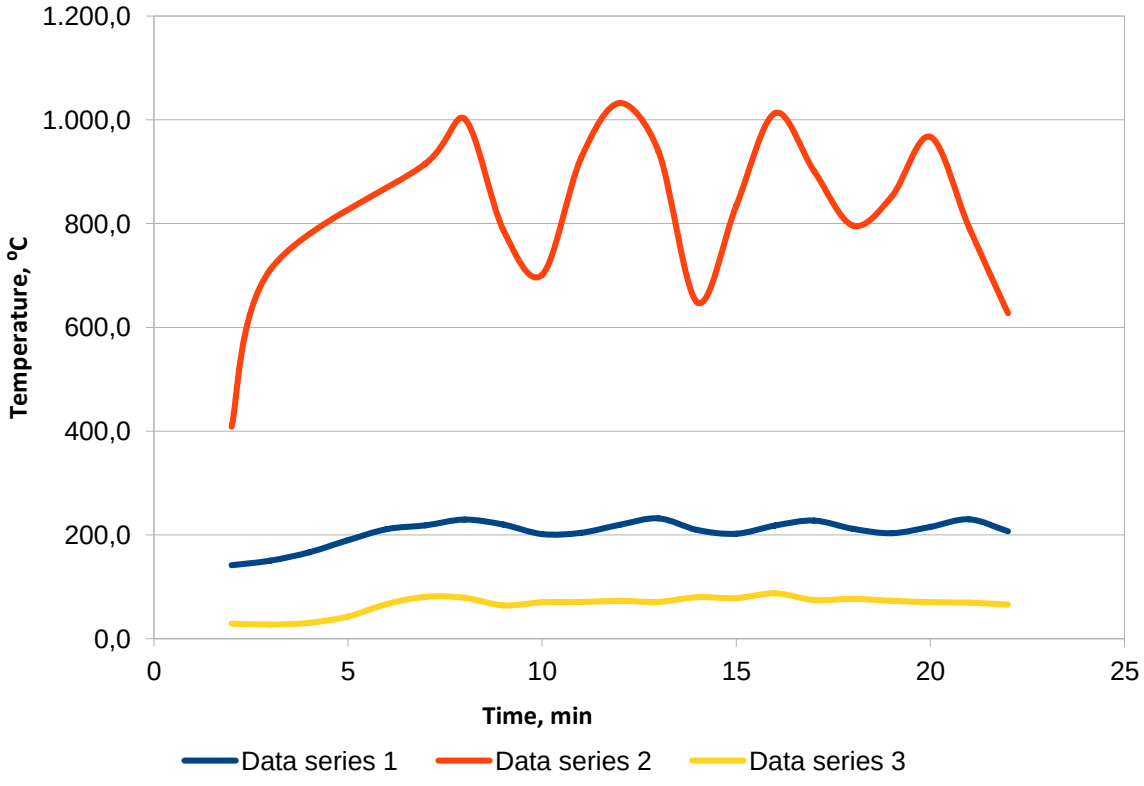
The procedure of the thermal resistance test is described in Annex A.

A.4.6 Testing of the continuous thermal load of the fire limitation blanket with direct flame exposure:
- the test specimens show no holes or seam failure at the end of the test.

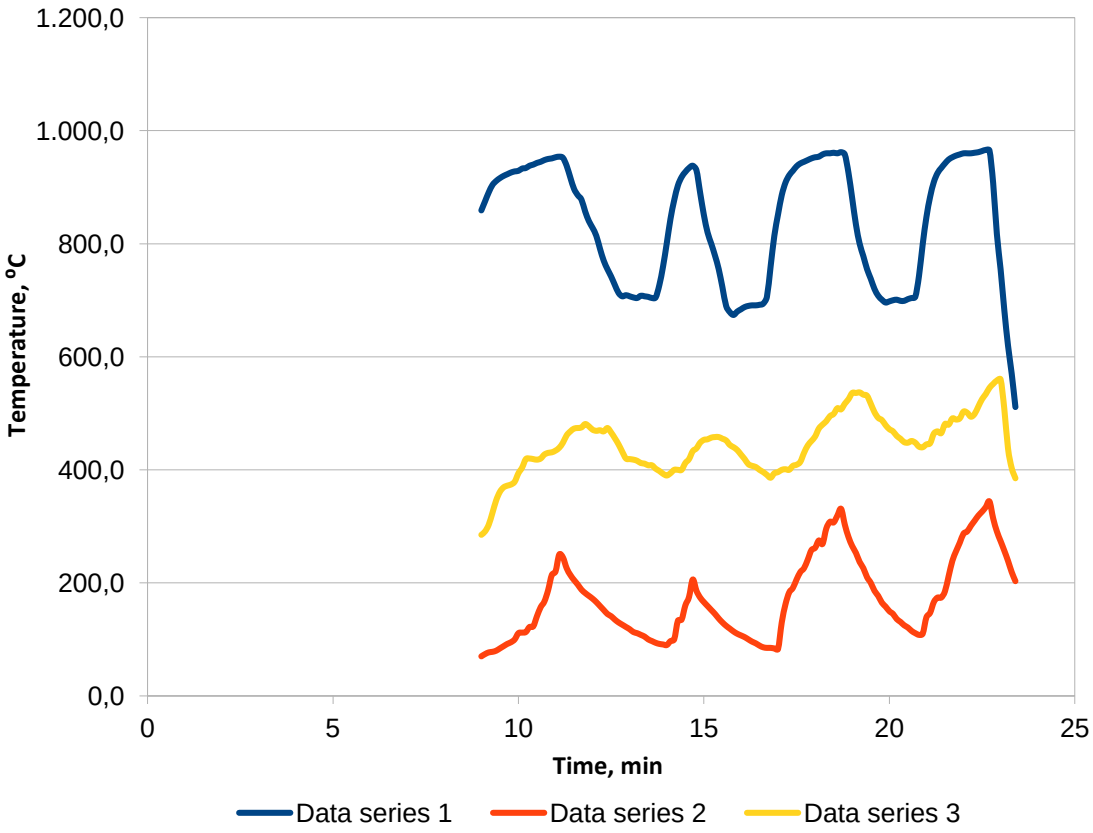
A.4.7 Testing of the continuous thermal load of the fire limitation blanket exposure with use of fire extinguishing agents without direct exposure to flames:
- no flames emerge from the outside of the indirectly flamed side of the fire limitation blanket for more than 5 s during the test; and
- the test specimens show no holes or seam failure at the end of the test.

Result

During test (with direct and no direct flame exposure), the fire limitation blanket showed no signs of holes or seam failure at the end of the test, and no flames emerged.
The test result refers to the condition of the blanket at the end of the test, while it was still on the testing rig.



Graphic 1: Direct flame exposure



Graphic 2: Without direct flame exposure

6.2 Thermal resistance, DIN SPEC 91489, Annex A

N/A

Requirement It is permissible to transfer results of the thermal resistance test (Annex A) to fire limitation blankets of different types if the structure of the different types is identical throughout.

Result --

6.3 Thermal resistance, DIN SPEC 91489, Annex A

N/A

Requirement Different models of fire limitation blankets do not require different fire behaviour tests.

Result --

6.4 Thermal resistance according to DIN EN 13501-1 P

Requirement Fire limitation blankets shall be of at least building material class B with d0 (low ignitability without flaming droplets/particles) in accordance with DIN EN 13501-1.

Result /*4
Reaction to fire classification: A2 – s1, d0

7 Mechanical stability

7.1 Resistance to cutting P

Requirement The resistance to cutting of fire limitation blankets shall be tested in accordance with DIN EN ISO 13997 and must achieve at least performance level A (medium cut protection level). This corresponds to a test value of ≥ 2 N according to the cut test method in accordance with DIN EN ISO 13997.

Result Test method according to EN ISO 13997:2023
Conditioning and test climate: (20 ± 2) °C, (65 ± 4) %
Conditioning duration: 24 h

Sample Cut	x Force, N	Stroke length, mm	y Stroke length with correction factor, mm (normalized)	y'=log10y	$(x_i-X)^2$
1	17,5	43,0	40,7	1,610	1
2	17,5	43,3	41,0	1,612	1
3	17,5	42,5	40,3	1,605	1
4	17,5	36,3	34,4	1,536	1
5	17,5	39,2	37,2	1,570	1
6	18,5	31,3	29,6	1,472	0
7	18,5	27,2	25,8	1,411	0
8	18,5	30,5	28,9	1,461	0
9	18,5	27,9	26,4	1,422	0
10	18,5	29,2	27,7	1,442	0
11	20,0	10,0	9,5	0,976	2
12	20,0	11,3	10,7	1,029	2
13	20,0	10,0	9,5	0,976	2
14	20,0	8,8	8,3	0,919	2
15	20,0	9,9	9,3	0,971	2

Blade sharpness correction factor: C = K / L

K = 20;
L – mean value of ten measurements of the cutting stroke length (mm) on neoprene at a force of 5.0 N

Correction factor, **C**	Cutting stroke length (mm), **L**
0,947	21,1

Regression Parameters:

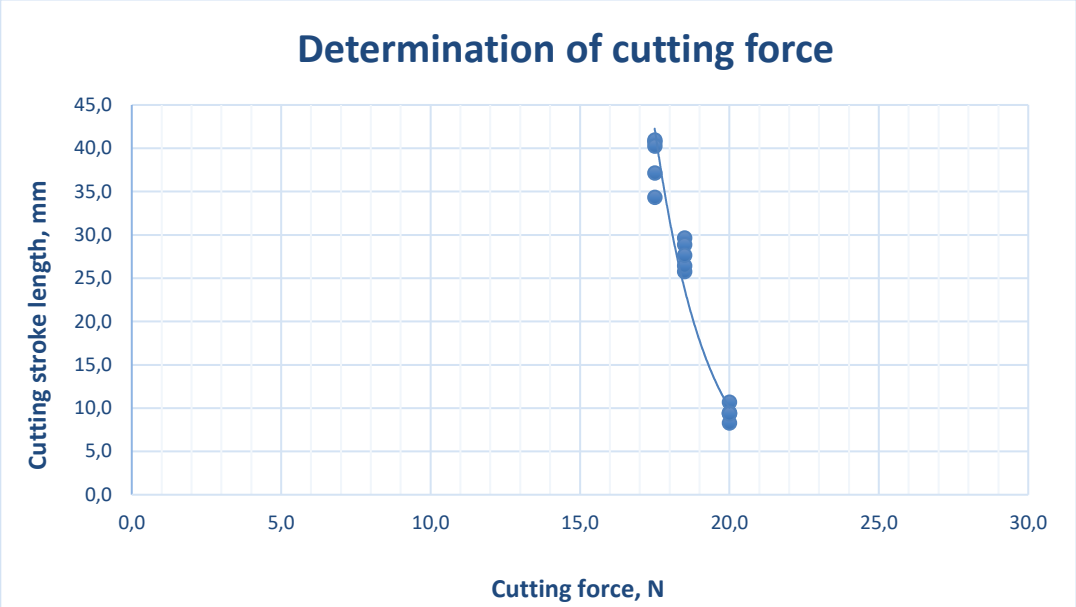
n	15	Number of measurements
X	18,7	Overall mean load, N
$\sum(x_i-X)^2$	16	

b_1	-0,250	6,005	b_0
se_1	1,49E-02	2,79E-01	se_0
r^2	0,9558	5,94E-02	se_y
F	281,12	13	df
ss_{reg}	9,92E-01	4,59E-02	ss_{resid}

MSE	3,53E-03	Mean square error

y_r	20	Reference distance, mm
x_r	18,8	Calculated cutting force, N
s	0,25	Standard deviation, N
t	2,16	95% Confidence limit and interval, N
x_r +/-	0,53	

b_1	Slope of the regression line
b_0	Intercept of the regression line
se_1	Standard error value for the coefficient b_1
se_0	Standard error value for the coefficient b_0
r^2	Coefficient of determination
se_y	Standard error for the y estimate
F	F statistic
df	Degree of freedom
ss_{reg}	Sum of squares regression
ss_{resid}	Sum of squares residual



Picture 1: *Recording of the cutting force in relation to the cutting stroke length with correction factor C and the resulting regression line*

The calculated cutting force x_r for a cutting stroke length of 20 mm is (18,8 ± 0,5) N

Achieved performance level: D

Deviations from the test method: Test cuts were made at an angle of (45 ± 5)° to the warp and weft direction according EN 13997.

7.2 Increased cut protection

P

Requirement

Fire limitation blankets with increased cut protection shall at least reach performance level D (high cut protection level) in accordance with DIN EN ISO 13997. This corresponds to a test value of > 15 N in accordance with the cut test procedure to DIN EN ISO 13997.

Result

Performance level D is reached.

7.3 Stability of the handling loop straps and of the entire fire limitation blanket

P

Requirement

The stability of the handling loop straps and of the entire fire limitation blanket is tested using a diagonal weight load.

Result

Conditioning and test climate: (20 ± 10) °C, (60 ± 10) %
Conditioning duration: 24 h
The test was conducted both vertically and horizontally.
Result:
- No tearing within the fire limitation blanket,
- Neither of the two loaded retaining loops was torn off

7.4 Eyelets — N/A

Requirement If there are eyelets in the fire limitation blanket, they shall meet the requirements of the load-bearing capacity for loop straps according to 7.3.

Result No eyelets present

8 Electrostatic charge — P

Requirement Note in the manufacturer's information:
Fire limitation blankets are pulled over the electric vehicle during use, which can lead to frictional electricity.

Result Specification in the manufacturer’s information: available

9 Protection from electric shock — P

Requirement Note in the manufacturer's information:
The fire limitation blanket does not provide protection against electric shock.

Result Specification in the manufacturer’s information: available

10 Chemical resistance — P

Requirement The functionality of the fire limitation blanket shall be ensured in the event of contact with typical contaminants during use (oils, greases, petrol, water with extinguishing agents etc., battery acids, etc.).

Result /*5
The manufacturer confirms the chemical resistance of the product.

11 Marking

11.1 Language — P

Requirement All information and markings should be consistent and in plain language.

Result available

11.2 Blanket **P**

Requirement Each fire limitation blanket shall have a permanent and clearly visible marking with the manufacturer's and/or distributor's name and address, the DIN SPEC number and the year of publication of this document, the manufacturing date of the fire limitation blanket (month and year), the model and type number, and a batch number.

Result All information available

11.3 Container **P**

Requirement The position and arrangement of the container markings as well as their font style and contrast should be designed in such a way that they are easily legible for the person using them. The country-specific designation and an English designation shall be visible on the container in capital letters in a light colour on a dark background or in a dark colour on a light background. If the container is permanently attached to the storage place, the information shall be affixed in such way that it is still visible.

Result available

11.4 Symbol **N/A**

Requirement A graphic symbol with a minimum side length of 0,1 m shall be affixed to the storage container.

Result As part of the work on DIN SPEC 91489:2024-11, the development of a graphic symbol was initiated at ISO.

11.5 Pictogram **P**

Requirement The manufacturer shall provide sufficiently large pictograms regarding the use of the fire limitation blanket as directly legible information.

Result available

12 Manufacturer's information

P

Requirement The following specifications and information shall be included in the manufacturer's information supplied:

Result

		present
a)	model and type designation, as well as name and address of the manufacturer and/or the distributor;	✓
b)	basic material of the fire limitation blanket and number of the layers used;	✓
c)	size and weight of the fire limitation blanket, including tolerances;	✓
d)	requirements for multiple use (see 5.10) and the necessary instructions for cleaning the fire limitation blanket and its proper disposal;	✓
e)	a note that the fire limitation blanket shall be disposed of properly after use in the event of a fire;	✓
f)	a note that the fire limitation blankets in accordance with this document do not provide additional burst protection;	✓
g)	a note that the fire limitation blanket inhibits flue gas distribution; but does not prevent it;	✓
h)	a note regarding possible electrostatic charges (see Clause 8);	✓
i)	a note that the fire limitation blankets do not provide protection against electric shock (see Clause 9);	✓
j)	service life of the fire limitation blanket without fire contact and necessary information from the manufacturer to be able to estimate the service life of the fire limitation blanket;	✓
k)	ambient temperature for the fire limitation blanket;	✓
l)	a note that direct spraying with a fog nozzle by the fire brigade shall be avoided;	✓
m)	information regarding existing markings on the fire limitation blanket;	✓
n)	information regarding necessary steps for commissioning the fire limitation blanket;	✓
o)	a note that the fire limitation blanket should only be used by instructed personnel;	✓
p)	a note that the size of the fire limitation blanket should be selected so that it completely covers the critical object and also lies flat on the ground by at least 0,5 m on all sides;	✓
q)	a note that the ground (e.g. presence of a manhole tops, gully tops, bottom drain or similar) can have an influence on the functionality of the fire limitation blanket during use;	✓
r)	a note that the fire limitation blanket should be fixed during use if necessary, examples of how the fire limitation blanket can be fixed, and information on any pressure surges that may occur;	✓

		present
s)	information on monitoring, as subsequent re-ignition can occur and precautions should therefore be taken to monitor the temperature;	✓
t)	instructions that specify a periodic visual inspection for damage in accordance with the manufacturer's recommendations; An annual visual inspection should be recommended when the fire limitation blanket is not in use;	✓
u)	instructions for folding the fire limitation blanket;	✓
v)	cut protection level according to 7.1 or 7.2 and reference to test standard DIN EN ISO 13997;	✓
w)	pictograms or other illustrations explaining the use of the fire limitation blanket; and	✓
x)	information on radio frequency permeability.	✓

-- End of the test report --