

AIM ALTITUDE

Pembroke Avenue, Waterbeach,
Cambridge CB25 9QR
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FIRE TEST REPORT

2795

Lab. Ref. No.:	FST33105 Iss 1	S.O No.:	L17498	Page 1 of 2
Material:	VFR603 SILICONE RUBBER			
Customer:	VIKING EXTRUSIONS LTD	P.O. No.:	23463	
Date of Test:	11/10/2016	Ref. Note No.:		
Specimen Conditioning:	24hr. min. at 22.5 +/- 1.5°C and 50 +/- 5% RH		Test Plan / Document	

TEST METHOD / SPECIFICATION	TEST RESULT			MEAN	CRITERIA (max. average)	PASS/FAIL	
	1	2	3				
FLAMMABILITY							
F1 CS 25.853(a) Amdt.18 App.F PLI(a)(1)(i) & (b)(4) 60s. Vert.	Afterflame (sec)	0.0		0.0	15sec.	PASS*	
	Burn Length (in)	1.2		1.2	6in.		
	Drip Exting Time (sec)	0.0		0.0	3sec.		
F2 CS 25.853(a) Amdt.18 App.F PLI(a)(1)(ii) & (b)(4) 12s. Vert.	Afterflame (sec)				15sec.		
	Burn Length (in)				8in.		
	Drip Exting Time (sec)				5sec.		
F3 CS 25.853(a) Amdt.18 App.F PLI(a)(1)(iv) & (b)(5) 15s. Horiz.	Burn Rate (in/min)				2.5in/min.		
F4 CS 25.853(a) Amdt.18 App.F PLI(a)(1)(v) & (b)(5) 15s Horiz.	Burn Rate (in/min)	0.0			4.0in/min.	PASS*	
F5 CS 25.855(d) Amdt.18 App.F PLI(a)(2)(ii) & (b)(6) 30sec/45°	Afterflame (sec)				15sec.	PASS*	
	Afterglow (sec)	0.0			10sec.		
	Flame Penetration				NONE		
F6 CS 25.1713(c) Amdt.18 App.F PLI(a)(3) (b)(7) 30sec/60°	Afterflame (sec)				30sec.		
	Burn Length (in)				3in.		
	Drip Exting Time (sec)				3sec.		
HEAT RELEASE *							
F7 CS 25.853(d) Amdt 18 App.F PLIV (e) & (g)	min. Total HR (kWmin/r)				65(kWmin/m²)		
	Peak HR (kW/m²)				65(kW/m²)		
SMOKE EMISSION *							
F8 CS 25.853(d) Amdt 18 App.F Pt.V(a) & (b)	Ds Max in 4 min. (Flaming)				200		
SMOKE EMISSION *							
F9 ABD0031 IssF/D6-51377 REVG ABD0031IssF	Ds Max in 4 min. (Flaming)	34.22		34.22	200	PASS*	
	(Non Flaming)				200		
TOXIC GAS EMISSION (ppm) F10 ABD0031 IssF/D6-51377 REVG	CO (Flaming)	156		156	1000	PASS*	
	CO (Non-Flaming)						
	HCN (Flaming)	<2					150
	HCN (Non-Flaming)						
	HF (Flaming)	<2					100
	HF (Non-Flaming)						
	HCl (Flaming)	<2					150
	HCl (Non-Flaming)						
	SO ₂ (Flaming)	25			25		100
	SO ₂ (Non-Flaming)						
NO _x (Flaming)	1			1	100		
NO _x (Non-Flaming)							

* SEE ATTACHED GRAPHS FILENAMES: 16100118.SBA

The results detailed above relate only to the items tested.

COMMENTS

*INDICATIVE TEST ONLY

Flammability: Flame Temp. (Min. 843C (1550F)):

°C

Heat Release:

Calibration Factor:

0.2797 kW/mV

Smoke Emission: Heat Flux (25 +/- 0.5kW/m²):

25.0

Heat Flux (35 +/- 0.5kW/m²):

TESTED BY:

AUTHORISED BY:

NAME:

N. ORPWOOD

TITLE:

TEST ENGINEER

DATE:

11/10/2016

NAME:

D. MOORE

TITLE:

TEST LABORATORY MANAGER

DATE:

11/10/2016

UNCERTAINTY OF MEASUREMENT

Flammability - Afterflame/Drip Exting Time +/- 0.7sec, Burnlength +/- 0.1in, Burn Rate +/- 0.1in/min Heat Release - +/- 1.5% Smoke Emission - +/- 4% Toxic Gas Emission - +/- 15%

LAB.FP.27 Issue 7

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FIRE TEST REPORT

Lab. Ref. No.:	FST33105 Iss 1	S.O No.:	L17498	Page 2 of 2
Material:	VFR603 SILICONE RUBBER			
Customer:	VIKING EXTRUSIONS LTD	P.O. No.:	23463	
Date of Test:	11/10/2016	Rel. Note No.:	0	
Specimen Conditioning:	24hr. min. at 22.5 +/- 1.5°C and 50 +/- 5% RH	Test Plan / Document	0	

Test Laboratory Equipment Used

"H" Number	"P" Number	Instrument	Serial No.	Expiry Date	Item Used For Test
270	001	OSU Chamber	K11234	27 November 2016	
275	004	Radiometer	101	06 July 2017	
421	012	Vertical Flam Chamber	N/A	06 July 2017	*
422	013	Horizontal Flam Chamber	N/A	06 July 2017	*
286	033	HAVEN THERMOCAL II CALIBRATOR	29461-116		
464	072	Vatell TG1000-1	9022	18 May 2017	
490	099	Data Acquisition/Switch Unit	MY41028196	12 October 2016	
524	121	FTT Smoke Box	1111527	06 January 2017	*
	71	Radiometer	882	14 March 2017	*
530	123	testo 350 flue gas analyzer	2293549	18 February 2017	*
	164	STOP WATCH	31819-TM	04 April 2017	*
508	114	TME TEMP READER	MM2030	06 July 2017	*
	109	Conditioning chamber	C17842	25 July 2017	*
586	146	16 Channel Reed Multiplexer	MY41017297	12 October 2016	
-	155	WET GAS METER	0.53F.GH4	22 June 2017	
-	156	Dräger X-act 500	ERHC-0715	06 July 2017	*
-	157	Dräger X-act 500	ERHC-0041	06 July 2017	*
-	158	Dräger X-act 500	ERHC-0135	06 July 2017	*
-	159	45/60° flamm chamber	N/A	20 October 2016	*
15	160	BRASS WEIGHTS	N/A	04 January 2017	
88P5	ORPWOOD	12" Steel rule	N/A	19 April 2017	*

COMMENTS

CALIBRATION/EQUIPMENT CHECKED BY:

NAME:
TITLE:
DATE:

N.ORPWOOD
TEST ENGINEER
11/10/2016



COMPOSITES



Smoke Density Chamber Single Specimen Report

Laboratory

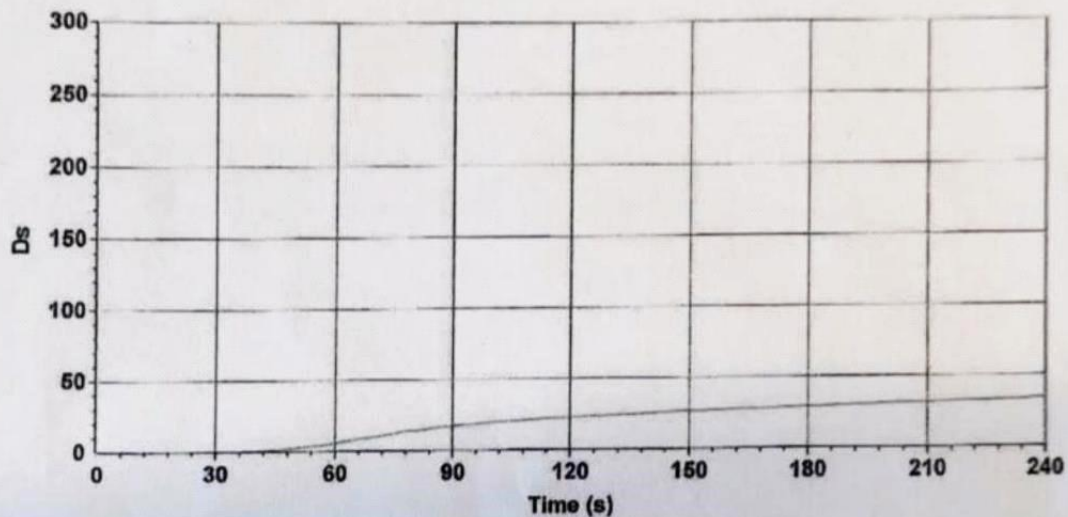
Test name

File name

FST33105 VFR603 SILICONE RUBBER

C:\SMOKEBOX\DATA\ASTME662\16100118.SBA

Specific Optical Density Graph



Maximum specific optical density 34.22 (at 240 s)

After-test comments

Tabulated Results

Time (s)	T (%)	Ds
0	100.0	0.0
30	99.5	0.2769
60	90.2	5.906
90	73.9	17.34
120	67.2	22.83
150	63	26.47
180	60.1	29.19
210	57.5	31.71
240	55	34.22

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

AVIC Cabin Systems (UK) Limited
26 Pembroke Avenue
Waterbeach
Cambridgeshire
United Kingdom, CB25 9QR
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www.aviccabinssystemsuk.com



2795

UKAS IEC/ISO 17025:2017

Nadcap Non-Metallic Materials Testing

An Airbus Approved Test House
ARP-ID 135583

Fire Safety Test Report

Lab Reference No: FST51261 Issue 1
Sales Order No: SE16912
Customer: VIKING EXTRUSIONS
Purchase Order No: 29192
Material/Part No: JOB NO: 56468. SHORE HARDNESS: VFR603. BATCH NO: MS25686.
CURE DATE: 13-09-22
Date of Test: 20 October 2022
Conditioning: EASA - 24hr. min. at 21 +/- 3°C and 50 +/- 5% RH
Time In: 17/10/2022 10.00 **Time Out:** 20/10/2022 12.30
Release Note No: N/A
Test Plan / Document: N/A

Tests Results

Test Method/ Specification	F4 CS 25.853(a) Amdt.27 App.F Pt.I(a)(1)(v) & (b)(5) 15 second horizontal
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	TEST RESULT					MEAN	CRITERIA (max average)	PASS/ FAIL
	1	2	3	4	5			
Burn Rate (in/min)	0.00	0.00	0.00			0.00	4.0 in/min.	PASS

Comments & Observations	Sample failed to ignite and reach timing marker
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Compiled By:

I here by attest that this report has been generated in accordance with customer and regulatory requirements; recorded results reflect the test activity and test requirement.

Name Steve Ellis
Title Test Laboratory Engineer
Date 21 October 2022

Signed & Stamped

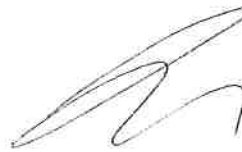



Tested By:

I here by attest that test(s) have been conducted in accordance with customer and regulatory requirements, and all equipment is within calibration and fit for function; recorded results reflect the test activity and test requirement.

Name Steve Ellis
Title Test Laboratory Engineer
Date 21 October 2022

Signed & Stamped




Approved By:

I here by attest that this report and stated results have been generated in accordance with customer and regulatory requirements; recorded results reflect the test activity and test requirement.

Name Dominic Moore
Title Head of Quality
Date 21 October 2022

Signed & Stamped




Equipment Used

Unique "P" No.	Description	Next Calibration Date
P234	CONDITIONING CHAMBER	12 November 2022
P342	DIGITAL THERMOMETER	21 July 2023
P013	HORIZONTAL FLAM CHAMBER	22 June 2023
P333	STEEL RULE	26 October 2022
P337	STOPWATCH	03 March 2023
P331	THERMOCOUPLE	21 July 2023

Notes

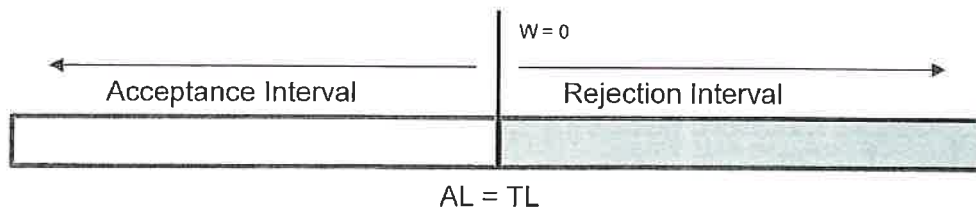
- Note 1** Results detailed in this report relate only to the item(s) tested, as submitted by the customer.
- Note 2** This test report **will not** be reproduced, except in full, without written approval from the laboratory.
- Note 3** Opinions and Interpretations are not accredited.
- Note 4** The material identification and/or descriptions have been supplied by the customer and has not been verified by AVIC Cabin Systems (UK) Limited.
- Note 5** The laboratory activities related to these results have been performed under our UKAS and Nadcap scopes of approval/accreditation. Results are reported as accredited, except in indicative instances.

Note 6 Decision Rule

The laboratory at AVIC Cabin Systems (UK) Limited employs the "Simple Acceptance" or "Shared Risk" decision rule as a default (unless otherwise specified by the customer). This is a binary decision rule, the acceptance limit (AL) is considered equal to the tolerance limit (TL) and the guard band (w), equal to length 0. Therefore, the specific risk can be up to 50% probability of false acceptance (PFA), as referenced in ILAC-G8:09/2019.

PASS - Result is below the acceptance limit, $AL = TL$

FAIL - Result is above the acceptance limit, $AL = TL$



Note 7 Uncertainty of measurement

Flammability - Afterflame/Drip Exiting Time +/- 0.7sec, Burnlength +/- 0.1in, Burn Rate +/- 0.1in/min

Smoke Emission - +/- 4%, Toxic Gas Emission - +/- 15%

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UKAS IEC/ISO 17025:2017

Nadcap Non-Metallic Materials Testing

An Airbus Approved Test House
ARP-ID 135583

Fire Safety Test Report

Lab Reference No: FST51500 Issue1

Sales Order No: SE17053

Customer: VIKING EXTRUSIONS

Purchase Order No: 29288

Material/Part No: JOB NO: 59205. SHORE HARDNESS: VFR603. BATCH NO: 2323607.
CURE DATE: 24-11-22

Date of Test: 13 December 2022

Conditioning: EASA - 24hr. min. at 21 +/- 3°C and 50 +/- 5% RH

Time In: 08/12/2022 12.00

Time Out: 13/12/2022 13.50

Release Note No: N/A

Test Plan / Document: N/A

Tests Results

Test Method/ Specification	F1 CS 25.853(a) Amdt.27 App.F Pt.I(a)(1)(i) & (b)(4) 60 second vertical
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	TEST RESULT					MEAN	CRITERIA (max average)	PASS/ FAIL
	1	2	3	4	5			
Afterflame (sec)	6.46	3.72	10.93			7.04	15 sec	PASS
Burn Length (in)	0.80	0.80	0.90			0.83	6 in	
Drip Exting Time (sec)	0.00	0.00	0.00			0.00	3 sec	

Comments & Observations	
------------------------------------	--

Compiled By:

I here by attest that this report has been generated in accordance with customer and regulatory requirements; recorded results reflect the test activity and test requirement.

Name Mark Mueller
Title Test Laboratory Engineer
Date 13 December 2022

Signed & Stamped






Tested By:

I here by attest that test(s) have been conducted in accordance with customer and regulatory requirements, and all equipment is within calibration and fit for function; recorded results reflect the test activity and test requirement.

Name Mark Mueller
Title Test Laboratory Engineer
Date 13 December 2022

Signed & Stamped

Witnessed By:

I here by attest that this report and stated results have been generated in accordance with customer and regulatory requirements; recorded results reflect the test activity and test requirement.

Name David Heyes-Fisher
Title Test Laboratory Manager
Date 13 December 2022

Signed & Stamped

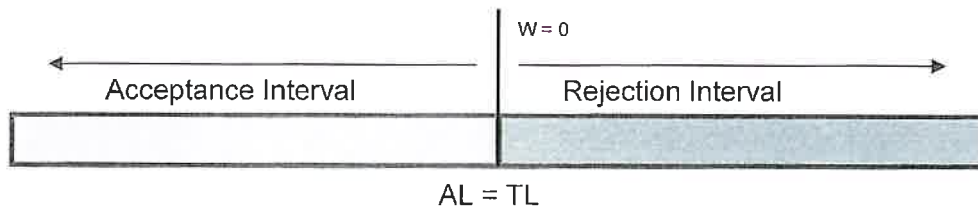



Equipment Used

Unique "P" No.	Description	Next Calibration Date
P234	CONDITIONING CHAMBER	13 December 2022
P342	DIGITAL THERMOMETER	21 July 2023
P343	STEEL RULE	19 October 2023
P337	STOPWATCH	03 March 2023
P331	THERMOCOUPLE	21 July 2023
P012	VERTICAL FLAM CHAMBER	22 June 2023

Notes

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 This is a binary decision rule, the acceptance limit (AL) is considered equal to the tolerance limit (TL) and the guard band (w), equal to length 0.
 Therefore, the **specific risk** can be up to 50% probability of false acceptance (PFA), as referenced in ILAC-G8:09/2019.
PASS - Result is below the acceptance limit, AL = TL
FAIL - Result is above the acceptance limit, AL = TL



- Note 7 Uncertainty of measurement**
 Flammability - Afterflame/Drip Exiting Time +/- 0.7sec, Burnlength +/- 0.1in, Burn Rate +/- 0.1in/min
 Smoke Emission - +/- 4%, Toxic Gas Emission - +/- 15%

Prüfbericht / Test report

Nr. / No. 221123

vom / issued 20.12.2022

Auftraggeber / Customer: Viking Extrusions Ltd
Kontakt / contact Ivy Arch Road
BN14 8BX Worthing
UK

Auftragsdatum / Date of order: 14.10.2022
**Datum der Probenahme /
Date of sampling:** keine offizielle Probennahme durch einen
Beauftragten von Warringtonfire Frankfurt GmbH
*no official sampling of the specimen by a
representative of Warringtonfire Frankfurt GmbH*

**Eingang der Proben /
Date of sample arrival** 15.11.2022
**Datum der Prüfungen /
Date of test:** 22.11.2022

Auftrag / Order

Bestimmung der Rauchdichte und spezifischer Rauchgaskomponenten an einem Prüfmuster unter
Einwirkung von strahlender Wärme und Flammen.
*Determination of the specific smoke density and specific gas components of the smoke generated by
a material under the influence of radiant heat and flames.*

Beschreibung / Bezeichnung des Prüfgegenstandes / Description / designation of the test object

Produktname: VFR603
Product name: VFR603

Beschreibung der zugrunde liegenden Prüfverfahren / Description of the relevant test procedures

Rauchdichte Test nach / *Smoke Density Test in accordance with:*
- EASA / CS Part 25 §25.853 (d) and Appendix F Part V(b), Amendment 27
- ABD0031, Issue G and Test Method AITM 2.0007A, Issue 3

Toxizitäts Test nach / *Toxicity Test in accordance with:*
- ABD0031, Issue G and Test Method AITM 3.0005, Issue 2



Deutsche
Akkreditierungsstelle
D-PL-18354-01-00

1. Beschreibung des Probenmaterials / Description of the test material

1.1 Angaben des Auftraggebers / Details of the customer:

Produktname: VFR603
Product name: VFR603
Prüfseite: -
Face to be tested: -

Materialbeschreibung / Product description:

Detaillierte Angabe der Komponenten: Silikon Gummi
Detailed specification of the components: silicon rubber

Dicke: ca. 3 mm
Thickness: approx. 3 mm

Flächengewicht: n/a
Surface weight: n/a

Farbe: hell grau
Colour: light grey

Vorgesehener Einsatzbereich des Produktes: Silikon Extrusion
Intended end use of product: silicon extrusion

1.2 Bei der Probenvorbereitung durch Warringtonfire Frankfurt GmbH festgestellte Werte:
1.2 By Warringtonfire Frankfurt GmbH determined values:

Material / Material: Silikon Gummi / silicon rubber
Farbe / Colour: hell grau / light grey
Dicke / Thickness: ca. 3,09 mm / approx. 3.09 mm
Flächengewicht / Area weight: ca. 3668 g/m² / approx. 3668 g/m²

Prüfung nach mindestens 24 Std. Klimalagerung bei 23°C und 50% rel. Luftfeuchte.
Testing after conditioning at 23°C and 50% rel. humidity for at least 24 h.

2. Versuchsergebnisse / Test results:

Rauchdichte Test nach / Smoke Density Test in accordance with:

- EASA / CS Part 25 §25.853 (d) and Appendix F Part V(b), Amendment 27
- ABD0031, Issue G and Test Method AIM 2.0007A/B, Issue 3

Non flaming (NF)

DS at (min)

Worst case:	-						
Proben Nr. Sample no	1	2	3	4	5	6	Ds max bis 4 Min up to 4 min
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
Max Wert Max Value	-	-	-	-	-	-	-
Mittelwert Average	-	-	-	-	-	-	-
Grenzwert Limit				200			

Bestanden
ABD CS 25
- -
- -

Flaming (F)

DS at (min)

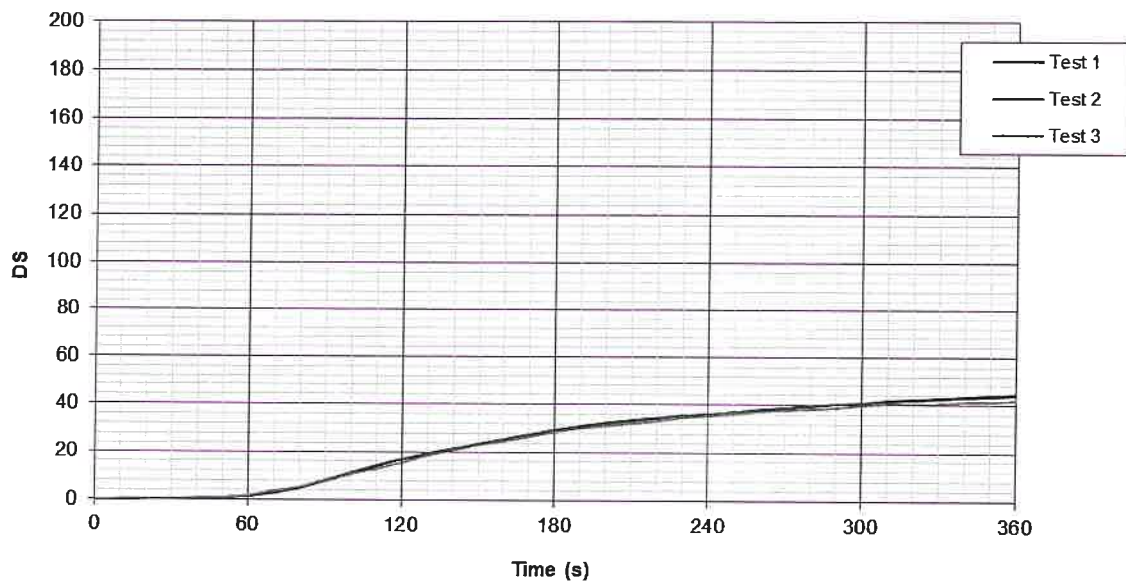
Worst case:	Längsrichtung/ Lengthwise						
Proben Nr. Sample no	1	2	3	4	5	6	Ds max bis 4 Min up to 4 min
Quer / cross							
1	1	17	30	37	41	44	37
2	2	17	29	36	41	44	36
3	2	16	28	35	40	42	35
Max Wert Max Value	2	17	30	37	41	44	
Mittelwert Average	2	16	29	36	41	43	
Grenzwert Limit				200			

Bestanden
ABD CS 25
ja ja
yes yes

Bemerkungen:
Remarks: Keine / none

2..1 Rauchdichte Diagramm / Smoke density diagram

Specific Optical Density Graph (Flaming)



2.2 Versuchsergebnisse / Test results:

Toxizitäts Test nach / Toxicity Test in accordance with:

- ABD0031, Issue G and Test Method AIM 3.0005, Issue 2

Gas	Gas Limit after 4 Min (ppm)	Non Flaming (NF)		Flaming (F)	
		Proben Nr. Sample no.		Proben Nr. Sample no.	
Hydrogen Cyanide HCN	150	1	-	1	2
		2	-	2	3
		3	-	3	2
		Mittelwert Average	-	Mittelwert Average	2
Carbon Monoxide CO	ABD 0031 no limit required	1	-	1	212
		2	-	2	243
		3	-	3	244
		Mittelwert Average	-	Mittelwert Average	233
Nitrous Gases NO-NO2	100	1	-	1	1
		2	-	2	1
		3	-	3	0
		Mittelwert Average	-	Mittelwert Average	1
Sulfur Dioxide Hydrogen SO2-H2S	Set A: 100 Set B: 150	1	-	1	0
		2	-	2	0
		3	-	3	0
		Mittelwert Average	-	Mittelwert Average	0*
Hydrogen Fluoride HF	100	1	-	1	0
		2	-	2	0
		3	-	3	0
		Mittelwert Average	-	Mittelwert Average	0*
Hydrogen Chloride HCL	150	1	-	1	0
		2	-	2	0
		3	-	3	0
		Mittelwert Average	-	Mittelwert Average	0*

Bemerkung/ Remark: * Nicht nachweisbar bzw. < Nachweisgrenze
Not detectable respectively < detection limit

3. Beurteilung / Assessment

Das in Abschnitt 1 beschriebene Material erfüllt die Anforderungen:
The material described in chapter 1 fulfils the requirements:

Rauchdichte Test nach / *Smoke Density Test in accordance with:*

- EASA / CS Part 25 §25.853 (d) and Appendix F Part V(b), Amendment 27
- ABD0031, Issue G and Test Method **AITM 2.0007A**, Issue 3

ja/yes

Toxizitäts Test nach / *Toxicity Test in accordance with:*

- ABD0031, Issue G and Test Method **AITM 3.0005**, Issue 2

ja/yes

4. Besonderer Hinweis / Special note

Das Brandversuchsergebnis gilt für das in Abschnitt 1 beschriebene Material.
The fire test result is only valid for the material described in chapter 1.

Im Verbund mit anderen Materialien (z.B. Beschichtungen, Hinterlegungen) kann das Brandverhalten ungünstig beeinflusst werden, so dass die o. a. Klassifizierung nicht mehr gültig ist. Das Brandverhalten des Materials im Verbund mit anderen Materialien ist gesondert nachzuweisen.
If combined with other materials the burning behaviour can be influenced unfavourably so that the classification above is no longer valid. The burning behaviour in combination with other materials has to be tested separately.

**5. Entscheidungsregel und Messunsicherheit/
Decision rule and measurement uncertainty**

Bei der Ermittlung der Ergebnisse werden die normativ festgelegten Prüfbedingungen und -grenzen nicht angepasst, um Unsicherheiten bei der Messung Rechnung zu tragen. Die ermittelten Messunsicherheiten werden nicht mit den gemessenen Ergebnissen kombiniert, um die Übereinstimmung mit den Produkt-Spezifikationen zu bewerten.

In determining the results, the normative test conditions and limits are not adjusted to account for uncertainties in measurement. The determined measurement uncertainties are not combined with the measured results to evaluate compliance with the product specifications.

Frankfurt, den / the 20.12.2022



H. Schmid
Verantwortlicher Prüfer
Tester in charge



M. Ronzheimer
Senior Test Officer



Deutsche
Akkreditierungsstelle
D-PL-18354-01-00

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These test results relate only to the behavior of the test specimens under the particular conditions of the test. They are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

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This test reports contains 7 pages.

