

Prüfbericht-Nr.: <i>Test report no.:</i>	60369675 001	Auftrags-Nr.: <i>Order no.:</i>	170242353	Seite 1 von 6 Page 1 of 6
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	06.05.2020	
Auftraggeber: <i>Client:</i>	Glow Fire GmbH Email: / Phone number: 49 30 549 082 38			
Prüfgegenstand: <i>Test item:</i>	Glow Fire Emma Ethanol fireplace			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	Emma (M1-C)			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	EN 16647: 2015 Fireplaces for liquid fuels - Decorative appliances producing a flame using alcohol based or gelatinous fuel - Use in private households			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2020.4.30			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A002819282-001			
Prüfzeitraum: <i>Testing period:</i>	2020.5.21 – 2019.5.23			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Guangdong) Ltd. Zhongshan Branch.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Guangdong) Ltd. Zhongshan Branch.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	kontrolliert von: <i>reviewed by:</i>			
Datum: 2020.5.26 <i>Date:</i>	Datum: 2020.5.26 <i>Date:</i>			
Stellung / Position:	Evan Guan/PM	Stellung / Position:	Jason Wen/Reviewer	
Sonstiges / Other: All test results were complying with EN 16647:2015 except for clause 8 which were not required by client. For burner chamber material, please see the declaration of manufacturer. The test result is only related to the tested sample.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

Prüfbericht-Nr.: 60369675 001
Test report no.:

Seite 2 von 6
Page 2 of 6

Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. <i>As contractually agreed, this document has been signed digitally only. TÜV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TÜV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.</i>
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	<i>Test Location: TÜV Rheinland (Guangdong) Ltd. Zhongshan Branch. Address: No.3, 4F, No.59, Middle Road, Nantou Avenue, Nantou Town, Zhongshan City, Guangdong Province, China.</i>
5	<i>Client address: James-Franck-Str. 23 12489 Berlin</i>
6	<i>Manufacturer name: Glow Fire GmbH Manufactuer address: James-Franck-Str. 23 12489 Berlin</i>
7	<i>Buyer name: Glow Fire GmbH Buyer address: James-Franck-Str. 23 12489 Berlin</i>

Prüfbericht-Nr.: 60369675 001
Test report no.:

Seite 3 von 6
Page 3 of 6

Produktbeschreibung
Product description

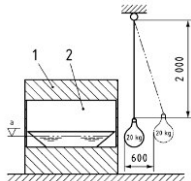
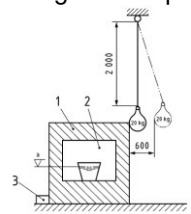
<i>Model name</i>	Emma (M1-C)
<i>Size of product, LxDxW (mm)</i>	Φ205 x 260
<i>Net weight (kg)</i>	3.2
<i>Size of burner opening (mm)</i>	Φ 50
<i>Intended fuel</i>	Bio-Ethanol
<i>Maximum burner volume (ml)</i>	520
<i>Total fuel capacity of the appliance (ml)</i>	520
<i>Stated output (kW)</i>	2.61
<i>Fuel consumption (kg/h)</i>	0.33
<i>Appliance type</i>	Table top type
<i>Burn out time(h)</i>	3.5
<i>Suggested minimum room volume per manufacturer (m³)</i>	66
<i>Others</i>	/
<i>Test sample obtaining:</i>	☒ Sending by customer ☐ Sampling by TÜV Rheinland Group ☐ others:

Prüfbericht-Nr.: 60369675 001
Test report no.:

Seite 4 von 6
Page 4 of 6

Absatz Clause	Anforderungen - Prüfungen / Requirements - Tests	Messergebnisse – Bemerkungen / Measuring results - Remarks	Ergebnis Result
------------------	---	--	--------------------

EN 16647: 2015 Fireplaces for liquid fuels - Decorative appliances producing a flame using alcohol based or gelatinous fuel - Use in private households

1	Scope	Decorative fireplace for domestic use, producing a flame using alcohol, <4.5kW power output.	P
2	Normative reference EN ISO 13732-1 referred for temperature testing	Information only	-
3	Terms and definitions Fuel alcohol as at least 95% C ₂ H ₅ OH	Information only	-
4	Construction	-	-
4.1	General		P
4.2	Fuel Volume	Refer to test data in table 1 of attachment of this report.	P
4.3	Construction		P
4.4	Materials		P
4.5	Stability test		P
4.6	Ignition device		P
5	Test methods and requirements	-	-
5.1	General	Information only	-
5.2	Tilting and sliding test Put sample on surface of glass, be tilted by 10° to all four sides for free-standing appliances and table-top appliances, should no spillage. The speed of tilting shall not exceed 1.5±0.5° increase of tilt angle/second	No spillage	P
5.3	Movement from impact test 	No spillage and no move more than 0.5m	P
5.4	Tilting from impact stress 	No spillage.	P
5.5	Stress test	Tabletop type	N/A
5.6	Spillage test	No spillage.	P
5.7	Fuel storage container Tightness; Safety of overfilled; Safety chamber Safety symbol on the fuel tank Durance test for the filling material test	Remark: the test of filling material be kept at operating temperature (or 60 °C) for 42 days was not tested per client's request. please see the declaration of manufacturer.	P

Prüfbericht-Nr.: 60369675 001
Test report no.:

Absatz <i>Clause</i>	Anforderungen - Prüfungen / <i>Requirements - Tests</i>	Messergebnisse – Bemerkungen / <i>Measuring results - Remarks</i>	Ergebnis <i>Result</i>
--------------------------------	---	---	----------------------------------

EN 16647: 2015 Fireplaces for liquid fuels - Decorative appliances producing a flame using alcohol based or gelatinous fuel - Use in private households

5.8	Operating method	-	-
5.8.1	General		P
5.8.2	Test conditions	Information only	-
5.8.3	Fuel consumption	Refer to test data in table 2 of attachment of this report.	P
5.8.4	Operating safety	Refer to test data in table 3 of attachment of this report.	P
	Flaring out of the flames under normal air draft condition		P
	Withstand the draught from 2 m/s and 0,5 m/s.		P
	The CO concentration of the burning-out phase		P
5.8.5	Autoignition test	Refer to test data in table 4 of attachment of this report.	P
5.8.6	Extinguish test	Refer to test data in table 5 of attachment of this report.	P
5.8.7	Combustion performance	Refer to test data in table 6.1, 6.2, 6.3 of attachment of this report.	P
5.8.8	Fire safety	Refer to test data in table 7.1, 7.2, 7.3 of attachment of this report.	P
5.8.8.1	General		P
5.8.8.2	Floor temperature shall not exceed 65K above room temperature		P
5.8.8.3	Wall temperature shall not exceed 65K above room temperature		P
5.8.8.4	Temperature of operating handles should fulfil the requirements of EN ISO13732-1 for burn threshold	No operating handles	N/A
5.8.8.5	Temperature of touchable surfaces should fulfil the requirements of EN ISO13732-1 for burn threshold		P
5.8.8.6	Ignition, extinguishing and relighting of the fire(in cold and warm state)		P
5.8.8.6.1	Ignition of the fire in cold state		P
5.8.8.6.2	Relighting of the fire in warm state		P
5.8.8.6.3	Extinguishing of the fire		P
5.8.9	Electrical safety	No electrical equipments	N/A
5.8.10	Electronic devices	No electronic devices	N/A
5.9	Labelling		P
6	Marking		P
6.1	General	In the manual	P
6.2	Labelling/Rating plate		P
6.3	Safety instruction		P
6.4	Marking on the package		P
6.5	Warning advice fuel storage tank		P

Prüfbericht-Nr.: 60369675 001
Test report no.:

Seite 6 von 6
Page 6 of 6

Absatz <i>Clause</i>	Anforderungen - Prüfungen / <i>Requirements - Tests</i>	Messergebnisse – Bemerkungen / <i>Measuring results - Remarks</i>	Ergebnis <i>Result</i>
--------------------------------	---	---	----------------------------------

EN 16647: 2015 Fireplaces for liquid fuels - Decorative appliances producing a flame using alcohol based or gelatinous fuel - Use in private households

7	User's manual		P
7.1	General		P
7.2	Installation instructions		P
7.3	Operating instructions		P
7.4	Emergency extinguish instructions		P
7.5	Type examination		P
7.5.1	Test sample and documents		P
7.5.2	Test report		P
8	Factory production control	Not request by the client	NT
8.1	General		NT
8.2	Materials and components		NT
8.3	Check of devices used for examinations, tests and measurements		NT
8.4	Process control		NT
8.5	Supervision, testing and evaluation of the product		NT
8.5.1	General		NT
8.5.2	Building materials		NT
8.5.3	Insulating materials		NT
8.5.4	Sealing and sealing materials		NT
8.5.5	Production Control		NT
8.6	Non-conforming products		NT
8.7	Corrective and preventive measures		NT
8.8	Handling, storage, packaging, preservation and delivery		NT

Contents

I List of measuring equipment for testing.....	2
II Performance test table / Test data sheet.....	3
III Photo documentation	5
IV Document check list (for internal use only)	6

I List of measuring equipment for testing

Measuring instruments and devices used at testing			
Designation	Manufacturer, type	Inventory / Serial No.	Next calibration date
Temperature Record	34970A	1.163C	2020.9.24
Angle Meter	DMI420	1.383	2020.11.6
Wind speed tester	Testo416	1.386	2021.4.29
Barometric pressure meter	DYM3	1.301	2020.10.9
Fuel Analyzer	testo350-XL	1.311	2020.10.10
Stop Watch	JS608	1.307C	2020.9.24
Electric balance	GP-30K	1.314	2020.9.24
Digital Caliper	(0~300)mm/0.01	1.308	2020.9.29

II Performance test table / Test data sheet

Table 1 Fuel Volume, according to EN16647:2015 clause 4.2

Model number	EMMA (M1-C)
Measured maximum burner volume	520 ml
Requirement	≤3L
Result	P
Measured total fuel capacity	520 ml
Requirement	≤10L
Result	P

Table 2 Fuel consumption, according to EN16647:2015 clause 5.8.3

Model number	EMMA (M1-C)
calculated thermal output (kW)	2.61
Requirement(kW)	≤4.5
Result	P

Table 3 – Safety operation-draught test, according to EN16647:2015 clause 5.8.4

Model number	EMMA (M1-C)
speed of air draught	2m/s & 0.5m/s
Requirement	No flame out was occurred
Result	P

Table 4 – Safety operation- burning-out phase test, according to EN16647:2015 clause 5.8.4

Model number	EMMA (M1-C)
CO of burning-out phase(ppm)	63
Requirement (ppm)	≤2000
Result	P

Table 5 – Auto-ignition and Extinguish test, according to EN16647:2015 clause 5.8.5 and clause 5.8.6

Model number	EMMA (M1-C)
Requirement for Auto-ignition time	Re-opened after 10s, no auto ignition occur
Requirement for extinguish time	≤10s
Result	P

Table 6 Combustion performance test, according to EN16647:2015 clause 5.8.7

Model number		EMMA (M1-C)	
Measurement		CO(ppm)	CO ₂ (ppm)
	within 15min	1.06 (< 87)	–
	within 30min	1.26 (< 52)	–
	within 1h	2.25 (<26)	–
	within 8h	8.82 (<9)	<5000
Suggested minimum room volume with 0.5 time air change per manufacturer (m ³)		66	

Table 7 Fire safety test, according to EN16647:2015 clause 5.8.8

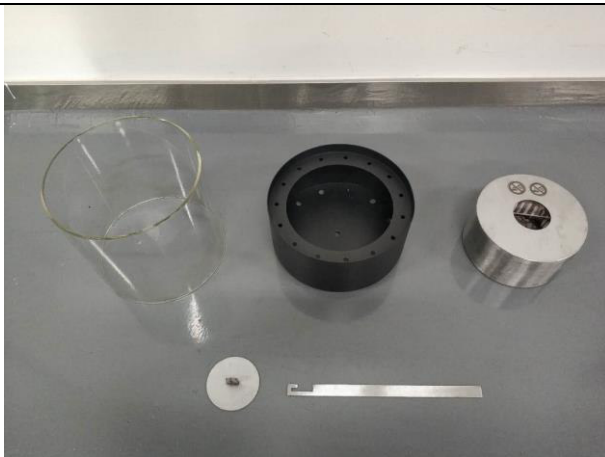
Model number	EMMA (M1-C)		
Ambient temperature	23.6 °C		
Measured position	Requirement rise (ΔT) K	Temperature rise (ΔT) K	Result
Floor temperature	65	3.2	P
Wall temperature	65	1.7	P
Temperature of operating handle	No operating handle	-	NA
Temperature of touchable surface	-	41.6°C	P

Table 8 Risk assessment for EMMA (M1-C)

a) Product information	
Assessed surface	Surface
Accessibility	Not easily touchable for children
Temperature estimation	Moderate
Surface material	Coated metals
Texture of the surface	Smooth
Operating conditions	In maximum thermal output
b) Task analysis	
Surface which is or may be touched	Surface
Intentional or unintentional touching	Unintentional
Persons who contact or may contact	Adults and children
Duration of contact	0,5 s for healthy adults, 4 s for children, 15 s for very young children
Probability of unintentional touching	A small probability to touch
Frequency of intentional touching	Zero
Actual range of power/temperature settings	In maximum thermal output
c) Measurement of surface temperature	
The maximum measured temperature touchable when In maximum thermal output is 41.6°C in this example.	
d) Choice of applicable burn threshold	
The burn threshold spread for a smooth surface made of coated metals and a contact period of 0, 5 s is 73°C to 78 °C. These figures apply if only adults have access to the surface. If also children have access burn spreads of 61 °C to 66 °C (4 s contact period) respective 54 °C to 59 °C(15 s contact period) apply.	
e) Comparison and conclusion	
The measured surface temperature isn't above the applicable burn threshold spreads.	
f) Result of risk assessment	
The temperature of the surface far didn't exceed the burn thresholds. No risk of burning.	
g) Application of protective measures	
N/A.	

III Photo documentation

EMMA (M1-C)



- End of the evaluation -

IV Document check list (for internal use only)

File number	File name	Pages	Date	Remark
1	Technical drawings	1*3	2020.5.26	Checked by Jason Wen
2	User manual	1*16	2020.5.26	Checked by Jason Wen
3	Technical data label and Packing label	1*1	2020.5.26	Checked by Jason Wen
4	Material declaration	1	2020.5.26	Checked by Jason Wen

- End of the report-