



# TEST REPORT

## EN 149:2001+A1:2009

Respiratory protective devices-filtering half masks to protect against particles- requirements,testing,marking

For

**Guangdong Wufu Biotechnology Co., Ltd**

Guolong Industrial Zone, Liaoyuan Street, Puning City, Guangdong Province

**Model: WF001**

March 18, 2020

<b>This Report Concerns:</b> <input checked="" type="checkbox"/> Original Report	<b>Equipment Type:</b> Disposable Civilian Mask
<b>Test Engineer:</b> Eric/	
<b>Report Number:</b> TH20CR-199S	
<b>Test Date:</b> March 10 - 17, 2020	
<b>Reviewed By:</b> Prince/	
<b>Approved By:</b> Prince/	
<b>Prepared By:</b>	<b>Shenzhen Tian Hai Test Technology Co.,Ltd.</b> 4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guanlan street, Longhua district, Shenzhen Tel: +86-755-86615100 Fax:+86-755-86615105

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen Tian Hai Test Technology Co.,Ltd.



### TEST REPORT

EN 149:2001+A1:2009

respiratory protective devices-filtering half masks to protect against particles-  
requirements,testing,marking

Report

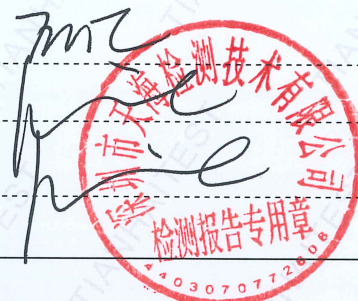
Report reference No. : TH20CR-199S

Tested by (+signature) : Eric

Reviewed by (+signature) : Prince

Approved by (+signature) : Prince

Date of issue : March 17, 2020



Testing laboratory

Name : **Shenzhen Tian Hai Test Technology Co.,Ltd.**

Address : 4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guanlan street, Longhua district, Shenzhen.

Test location : Same as above

Client

Name : **Guangdong Wufu Biotechnology Co., Ltd**

Address : Guolong Industrial Zone, Liaoyuan Street, Puning City, Guangdong Province

Test specification

Standard : EN 149:2001+A1:2009

Non-standard test method : N.A.

Test item

Description : **Disposable Civilian Mask**

Model and or type reference : WF001


Trademark : --

Manufacturer : **Guangdong Wufu Biotechnology Co., Ltd**

Address : Guolong Industrial Zone, Liaoyuan Street, Puning City, Guangdong Province

Note : --.



Test case verdicts
Test case does not apply to the test object : N/A (Not apply )
Test item does meet the requirement : P(Pass)
Test item does not meet the requirement : F(Fail)
General remarks:
""See remark #)""refers to a remark appended to the report. ""See appended table)""refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory.
Attachment include: Appendix for photo
Remarks: Copy of the marking plate
<div style="border: 1px solid black; padding: 10px;"><p><b>Product: Disposable Civilian Mask</b> <b>Model: WF001</b>                      <b>Classification: FFP2</b></p><p></p><p>EN 149:2001+A1:2009 <b>Guangdong Wufu Biotechnology Co., Ltd</b> Guolong Industrial Zone, Liaoyuan Street, Puning City, Guangdong Province</p></div>



EN 149:2001+A1:2009			
Clause	Requirement Test	Result	Verdict
<b>4</b>	<b>Description</b>		P
	A particle filtering half mask covers the nose and mouth and the chin		P
	These devices are designed to protect against both solid and liquid aerosols		P
<b>5</b>	<b>Classification</b>		P
	Particle filtering half masks are classified according to their filtering efficiency and their maximum total inward leakage. There are three classes of devices: FFP1, FFP2 and FFP3.	FFP2	P
<b>6</b>	<b>Designation</b>		P
	Particle filtering half masks meeting the requirements of this European Standard shall be designated in the following manner		P
	Particle filtering half mask EN149, year of publication, classification, option (where "D" is an option for a non re-useable particle filtering half mask and mandatory for re-useable particle filtering half mask		P
	Particle filtering half mask EN 149:2001+A1:2009 FFP1 NR D		N/A
<b>7</b>	<b>Requirements</b>		P
7.1	General		P
7.2	Nominal values and tolerances		P
	Except for temperature limits, values which are not stated as maxima or minima shall be subject to a tolerance of $\pm 5\%$ .	All within $\pm 5\%$	P
	Unless other wise specified, the ambient temperature for testing shall be (16-32) $^{\circ}$ C, and the temperature limits shall be subject to an accuracy of $\pm 1^{\circ}$ C	23.8 $^{\circ}$ C	P
7.3	Visual inspection		P
	The visual inspection shall also include the marking and the information supplied by the manufacturer.	Complied	P
7.4	Packaging		P
	Particle filtering half masks shall be offered for sale packaged in such a way that they are protected against mechanical damage and contamination before use. Testing shall be done in accordance with 8.2.	Complied	P
7.5	Material		P
	Materials used shall be suitable to withstand handling and wear over the period for which the particle filtering half mask is designed to be used.	Complied	P
	After undergoing the conditioning described in 8.3.1 none of the particle filtering half masks shall have suffered mechanical failure of the facepiece or straps.		P
	Three particle filtering half masks shall be tested.	Complied	P
	When conditioned in accordance with 8.3.1 and 8.3.2 the particle filtering half mask shall not collapse.		P



EN 149:2001+A1:2009			
Clause	Requirement Test	Result	Verdict
	Any material from the filter media released by the air flow through the filter shall not constitute a hazard or nuisance for the wearer.		P
	Testing shall be done in accordance with 8.2.		P
7.6	Cleaning and disinfecting		N/A
	If the particle filtering half mask is designed to be re-usable, the materials used shall stand the cleaning and disinfecting agent and procedures to be specified by the manufacturer	Not re-usable	N/A
	Testing shall be done in accordance with 8.4 and 8.5.		N/A
7.7	Practical performance		P
7.8	Finish of parts		P
	Parts of the device likely to come into contact with the wearer shall have no sharp edges or burrs	No sharp edges or burrs	P
7.9	Leakage		P
7.9.1	Total inward leakage		P
	The total inward leakage consists of three components: face seal leakage, exhalation valve leakage and filter penetration		P
	For particle filtering half masks fitted in accordance with the manufacturer's information, at least 46 out of the 50 individual exercise results for total inward leakage shall be not greater than: 25% for FFP1, 11% for FFP2, 5% for FFP3	9.3%	P
	and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than: 22% for FFP1, 8% for FFP2, 2% for FFP3	6.4%	P
	Testing shall be done in accordance with 8.5.		P
7.9.2	Penetration of filter material		P
7.10	Compatibility with skin		P
	Materials shall not be known to be likely to cause irritation or any other adverse effect to health	Complied	P
	Testing shall be done in accordance with 8.4 and 8.5.		P
7.11	Flammability		P
	When test, the particle filtering half mask shall not burn or not to continue to burn for more than 5s after removal from the flame	Burn time: 3.3s	P
7.12	Carbon dioxide content of the inhalation air		P
7.13	Head harness		P
7.14	Field of vision		P
7.15	Exhalation valve(s)		P
	A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations.		P
	Testing shall be done in accordance with 8.2 and 8.9.1.		P



EN 149:2001+A1:2009																									
Clause	Requirement Test	Result	Verdict																						
	If an exhalation valve is provided it shall be protected against or be resistant to dirt and mechanical damage and may be shrouded or may include any other device that may be necessary for the particle filtering half mask to comply with 7.9.	No exhalation valve	N/A																						
	Testing shall be done in accordance with 8.2.		N/A																						
	Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min over a period of 30 s.		N/A																						
	Testing shall be done in accordance with 8.3.4.		N/A																						
	When the exhalation valve housing is attached to the faceblank, it shall withstand axially a tensile force of 10 N applied for 10 s.		N/A																						
	Testing shall be done in accordance with 8.8.		N/A																						
7.16	Breathing resistance		P																						
	<p style="text-align: center;"><b>Table 2 — Breathing resistance</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="3">Classification</th> <th colspan="3">Maximum permitted resistance (mbar)</th> </tr> <tr> <th colspan="2">inhalation</th> <th>exhalation</th> </tr> <tr> <th>30 l/min</th> <th>95 l/min</th> <th>160 l/min</th> </tr> </thead> <tbody> <tr> <td>FFP1</td> <td>0,6</td> <td>2,1</td> <td>3,0</td> </tr> <tr> <td>FFP2</td> <td>0,7</td> <td>2,4</td> <td>3,0</td> </tr> <tr> <td>FFP3</td> <td>1,0</td> <td>3,0</td> <td>3,0</td> </tr> </tbody> </table> <p>The breathing resistance shall meet the requirements of table 2</p>	Classification	Maximum permitted resistance (mbar)			inhalation		exhalation	30 l/min	95 l/min	160 l/min	FFP1	0,6	2,1	3,0	FFP2	0,7	2,4	3,0	FFP3	1,0	3,0	3,0	Meet FFP2 requirements	P
Classification	Maximum permitted resistance (mbar)																								
	inhalation		exhalation																						
	30 l/min	95 l/min	160 l/min																						
FFP1	0,6	2,1	3,0																						
FFP2	0,7	2,4	3,0																						
FFP3	1,0	3,0	3,0																						
7.17	Clogging		P																						
7.17.2	Breathing resistance		P																						
7.17.2.1	Valved particle filtering half masks		P																						
	After clogging the inhalation resistances shall not exceed-- FFP1: 4 mbar, FFP2: 5 mbar, FFP3: 7 mbar	4.2mbar	P																						
	At 95l/min continuous flow		P																						
	The exhalation resistance shall not exceed 3 mbar at 160 l/min continuous flow.	1.8mbar	P																						
7.17.2.2	Valveless particle filtering half masks		N/A																						
	After clogging the inhalation resistances shall not exceed-- FFP1: 3 mbar, FFP2: 4 mbar, FFP3: 5 mbar	3.1mbar	N/A																						
	At 95l/min continuous flow		N/A																						
7.17.3	Penetration of filter material		P																						
7.18	Demountable parts		P																						
<b>8</b>	<b>Testing</b>		P																						
<b>9</b>	<b>Marking</b>		P																						
9.1	Packaging		P																						
	The following information shall be clearly and durably marked on the smallest commercially available packaging or legible through it if the packaging is transparent.	Complied	P																						



EN 149:2001+A1:2009			
Clause	Requirement Test	Result	Verdict
9.1.1	The name, trademark or other means of identification of the manufacturer or supplier.	Guangdong Wufu Biotechnology Co., Ltd	P
9.1.2	Type-identifying marking.	WF001	P
9.1.3	Classification	FFP2	P
9.1.4	The number and year of publication of this European Standard.	EN 149:2001+A1:2009	P
9.1.5	At least the year of end of shelf life. The end of shelf life may be informed by a pictogram as shown in Figure 12a, where yyyy/mm indicates the year and month.	2021/12	P
9.1.6	The sentence 'see information supplied by the manufacturer', at least in the official language(s) of the country of destination, or by using the pictogram.		P
9.1.7	The manufacturer's recommended conditions of storage (at least the temperature and humidity) or equivalent pictogram		P
9.1.8	The packaging of those particle filtering half masks passing the dolomite clogging test shall be additionally marked with the letter "D".		N/A
	This letter shall follow the classification marking preceded by a single space.		P
9.2	Particle filtering half mask		P
	Particle filtering half masks complying with this European Standard shall be clearly and durably marked with the following:		P
9.2.1	The name, trademark or other means of identification of the manufacturer or supplier.	Guangdong Wufu Biotechnology Co., Ltd	P
9.2.2	Type-identifying marking.	WF001	P
9.2.3	The number and year of publication of this European Standard.	EN 149:2001+A1:2009	P
9.2.4	Classification	FFP2	P
9.2.5	If appropriate the letter D (dolomite) in accordance with clogging performance.		N/A
9.2.6	Sub-assemblies and components with considerable bearing on safety shall be marked so that they can be identified.		P
<b>10</b>	<b>Information to be supplied by the manufacturer</b>		P
10.1	Information supplied by the manufacturer shall accompany every smallest commercial available package.		P
10.2	Information supplied by the manufacturer shall be at least in the official language(s) of the country of destination.		P
10.3	The information supplied by the manufacturer shall contain all information necessary for trained and qualified persons on		P
	-- application/limitations;		P
	-- the meaning of any colour coding;		P
	-- checks prior to use;		P
	-- donning, fitting;		P



EN 149:2001+A1:2009			
Clause	Requirement Test	Result	Verdict
	-- use;		P
	-- maintenance (e.g. cleaning, disinfecting), if applicable;		P
	-- storage;		P
	-- the meaning of any symbols/pictograms used of the equipment.		P
10.4	The information shall be clear and comprehensible. If helpful, illustrations, part numbers, marking shall be added.	Complied	P
10.5	Warning shall be given against problems likely to be encountered, for example:		P
	--fit of particle filtering half mask (check prior to use);		P
	--it is unlikely that the requirements for leakage will be achieved if facial hair passes under the face seal;		P
	--air quality (contaminants, oxygen deficiency);		P
	--use of equipment in explosive atmosphere.		P
10.6	The information shall provide recommendations as to when the particle filtering half mask shall be discarded.		P
10.7	For devices marked "NR", a warning shall be given that the particle filtering half mask shall not be used for more than one shift.		P

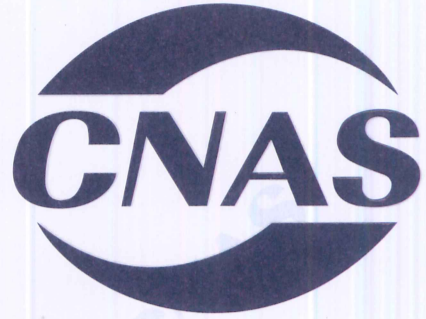




**EUT PHOTOGRAPHS**



**\*\*\*\*\* END OF THE REPORT \*\*\*\*\***



**China National Accreditation Service for Conformity Assessment**  
**LABORATORY ACCREDITATION CERTIFICATE**  
(Registration No. CNAS L5885 )

**Shenzhen Tianhai Test Technology Co., Ltd.**

*(Legal Entity: Shenzhen Tianhai Test Technology Co., Ltd.)*

4B/F., Building A3, The Silicon Valley Power Intelligent Terminal Industrial  
Park, Guanlan Street, Longhua District, Shenzhen, Guangdong, China

***is accredited in accordance with ISO/IEC 17025: 2017 General  
Requirements for the Competence of Testing and Calibration  
Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of  
Testing and Calibration Laboratories) for the competence to undertake  
the service described in the schedule attached to this certificate.***

***The scope of accreditation is detailed in the attached schedule  
bearing the same registration number as above. The schedule forms an  
integral part of this certificate.***

**Effective Date: 2019-01-22**

**Expiry Date: 2025-01-21**

**Signed on behalf of China National Accreditation Service for Conformity Assessment**

China National Accreditation Service for Conformity Assessment(CNAS) is authorized by Certification and Accreditation Administration of the People' s Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Laboratory Accreditation Cooperation Mutual Recognition Arrangement (APLAC MRA).  
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