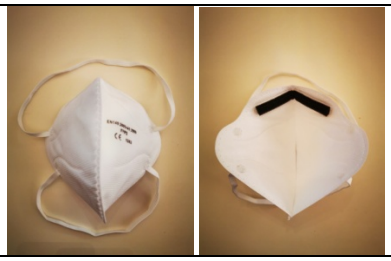
National Safety Production Testing Center

Wuhan Labor Protection Product Testing Laboratory

Testing Report for Non-powered Air-purifying Particle-controlRespirator

No.LH0544-2019 PAGE1/6

Product Name	Non-powered Air-purifying Particle-control Respirator	Product Specification	
Product Category	Disposable mask (without ventilationvalve) KN95/FFP2		
Inspected Unit	Xiantao Zhongyi Safety Protection Products Co., Ltd.	Trademark	Zhong Yi
Production Address	Xianyuan Avenue 101 #, Xiantao City, Hubei Province	Postal Code	433000
Contact Person	Li Sijun	Contact Number	13593932006
Task Source	LA MARK CENTER OF PERSONAL PRODUCTIVEEQUIPMENT	Sampling Date	December 6, 2019
Sampling Location	Product Warehouse	Arrival Date	December 9, 2019
Sampler	Cai Xialin, Ju Xinliang	Sample Sender	Mailedbyinspectedunit
Number of Samples	36	Sampling Method	Random
Sample Status	Intact	Production Date	December 2019
Test Category	Certification Inspection	Identification NumberofSafety Sign	
Inspection Standard	GB2626-2006 "Respiratory Protective Equipment--Non-powered Air-purifying Particle Respirator" and "La Mark Inspection Specifications of Personal Productive Equipment".		
Test Subjects	Visual inspection, filtration efficiency, total leak rate, inhalation resistance, exhalation resistance, dead space, visual field, headband, flammability, information and identification provided by the manufacturer.		
Sample Photo			
Test Conclusion	Based on GB2626-2006 "Respiratory Protective Equipment--Non-powered Air-purifying Particle Control Respirator" and "the Inspection Specifications of Personal protection Equipment", this sample is qualified after inspection". Date of issue:		
Remarks	① Sample number: LH0544-2019 ②Original record number: LH0544-2019 ③Sample appearance description: white disposable mask without ventilation valve		
Approval:	Audit:	Inspector:	

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<table>
<tr><td colspan="8">Detailed Testing Results</td></tr>
<tr><td>No.</td><td>Subject</td><td colspan="2">Standard</td><td colspan="2">Result</td><td>Conclusion</td><td>Remark</td></tr>
<tr><td rowspan="5">1</td><td rowspan="5">Visual Inspection</td><td colspan="2">The surface of the sample should not be damaged, deformed and have obvious shape and other defects.</td><td colspan="2">There is no damage, deformation and other obvious defects on the surface of the sample.</td><td rowspan="5">Qualified</td><td rowspan="5">/</td></tr>
<tr><td colspan="2">The material and structure of the components should be able to withstand the normal use conditions and possible shocks of temperature, humidity and machines.</td><td colspan="2">Meet the requirements.</td></tr>
<tr><td colspan="2">The headband should be adjustable, and the headband design of the replaceable mask should be replaceable.</td><td colspan="2">The headband is adjustable.</td></tr>
<tr><td colspan="2">The lenses of the full-face mask should not cause fogging and affect vision when wearing;</td><td colspan="2">/</td></tr>
<tr><td colspan="2">After temperature and humidity pretreatment and mechanical strength pretreatment, the components should not fall off, be damaged and deformed.</td><td colspan="2">No drop, damage and deformation.</td></tr>
<tr><td rowspan="16">2</td><td rowspan="16">Filtration Efficiency</td><td rowspan="16">KN95/FFP2 Series</td><td>≥90.0% (KN90)</td><td colspan="2">/</td><td rowspan="16">Qualified</td><td rowspan="16">/</td></tr>
<tr><td rowspan="14">≥95. 0% (KN95/FFP2)</td><td colspan="2">Untreated Sample</td></tr>
<tr><td>97.6%</td><td>97.6%</td></tr>
<tr><td>97.6%</td><td>97. 7%</td></tr>
<tr><td>97. 7%</td><td>97.6%</td></tr>
<tr><td>97.6%</td><td>97. 7%</td></tr>
<tr><td>97. 5%</td><td>97.6%</td></tr>
<tr><td>Pretreated sample</td><td>Pretreated sample</td></tr>
<tr><td>97. 7%</td><td>/</td></tr>
<tr><td>97. 5%</td><td>/</td></tr>
<tr><td>97.6%</td><td>/</td></tr>
<tr><td>97. 7%</td><td>/</td></tr>
<tr><td>97.6%</td><td>/</td></tr>
<tr><td>≥99. 97% (KN100)</td><td colspan="2">/</td></tr>
<tr><td>Ambient temperature: (25 ± 5) □; Relative humidity: (30±10) %.</td><td colspan="2">21. 1'C-24. 7'C
31. 1% -35. 2%</td></tr>
</table>

Detailed Testing Results						
No.	Subject	Standard		Result	Conclusion	Remark
2	Filtration efficiency	KP	≥90.0% (KP90)	/	Qualified	/
			≥95.0% (KP95)	/		
			≥99.97% (KP100)	/		
			Ambient temperature: (25 + 5) ° C	/		
3	Total Leak age Rate (TIL) (Disposable mask)	When taking the TIL of each action as the basis for evaluation (i.e. There will be 50 actions if there exist 10 persons and one person has five actions) The TIL of at least 46 out of 50 actions:	<13% (KN90 / KP90)	/	Qualified	/
			<11% (KN95 / KP95)	The TIL of 49 actions is less than 11%.		
			<5% (KN100 / KP100)	/		
		When TIL is the basis for evaluation, the TIL of at least 8 out of 10 subjects:	<10% (KN90 / KP90)	/		
			<8% (KN95 / KP95)	The TIL of 9 subjects is less than 8%.		
			<2% (KN100 / KP100)	/		
4-1	Index of Leakage (IL) (Replaceable half-faced mask)	Based on the evaluation of the IL of each action(i.e. There will be 50 actions if there exist 10 persons and one person has five actions), the IL of at least 46 of the 50 actions should be less than 5%;		/	/	The disposable mask is not required for this.
		Based on the evaluation of the total IL, the total IL of at least 8 of the 10 subjects should be less than 2%.		/		
4-2	Index of Leakage (IL) (Replaceable full-face mask)	Based on the evaluation of the IL of each action(i.e. There will be 50 actions if there exist 10 persons and one person has five actions) , the IL of at least 46 of the 50 actions should be less than0.05%.		/	/	The disposable mask is not required for this.

Detailed Testing Results						
No.	Subject	Standard	Result		Conclusion	Remark
5	Inhalation Resistance	The total inhalation resistance of each sample should be less than or equal to 350Pa.	Untreated Sample	Pretreated sample of temperature and humidity	Qualified	/
			66 Pa	66 Pa		
			66 Pa	66 Pa		
6	Exhalation Resistance	The total exhalation resistance of each sample should be less than or equal to 250Pa.	Untreated Sample	Pretreated sample of temperature and humidity	Qualified	/
			56 Pa	56 Pa		
			56 Pa	57Pa		

<table>
<tr><td colspan="8">Detailed Testing Results</td></tr>
<tr><td>No.</td><td>Subject</td><td colspan="3">Standard</td><td colspan="2">Result</td><td>Conclusion</td><td>Remark</td></tr>
<tr><td rowspan="12">7</td><td rowspan="12">Valve Tightness</td><td colspan="3" rowspan="4">i. Negative pressure higher than 1180 Pa when bleeding speed reaches 500mL/min</td><td>Untreated sample 1</td><td>/</td><td rowspan="12">/</td><td rowspan="12">Not available for valve-free product</td></tr>
<tr><td>Untreated sample 2</td><td>/</td></tr>
<tr><td>Pretreated sample 1</td><td>/</td></tr>
<tr><td>Pretreated sample 2</td><td>/</td></tr>
<tr><td colspan="3" rowspan="4">ii. Normal pressure recovery time higher than 20s</td><td>Untreated sample 1</td><td>/</td></tr>
<tr><td>Untreated sample 2</td><td>/</td></tr>
<tr><td>Pretreated sample 1</td><td>/</td></tr>
<tr><td>Pretreated sample 2</td><td>/</td></tr>
<tr><td colspan="3" rowspan="3">Relative humidity at normal temperature and pressure＜75%</td><td colspan="2">Temperature: /</td></tr>
<tr><td colspan="2">Air pressure: /</td></tr>
<tr><td colspan="2">Humidity: /</td></tr>
<tr><td rowspan="2">8</td><td rowspan="2">Valve lid</td><td colspan="3">When expose to 10 N of axial tension, the lid of disposable mask should not drop, break or deform within 10 seconds.</td><td colspan="2">/</td><td rowspan="2">/</td><td rowspan="2">Not available for valve-free product</td></tr>
<tr><td colspan="3">When expose to 50 N of axial tension, the lid of replaceable mask should not drop, break or deform within 10 seconds.</td><td colspan="2">/</td></tr>
<tr><td rowspan="2">9</td><td rowspan="2">Dead space</td><td colspan="3">When displayed by volume fraction of carbon dioxide of the inhalation air, the average volume should be ≤ 1%</td><td colspan="2">Average volume: 0.5%</td><td rowspan="2">Qualified</td><td rowspan="2">/</td></tr>
<tr><td colspan="3">Environment temperature: (16~32)℃</td><td colspan="2">Actual temperature: 22℃</td></tr>
<tr><td rowspan="5">10</td><td rowspan="5">Vision</td><td colspan="2">Half face cover</td><td>Down sight≥60°</td><td colspan="2">66°</td><td rowspan="5">Qualified</td><td rowspan="5">/</td></tr>
<tr><td rowspan="4">Full face cover</td><td rowspan="2">Large hole</td><td>Total sight≥70%</td><td colspan="2">/</td></tr>
<tr><td>Double sight≥80%</td><td colspan="2">/</td></tr>
<tr><td rowspan="2">Small hole</td><td>Total sight≥70%</td><td colspan="2">/</td></tr>
<tr><td>Double sight≥20%</td><td colspan="2">/</td></tr>
</table>

Detailed Testing Results					
No.	Subject	Standard	Result	Conclusion	Remark
11	Head cords	When each head cord, buckle and other adjustable part of the disposable mask was exposed to 10N of tension, it should not drop or break within 10 seconds.	No drops or breaks found.	Qualified	/
		When each head cord, buckle and other adjustable part of the replaceable half face mask or disposable half face mask was exposed to 50N of tension, it should not drop or break within 10 seconds.	/		
		When each head cord, buckle and other adjustable part of the full-face mask was exposed to 150N of tension, it should not drop or break within 10 seconds.	/		
12	Connection and connection parts	When under designated testing situation, related connection parts between replaceable filter and mask, exposing to 50N of axial tension, should not drop, break or deform within 10 seconds.	/	/	Not available for disposable mask
		When under designated testing situation, related connection parts among replaceable and non-replaceable filter, respiratory catheter, and mask, exposing to 250N of axial tension, should not drop, break or deform within 10 seconds.	/		
13	Lens	Sample should not break under crash of steel balls	/		Not available for disposable mask
		Negative pressure decrease of each sample after crashing should be less than 100Pa within 60 seconds.	/		
14	Air Tightness	Negative pressure decrease of each sample should be less than 100Pa within 60 seconds.	/		Not available for disposable mask

Detailed Testing Results					
No.	Subject	Standard	Result	Conclusion	Remark
15	Flammability	All parts should not on fire after removed from flame or continuous burning time less than 5 seconds	Maximum: 4 seconds	Qualified	/
16	Information provided by manufacturer	Provided with the smallest package	Provided	Qualified	/
		Chinese instruction	Provided		
		Information should be mentioned: 1. Application range and limits. 2. For replaceable parts, instructions on their usage with full or half-face mask should be included, multiple filter material should be identified. 3. Assembly method of replaceable mask. 4. Examine method before using. 5. Wearing method and wearing tightness examine method. 6. Suggestions on frequency of changing replaceable parts. 7. Maintains method (e.g. disinfection and clean) if available. 8. Storage method. 9. Instructions on signs and logos mentioned. Warnings for possible problems should be included, for example: 1. Adaptability 2. Hairs under edges may cause leakage of the mask. 3. Air quality problems (pollutant, hypoxia and etc.)	All required information provided.		
		All information should be clear, clarification, number of parts and remarks should be included if necessary.	All information is clear.		
17	Signs	Product name, trademarks or other identifiable manufacturer's remarks, type or models (if available), standards, class of filter parts;	All provided	Qualified	Safety sign issued
		Instruction and certificate.	All provided		
		Safety signs	/		

Main equipment	No.	Name	Valid date of testing
Main testing equipment	HJ-SB160	Ventilation tester	2019.12.2-2020.12.1
	HJ-SB119	Aging test box	2019.12.2-2020.12.1
	HJ-SB021	Refrigerator	2019.12.2-2020.12.1
	HJ-SB122	YA-2A Vortex Flow meter	2019.12.12-2020.12.11
	HJ-SB123	YA-2A Vortex Flow meter	2019.12.12-2020.12.11
	HJ-SB124	YA-2A Vortex Flow meter	2019.12.12-2020.12.11
	HJ-SB202	HT-2402 Computer servo control material tester	2019.12.23-2020.12.22
	HJ-SB129	Laser photometer 8587A	2019.10.28-2020.10.27

Date of testing: 2019.12.9-2019.12.29