

NPPTL COVID-19 Response: International Respirator Assessment

Manufacturer: Shandong Shengquan New Materials Co., Ltd.

Model Tested: Biomass Graphene Particulate Respirator (Willow leaf-Shaped)

Date Tested: June 10, 2020

These findings pertain to the Shandong Shengquan New Materials Co., Ltd., Biomass Graphene Particulate Respirator (Willow leaf-Shaped). The packaging and labeling for this product indicate that it meets GB2626-2006 (the Chinese standard for Respiratory Protective Equipment – Non-Powered Air-Purifying Particle Respirator) and EN149:2001+A1:2009 (the European standard for Respiratory Protective Devices – Filtering Half Masks to Protect Against Particles – Requirements, Testing, Marking).

Thirty respirators were submitted for evaluation. The respirators were sampled into groups of ten for evaluation. The samples were tested using a modified version of NIOSH Standard Test Procedure (STP) TEB-APR-STP-0059. This modified assessment plan can be found [here](#).

No certificate of approval was provided with the samples received; therefore, the authenticity of the claims cannot be validated.

The maximum and minimum filter efficiency was 98.79% and 98.11%, respectively. All thirty respirators measured more than 95%.

While the above-listed product classification has similar performance requirements to NIOSH-approved devices, NIOSH does not have knowledge about the sustained manufacturer quality system and product quality control for these products. NIOSH also does not have knowledge about the product's handling and exposures after leaving its manufacturer's control.

In addition, this product is an ear loop design. Currently, there are no NIOSH-approved products with ear loops; NIOSH-approved N95s have head bands. Furthermore, limited assessment of ear loop designs, indicate difficulty achieving a proper fit. While filter efficiency shows how well the filter media performs, users must ensure a proper fit is achieved.

This assessment is not a part of the NIOSH respirator approval process and will in no way lead to or preclude NIOSH approval through the official approval process. This assessment was developed as an assessment of the filter efficiency for those respirator's represented as certified by an international certification authority, other than NIOSH, to support the availability of respiratory protection to US healthcare workers due to the respirator shortage associated with COVID-19. Only particulate filter efficiency was assessed.

The results provided in this letter are specific to the subset of samples that were provided to NPPTL for evaluation.

These results will be used to update the CDC guidance for [Crisis Capacity Strategies \(during known shortages\)](#).

Evaluation of International Respirators

Test: Modified TEB-APR-STP-0059

Date Tested: June 10, 2020

Report Prepared: June 10, 2020

Manufacturer: Shandong Shengquan New Materials Co., Ltd.

Item Tested: Biomass Graphene Particulate Respirator (Willow leaf-Shaped) (Sample Group 1 of 3)

Country of Certification: China (GB2626-2006)

Pictures have been added to the end of this report.

Filter	Flow Rate (Lpm)	Initial Filter Resistance (mmH ₂ O)	Initial Percent Leakage (%)	Maximum Percent Leakage (%)	Filter Efficiency
1	85	8.8	1.35	1.39	98.61
2	85	8.1	1.28	1.32	98.68
3	85	8.4	1.25	1.26	98.74
4	85	8.0	1.22	1.28	98.72
5	85	7.7	1.52	1.59	98.41
6	85	8.7	1.26	1.28	98.72
7	85	8.1	1.19	1.22	98.78
8	85	8.0	1.48	1.50	98.50
9	85	8.4	1.30	1.30	98.70
10	85	8.1	1.30	1.33	98.67
Minimum Filter Efficiency: 98.41			Maximum Filter Efficiency: 98.78		

- The test method utilized in this assessment is not the NIOSH standard test procedure that is used for certification of respirators. Respirators assessed to this modified test plan do not meet the requirements of STP-0059, and therefore cannot be considered equivalent to N95 respirators that were tested to STP-0059.
- Respirators tested may not be representative of all respirators with the same certification mark. NIOSH has no control over suppliers and distributors of respirators certified by other national or international parties.
- This assessment is not a confirmation that it conforms with any or all of its specifications in accordance with its certification mark.
- This assessment was not a part of the NIOSH approval program. These results do not imply nor preclude a future approval through the NIOSH respirator approval program.

NPPTL COVID-19 Response: International Respirator Assessment

Test: Modified TEB-APR-STP-0059

Date Tested: June 10, 2020

Report Prepared: June 10, 2020

Manufacturer: Shandong Shengquan New Materials Co., Ltd.

Item Tested: Biomass Graphene Particulate Respirator (Willow leaf-Shaped) (Sample Group 2 of 3)

Country of Certification: China (GB2626-2006)

Filter	Flow Rate (Lpm)	Initial Filter Resistance (mmH ₂ O)	Initial Percent Leakage (%)	Maximum Percent Leakage (%)	Filter Efficiency
11	85	8.0	1.33	1.37	98.63
12	85	8.3	1.41	1.41	98.59
13	85	8.2	1.33	1.38	98.62
14	85	8.5	1.41	1.43	98.57
15	85	8.7	1.29	1.29	98.71
16	85	8.4	1.26	1.29	98.71
17	85	8.8	1.21	1.21	98.79
18	85	8.8	1.41	1.41	98.59
19	85	8.0	1.34	1.39	98.61
20	85	8.3	1.28	1.32	98.68
Minimum Filter Efficiency: 98.57			Maximum Filter Efficiency: 98.79		

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NPPTL COVID-19 Response: International Respirator Assessment

Test: Modified TEB-APR-STP-0059

Date Tested: June 10, 2020

Report Prepared: June 10, 2020

Manufacturer: Shandong Shengquan New Materials Co., Ltd.

Item Tested: Biomass Graphene Particulate Respirator (Willow leaf-Shaped) (Sample Group 3 of 3)

Country of Certification: China (GB2626-2006)

Filter	Flow Rate (Lpm)	Initial Filter Resistance (mmH ₂ O)	Initial Percent Leakage (%)	Maximum Percent Leakage (%)	Filter Efficiency
21	85	8.7	1.53	1.57	98.43
22	85	8.9	1.43	1.44	98.56
23	85	7.9	1.40	1.45	98.55
24	85	8.5	1.77	1.89	98.11
25	85	8.4	1.38	1.38	98.62
26	85	8.3	1.53	1.57	98.43
27	85	9.2	1.47	1.47	98.53
28	85	8.8	1.34	1.36	98.64
29	85	8.1	1.21	1.26	98.74
30	85	9.3	1.71	1.71	98.29
Minimum Filter Efficiency: 98.11			Maximum Filter Efficiency: 98.74		

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- Respirators tested may not be representative of all respirators with the same certification mark. NIOSH has no control over suppliers and distributors of respirators certified by other national or international parties.
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Non-medical Use (非医用)

BIOMASS GRAPHENE
生物质石墨烯防护口罩
PARTICULATE RESPIRATOR
KN95 FFP2

中国首家石墨烯材料研发团队自主研发的
 生物基石墨烯材料制成。生物质石墨烯以玉米芯
 纤维为材料，经过高温氧化催化工艺制备的
 高纯度石墨烯基膜的一种新型功能材料。

The gray nonwoven material in the face mask
 edges. Shengshen Group's biomass graphene
 Healthier Biomass graphene is a new functional
 carbon material, containing single and multi layer
 graphene, which is made from corn cob residue
 through a high-temperature catalytic carbonization.

中国国家知识产权示范企业 / 中国国家技术创新示范企业
 China National Intellectual Property Demonstration Enterprise
 China National Technology Innovation Demonstration Enterprise

<ul style="list-style-type: none"> • 高新技术企业 • 农业产业化国家重点龙头企业 • 中国民营企业制造业500强 • 中国神舟飞船保障原材料制造商 • 中国工业行业履行社会责任五星绿企业 • 首批国家级绿色工厂 • 中国企业专利500强-排名第99位 	<ul style="list-style-type: none"> • High-tech enterprise • National leading enterprise of agricultural industrialization • Top 500 private enterprises in China • Designated manufacturer for insulation materials of China Shenzhou spacecraft • Top 500 enterprises among Chinese Industrial Corporations • One of the first national green factories in China • Ranking 99th in the Top 500 Chinese Enterprise Patents
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<p style="text-align: center;">生物质石墨烯“内耀”系列产品相关认证</p> <ul style="list-style-type: none"> • 中国纤维流行趋势“功能纤维” • 意大利国家科技创新奖 • 欧盟生态纺织品 • oeko- Tex Standard100认证,安全性达到婴幼儿适用的1级(最高)标准 • 中国保健协会认证 	<p style="text-align: center;">Biomass Graphene "Healfiber" Series Products Certifications</p> <ul style="list-style-type: none"> • China Fibers Fashion Trends "Functional, Skin-friendly Fiber" • Italian National Science and Technology Innovation Award • EU Eco-Textiles, Oeko-Tex Standard 100 Certification, Safety meets Level 1 (The highest) for infants. • Certified by Chinese Health Association
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警告 / Warning

本品只用于对某些颗粒物的呼吸防护，错误使用可能导致疾病或死亡。欲了解正确使用办法，请参见产品使用说明书或拨打官方客服热线(400-777-8118)。

This product is used only for the protection against certain particulate matters. Misuse may cause sickness or death. For proper use, see the product manual or call at (0086-400-777-8118)

使用办法 / FITTING INSTRUCTION

1. Place fingers inside the particle half mask, bend the nose clip around fingers to form nose shape.
2. Hold the particle half mask in position over the nose and mouth, pull the ear loop behind the ears.
3. Using both hands, form the nose clip around the nose and shift the ear loop to ensure a positive face seal.
4. Fit check.
5. To test the fit of the particle half mask without an exhalation valve, cup both hands over mask and inhale sharply.
6. If air flow is felt in the nose area, re-adjust (tighten) the nose clip.
7. If air flow is felt around the edges of the respirator, re-position the particle half mask / ear loop to achieve a better fit.
8. Change the mask immediately if breathing becomes difficult or mask becomes damaged or distorted.
9. Change the mask if a proper face seal can not be achieved.
10. Careful observance of these instruction is an important step in safe respirator use.

1. 手持口罩，弯曲鼻夹。
2. 将呼吸器固定在口鼻处，将耳带拉至耳后。
3. 使用双手，捏紧鼻夹，移动耳带，以确保密封。
4. 密封检查。
5. 在没有呼吸气流的情况下进行呼吸测试，双手围住呼吸器，用力吸气。
6. 如果鼻子周围感觉到气流，重新调整鼻夹位置。
7. 如果在口罩边缘感觉到气流，重新调整口罩位置。
8. 如果呼吸变得困难或呼吸器变得损坏或变形，请立即更换。
9. 如果无法达到适当的密封目的，请更换口罩。
10. 仔细遵守这些说明是安全使用呼吸器的重要步骤。

使用限制 / USE LIMITATION

1. Do not use the respirator or enter or stay in a contaminated area under the following circumstance
2. Atmosphere contains less than 19.5% oxygen.
3. If you sneeze or taste contamination
4. For protection against gases or vapors
5. Carbon monoxide or other concentrations are unknown or immediately dangerous to life or health.
6. For sandblasting, paint-spray operations and asbestos.
7. In explosive atmospheres
8. Do not modify or misuse the mask
9. Do not use the particle half mask with facial hair or any other conditions that may prevent a good face-seal, the requirements for leakage will be achieved
10. Particle-fitting half mask need to be inspected prior to each use to assure there are no holes in the breathing zone other than punctures around and staples and no damaged has occurred. Enlarged holes resulting from ripped or torn filter material around staple punctures are considered damage.
11. This respirator helps protect against certain particulate contaminants but does not eliminate exposure to the risk of contracting disease or infection. Misuse may result in sickness or death
12. This particle half mask marked "NR" shall not be used for more than one shift
13. This particle half mask is not suitable for users has an ear that has been damaged.

<ol style="list-style-type: none"> 1. 出现以下状况，不得使用本品进入或者停留在污染区域。 2. 含氧量不足19.5%的缺氧环境。 3. 如果已经闻到或尝到污染物。 4. 没有氧气体或蒸汽环境。 5. 一氧化碳浓度未知，浓度未知或浓度可能致命。 6. 用手喷粉、喷漆和石棉作业。 7. 爆炸环境。 	<ol style="list-style-type: none"> 2. 不可私自改造口罩。 3. 喷漆等作业会影响本品防护效果。 4. 每次使用前均需对口罩进行检查，以确保身体没有孔洞和没有损坏。油漆喷涂造成的孔洞不被认为是损坏。 5. 本品可以过滤特定的颗粒污染物，但不能消除暴露于空气中的风险，误用可能导致疾病或死亡。 6. 本品标记“NR”不可连续使用一次。 7. 本品不适合具有耳部损伤的用户。
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Filtering half masks meet the requirements of Regulation (EU) 2016/425 and are CE marked accordingly. They have been tested according to EN 149:2001+A1:2009 FFP2 NR, Module B (EU type-Examination Certification) and Module D Certification have been issued by CCQS Certification Services Limited, Block 1 Blanchardstown Corporate Park, Ballycoolin Road, Blanchardstown, Dublin 15, D15 AKK1, Ireland (NB 2834).



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