GUANGZHOU NANQIXING NON WOVEN CO.,LTD
NORTH SIDE OF NORTH 2ND RING ROAD,WENBIAN VILLAGE,SHIJI TOWN,PANYU DISTRICT, GUANGZHOU CITY, GUANGDONG PROVINCE,CHINA

Sample Description
Style / Item No.
Country of Destination
: FILTER HALF MASK
: NQX-2001
: EUROPE

As above test item and its relevant information regarding to the submission are provided and confirmed by the applicant. SGS is not liable to either the test item or its relevant information, in terms of the accuracy, suitability, reliability or/and integrity accordingly.

Sample Receiving Date
: Apr 22, 2020
Test Performing Date
Test Performed
Test Result(s)

| Test Requested | Result |
| :--- | :---: |
| EN 149-2001+A1-2009 excluding Clause $9 \& 10$ (Sample grade: FFP 2) | Pass |

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch


Arthur Mak
Authorized Signatory


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Test Report

Test Conducted: EN 149-2001+A1-2009 Respiratory protective devices - Filtering half masks to protect against particles - Requirements, testing, marking
Scope:This European Standard specifies minimum requirements for filtering half masks as respiratory protective devices to protect against particles except for escape purposes.
Laboratory and practical performance tests are included for the assessment of compliance with the requirements.

1. Sample description and classification:

| Sample Name | Filter half mask |
| :--- | :--- |
| Classification | $\square F F P 1 \quad \square F F P 2 \quad \square F F P 3$ |
|  |  |  |
|  | $\square$ "R" (if the particle filtering half mask is re-usable.) |
| NQX-2001 |

2. Test Results: Details shown as following table

| Clause | Test Item | Test Requirement / Test Method | Result |
| :---: | :---: | :---: | :---: |
| 7 Requirement |  |  |  |
| 7.4 | Packaging | 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. <br> Testing shall be done in accordance with 8.2. | Pass |
| 7.5 | Material | 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. <br> 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. <br> Three particle filtering half masks shall be tested. <br> When conditioned in accordance with 8.3.1 and 8.3.2 the particle filtering half mask shall not collapse. <br> Any material from the filter media released by the air flow through the filter shall not constitute a hazard or nuisance for the wearer. <br> Testing shall be done in accordance with 8.2. | Pass <br> See <br> Annex 1 |
| 7.6 | Cleaning and disinfecting | If the particle filtering half mask is designed to be re-usable, the materials used shall withstand the cleaning and disinfecting agents and procedures to be specified by the manufacturer. <br> Testing shall be done in accordance with 8.4 and 8.5. <br> With reference to 7.9 .2 , after cleaning and disinfecting the re-usable particle filtering half mask shall satisfy the penetration requirement of the relevant class. <br> Testing shall be done in accordance with 8.11. | NA |

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Test Report
No.: GZHL2006030653CE
Date: Jun 05, 2020
Page 3 of 10

| Clause | Test Item | Test Requirement / Test Method | Result |
| :---: | :---: | :---: | :---: |
| 7.7 | Practical performance | The particle filtering half mask shall undergo practical performance tests under realistic conditions. <br> These general tests serve the purpose of checking the equipment for imperfections that cannot be determined by the tests described elsewhere in this standard. <br> Where practical performance tests show the apparatus has imperfections related to wearer's acceptance, the test house shall provide full details of those parts of the practical performance tests which revealed these imperfections. <br> Testing shall be done in accordance with 8.4. | Pass See Annex 1 |
| 7.8 | Finish of parts | Parts of the device likely to come into contact with the wearer shall have no sharp edges or burrs. <br> Testing shall be done in accordance with 8.2. | Pass |
| 7.9 | Leakage | - --- | -- |
| 7.9.1 | Total inward leakage | The laboratory tests shall indicate that the particle filtering half mask can be used by the wearer to protect with high probability against the potential hazard to be expected. <br> The total inward leakage consists of three components: face seal leakage, exhalation valve leakage (if exhalation valve fitted) and filter penetration. <br> For particle filtering half masks fitted in accordance with the manufacturer's information, at least 46 out of the 50 individual exercise results (i.e. 10 subjects $\times 5$ exercises) for total inward leakage shall be not greater than <br> 25 \% for FFP1 <br> 11 \% for FFP2 <br> $5 \%$ for FFP3 <br> and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than <br> $22 \%$ for FFP1 <br> $8 \%$ for FFP2 <br> $2 \%$ for FFP3. <br> Testing shall be done in accordance with 8.5. | Pass <br> See <br> Annex 1 |
| 7.9.2 | Penetration of filter material | The penetration of the filter of the particle filtering half mask shall meet the requirements of Table 1. <br> Table 1 - Penetration of filter material | Pass See Annex 1 |

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Test Report

| Clause | Test Item | Test Requirement / Test Method |  |  | Result |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | A total of 9 samples of particle filtering half masks shall be tested for each aerosol. <br> Testing in accordance with 8.11 using the Penetration test according to EN 13274-7, shall be performed on: <br> - 3 samples as received; <br> - 3 samples after the simulated wearing treatment described in 8.3.1. <br> Testing in accordance with 8.11 using the Exposure test with a specified mass of test aerosol of 120 mg , and for particle filtering devices claimed to be re-usable additionally the Storage test, according to EN 13274-7, shall be performed: <br> - for non-re-usable devices on: <br> - 3 samples after the test for mechanical strength in accordance with <br> 8.3.3 followed by temperature conditioning in accordance with 8.3.2 <br> - for re-usable devices on: <br> - 3 samples after the test for mechanical strength in accordance with <br> 8.3.3 followed by temperature conditioning in accordance with 8.3.2. and followed by one cleaning and disinfecting cycle according to the manufacturer's instruction. |  |  |  |
| 7.10 | Compatibility with skin | Materials that may come into contact with the wearer's skin shall not be known to be likely to cause irritation or any other adverse effect to health. <br> Testing shall be done in accordance with 8.4 and 8.5. |  |  | Pass <br> See <br> Annex 1 |
| 7.11 | Flammability | The material used shall not present a danger for the wearer and shall not be of highly flammable nature. <br> When tested, the particle filtering half mask shall not burn or not to continue to burn for more than 5 s after removal from the flame. <br> The particle filtering half mask does not have to be usable after the test. <br> Testing shall be done in accordance with 8.6. |  |  | Pass <br> See <br> Annex 1 |
| 7.12 | Carbon dioxide content of the inhalation air | The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 \% (by volume). <br> Testing shall be done in accordance with 8.7. |  |  | Pass See Annex 1 |
| 7.13 | Head harness | The head harness shall be designed so that the particle filtering half mask can be donned and removed easily. <br> The head harness shall be adjustable or self-adjusting and shall be |  |  | Pass <br> See <br> Annex 1 |

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Test Report

| Clause | Test Item | Test Requirement / Test Method |  |  |  | Result |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | sufficiently robust to hold the particle filtering half mask firmly in position and be capable of maintaining total inward leakage requirements for the device. <br> Testing shall be done in accordance with 8.4 and 8.5. |  |  |  |  |
| 7.14 | Field of vision | The field of vision is acceptable if determined so in practical performance tests. <br> Testing shall be done in accordance with 8.4. |  |  |  | Pass |
| 7.15 | Exhalation valve(s) | A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations. <br> Testing shall be done in accordance with 8.2 and 8.9.1. <br> 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. <br> Testing shall be done in accordance with 8.2. <br> Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of $300 \mathrm{l} / \mathrm{min}$ over a period of 30 s . <br> Testing shall be done in accordance with 8.3.4. <br> When the exhalation valve housing is attached to the faceblank, it shall withstand axially a tensile force of 10 N applied for 10 s . <br> Testing shall be done in accordance with 8.8. |  |  |  | NA |
| 7.16 | Breathing resistance | The breathing resistances apply to valved and valveless particle filtering half masks and shall meet the requirements of Table 2. <br> Testing shall be done in accordance with 8.9. <br> Table 2 - Breathing resistance |  |  |  | Pass See Annex 2 |
|  |  | Classification | Maximum permitted resistance (mbar) |  |  |  |
|  |  |  | inhalation |  | exhalation |  |
|  |  |  | $30 \mathrm{l} / \mathrm{min}$ | $95 \mathrm{l} / \mathrm{min}$ | $160 \mathrm{l} / \mathrm{min}$ |  |
|  |  | FFP1 <br> FFP2 <br> FFP3 | 0.6 0.7 1,0 | 2,1 2,4 3,0 | 3,0 3,0 3,0 |  |

Remark: NA = Not applicable.

Annex 1

| Test item | Unit | Technical requirement | Test result | Single item decision |
| :---: | :---: | :---: | :---: | :---: |
| 7.5 Practical performance |  |  |  |  |
| Material | -- | after undergoing S.W.,non of the particle flitering half masks shall have suffered mechanical failure of the facepiece or straps | Sample 1 neither facepiece nor straps have mechanical failure | Pass |
|  |  |  | Sample 3:neither facepiece nor straps have mechanical failure |  |
|  |  |  | Sample 2:neither facepiece nor straps have mechanical failure |  |
|  |  | After undergoing S.W. and T.C., non of the particle flitering half masks shall not collapse | Sample 1:no collapse |  |
|  |  |  | Sample 2:no collapse |  |
|  |  |  | Sample 3:no collapse |  |
| 7.7 Practical performance |  |  |  |  |
| Head harness comfort | -- | Head harness should be comfort. | Sample 1 has the feeling of comfortable wearing | Pass |
|  |  |  | Sample 2 has the feeling of comfortable wearing | Pass |
| $\begin{gathered} \text { Security } \\ \text { of } \\ \text { fastenings } \end{gathered}$ |  | Fastening are safe and reliable | Sample 1:all fastenings are firms | Pass |
|  |  |  | Sample 2:all fastenings are firms | Pass |
| Field of vision |  | Field of vision is acceptable | Sample 1:having a wider visual field | Pass |
|  |  |  | Sample 2:having a wider visual field | Pass |

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| Test item | Unit | Technical requirement |  |  |  | Test result |  |  |  |  | Single item decision |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 7.9.1Total inward leakage |  |  |  |  |  |  |  |  |  |  |  |
| Test item | Unit | Technical requirement | Test result |  |  |  |  |  |  |  | Single item decision |
| Total Inward leakage | --- | at least 46 out of the 50 individual exercise results shall be not greater than $11 \%$; And, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than 8 \% | Exercises |  | $\begin{aligned} & \hline \text { E1 } \\ & (\%) \\ & \hline \end{aligned}$ | $\begin{gathered} \hline \text { E2 } \\ (\%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline \text { E3 } \\ (\%) \\ \hline \end{gathered}$ | $\begin{gathered} \hline \text { E4 } \\ (\%) \\ \hline \end{gathered}$ | $\begin{aligned} & \hline \text { E5 } \\ & \text { (\%) } \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { TIL } \\ & (\%) \\ & \hline \end{aligned}$ | Pass |
|  |  |  | A.R. | $1{ }^{\prime \prime}$ | 6.5 | 7.1 | 7.2 | 6.9 | 6.5 | 6.8 |  |
|  |  |  |  | $2^{\prime \prime}$ | 6.6 | 7.0 | 7.0 | 7.1 | 6.6 | 6.9 |  |
|  |  |  |  | $3^{\prime \prime}$ | 6.7 | 7.3 | 7.4 | 7.5 | 6.9 | 7.2 |  |
|  |  |  |  | $4^{\prime \prime}$ | 6.6 | 7.3 | 7.7 | 7.5 | 7.0 | 7.2 |  |
|  |  |  |  | $5^{\prime \prime}$ | 6.3 | 6.8 | 7.2 | 6.9 | 6.4 | 6.7 |  |
|  |  |  | T.C. | $6^{\prime \prime}$ | 6.1 | 7.2 | 7.2 | 6.8 | 6.5 | 6.8 |  |
|  |  |  |  | $7^{\prime \prime}$ | 7.3 | 8.3 | 8.1 | 8.3 | 7.7 | 7.9 |  |
|  |  |  |  | $8^{\prime \prime}$ | 6.4 | 7.6 | 7.5 | 7.5 | 6.9 | 7.2 |  |
|  |  |  |  | $9^{\prime \prime}$ | 6.9 | 7.3 | 6.8 | 8.0 | 7.5 | 7.3 |  |
|  |  |  |  | $10^{\prime \prime}$ | 7.1 | 7.9 | 7.9 | 8.0 | 7.5 | 7.7 |  |
| 7.9.2 Penetration of filter material |  |  |  |  |  |  |  |  |  |  |  |
| Test item | Unit | Technical requirement | Test result |  |  |  |  |  |  |  | Single item decision |
| Sodium chloride | --- | $\leqslant 6 \%$ | A.R. |  | 0.2\% |  | 0.3\% |  | 0.2\% |  | Pass |
|  |  |  |  |  | 0.3\% |  | 0.2\% |  | 0.1\% |  |  |
|  |  |  | M.S | T.C. |  | 4\% | 0.3\% |  | 0.3\% |  |  |
| Paraffin Oil |  | $\leqslant 6 \%$ | A.R. |  | 0.2\% |  | 0.3\% |  | 0.2\% |  | Pass |
|  |  |  | S.W. |  | 0.5\% |  | 0.4\% |  | 0.4\% |  |  |
|  |  |  | M.S.+T.C. |  | 3.3\% |  | 1.6\% |  | 3.7\% |  |  |

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Annex 2

### 7.16 Breathing resistance



Facial dimensions of ten test subjects:

| Subject | Face Length <br> $(\mathrm{mm})$ | Face Width <br> $(\mathrm{mm})$ | Face Depth <br> $(\mathrm{mm})$ | Mouth Width <br> $(\mathrm{mm})$ |
| :---: | :---: | :---: | :---: | :---: |
| 1 | 120 | 130 | 109 | 59 |
| 2 | 122 | 140 | 115 | 65 |
| 3 | 119 | 160 | 139 | 55 |
| 4 | 112 | 122 | 119 | 63 |
| 5 | 110 | 130 | 118 | 60 |
| 6 | 115 | 119 | 110 | 59 |
| 7 | 112 | 123 | 113 | 55 |
| 8 | 103 | 130 | 100 | 50 |
| 9 | 115 | 139 | 130 | 63 |
| 10 | 129 | 120 | 50 |  |

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## Sample Photo(s):


**End of Report***


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