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Object: Test Report  

Scope of the Work  
Aim of this work is to explore the possibility of applying the U-earth material as a standard layer in 
process for facepieces production, according to relevant safety requirements of harmonized 

Test has been conducted on sixteen samples of flat fold shaped facepieces type FFP2, with the 
elastics fixed by means of metallic clip and with valve according to request of the Customer.  

Subsequent requirements of EN 149 have not been verified according to the commitment with the 
Customer:  
7.4 Packaging, 7.6 Cleaning and disinfecting, 7.9.1 Total inward leakage, 7.11 Flammability, 7.12 Carbon dioxide content of the inhalation air, 7.13 Head harness, 7.14 Field of vision, 7.15 Exhalation valve, 7.17 Clogging, 7.18 Demountable parts.  

Requirement 7.9.2 Penetration of filter material has been verified with paraffin oil as described by 
EN 13274-7 according to commitment with the Customer.  

Note  
   a) Information provided with this report are correct to the best of our knowledge and belief. 
   These results can only be applied to tested samples.  

Nominal values and tolerances  
Unless otherwise specified, values stated in this test report are expressed as nominal values. The 
values which are not stated as maxima or minima are subject to a tolerance of ± 5 %. Unless 
otherwise specified, environmental conditions for testing have been 20°C ± 1 °C, 50% RU and 1 
bar.  

Test Results  

Material (Requirement 7.5)  
Materials used for particle filtering facepieces are suitable to withstand handling and wear over the 
period for which devices are designed to be used.  

A total of six particle filtering facepieces have been tested in order to verify this requirement.  
After undergoing Simulated wearing treatment on three samples (see point 8.3.1 of EN 149) none 
of particle filtering facepieces have suffered mechanical failure.  
No temperature conditioning has been applied.  

No material from filter media is released by air flow through filter and this aspect does not 
constitute a hazard or nuisance for wearer.
Testing has been done in accordance with point 8.2 Visual Inspection of EN 149.

**Practical performance (Requirement 7.7)**

Two facepieces have been tested as received according to point 8.4 of EN 149. Using two test subjects walking test and work simulation test have been carried out as described at points 8.4.2 and 8.4.3 of EN 149.

Samples have been evaluated positively by the test subjects.

**Test Results**

<table>
<thead>
<tr>
<th>Test</th>
<th>Facepiece 1</th>
<th>Facepiece 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking test (10 minutes)</td>
<td>Test Subject 1</td>
<td>Test Subject 2</td>
</tr>
<tr>
<td>head harness comfort;</td>
<td>no comment</td>
<td>no comment</td>
</tr>
<tr>
<td>security of fastenings;</td>
<td>no comment</td>
<td>no comment</td>
</tr>
<tr>
<td>field of vision;</td>
<td>no comment</td>
<td>no comment</td>
</tr>
<tr>
<td>any other comments reported by the wearer on request.</td>
<td>no comment</td>
<td>no comment</td>
</tr>
<tr>
<td>Work simulation (20 minutes)</td>
<td>Test Subject 1</td>
<td>Test Subject 2</td>
</tr>
<tr>
<td>head harness comfort;</td>
<td>no comment</td>
<td>no comment</td>
</tr>
<tr>
<td>security of fastenings;</td>
<td>no comment</td>
<td>no comment</td>
</tr>
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<tr>
<td>any other comments reported by the wearer on request.</td>
<td>no comment</td>
<td>no comment</td>
</tr>
</tbody>
</table>

**Finish of parts (Requirement 7.8)**

Parts of the device likely to come into contact with the wearer do not have sharp edges or burrs. Testing has be done in accordance with 8.2 Visual Inspection of EN 149.

**Penetration of filter material (Requirement 7.9.2)**

A total of Nine samples of particle filtering facepieces have been tested with paraffin oil.

Six samples have been tested taking measurement of penetration as the average over a time of 30 sec beginning 3 min after start of aerosol test:

- three as received;
- three after simulated wearing treatment described in 8.3.1 of EN 149.

Three samples have been tested using Exposure Test laying down a specified mass of test aerosol of 120 mg on filter media. Additionally on same samples Storage Test was performed, storing facemasks for 24 hours. After storage test same masks have been tested taking measurement of penetration as average over a time of 30 sec beginning 3 min after start of aerosol test.

These three masks have been conditioned with the method described here below:

- Mechanical strength (in accordance with 8.3.3 of EN 149) without temperature conditioning and cleaning 7/disinfecting cycle.
Test Results (presented as arithmetic mean of recorded values)

<table>
<thead>
<tr>
<th>Requirement of EN 149 for FFP2 NR</th>
<th>Penetration of Paraffine Oil (%)</th>
<th>Penetration after 120 mg of Paraffine Oil (%)</th>
<th>Penetration of Paraffine Oil (%) after storage test</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td>6%</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>0.15%</td>
<td>0.22%</td>
<td>0.82%</td>
<td></td>
</tr>
</tbody>
</table>

Compatibility with skin (Requirement 7.10)
Materials that may come into contact with the wearer’s skin are not known to cause irritation or any other adverse effect to health. Testing has been done in accordance with 8.4 Practical Performance.

Breathing resistance (Requirement 7.16)
A total of 9 particle filtering facepieces have been tested:
- 3 as received
- 3 after the simulated wearing
- 3 after the flow conditioning (in accordance with 8.3.4 of EN 149)
Particle filtering facepieces have been fitted securely in a leaktight manner but without deformation on a Sheffield dummy head.
Flow rate at which resistance was measured has been corrected to 23°C and 1 bar absolute according to EN 149.

Exhalation Resistance
Particle filtering facepieces have been sealed on a Sheffield dummy head. Exhalation resistance has been measured at the opening for mouth of dummy head using a breathing machine.
The exhalation resistance has been measured with dummy head successively placed in 5 defined positions:
- facing directly ahead
- facing vertically upwards
- facing vertically downwards
- lying on the left side
- lying on the right side

Inhalation resistance
Inhalation resistance has been tested at 30 l/min and 95 l/min with continuous flow.

Test Results (presented as arithmetic mean of recorded values)

<table>
<thead>
<tr>
<th>Requirement of EN 149 for FFP2 NR</th>
<th>Exhalation Resistance (mbar)</th>
<th>Inhalation Resistance (mbar)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>160 l/min</td>
<td>30 l/min</td>
</tr>
<tr>
<td>3.0</td>
<td>3.0</td>
<td>0.7</td>
</tr>
<tr>
<td>1.05</td>
<td>1.05</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Note: Values reported at column “exhalation resistance” represent for each sample maximum value recorded during tests for all configurations requested by norm.