Test Report

Report No	255/7689322 3 of 3 This Report consists of 8 pages
Licence/Cert. No	CE 79995
Client	Handan Hengyong Protective & Clean C-1-901 Yuyuan Plaza 9 West Yuhua Road 050000 Shijiazhuang Hebei
Authority & date	BSI: Service Management Order No 7689322 Dated 07 September 2012 Equipment Record No 10124433
Items tested	Model: HY8232 FFP3 Filtering face masks
Specification	Article 11A Audit test to BS EN 149:2001 + A1: 2009 Respiratory protective devices – Filtering half masks to protect against particles– Incorporating Corrigendum July 2002 See Assessment Summary
Results	See Assessment Summary
Prepared by	S Hickman S Hickman. Senior Technician Engineer
Authorized by	D J Newton D.J. Newton Senior Engineer
Issue Date	16 May 2012
Conditions of issue	This Test Report is issued subject to the conditions stated in current issue of CP0322 'Conditions of Contract for Testing'. The results contained herein apply only to the particular sample/s tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of the Managing Director, BSI, who reserves the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.

BS EN 149:2001 +A1: 2009

SPECIFICATION:- Article 11A Audit test to BS EN 149:2001 + A1: 2009
Respiratory protective devices - Filtering half masks to protect against particles - Incorporating Corrigendum July 2002
(see Assessment Summary for details)

CLIENT/MANUFACTURER: Handan Hengyong Protective & Clean

MODEL: HY8232 FFP3

NUMBER OF SAMPLES: Thirty (30) samples submitted

ER NO: 10124433 DATE RECEIVED: 20 April 2012
DATE STARTED: 27 April 2012

MANUFACTURER'S CLAIMED EQUIPMENT PERFORMANCE:-
Filter classification: FFP3

INTRODUCTION

The samples detailed above were a certified model submitted by the Client for an Article 11A Audit assessment programme. BSI Product Certification requested Clause 7.9.2 'Penetration of filter material' and Clause 7.16 'Breathing Resistance' to be assessed.

This Report should be read in conjunction with the Specification.

Unless specified all testing was performed in accordance with BS EN 149:2001 + A1: 2009.

ASSESSMENT SUMMARY

An Assessment Summary is presented on page 3.

BS EN 149:2001 +A1: 2009

ASSESSMENT SUMMARY

CLAUSE NO AND TITLE		ASSESSMENT	LOCATION
7	**REQUIREMENTS**		
7.1	**General**	-	Page 4
7.2	**Nominal values and tolerances**	-	Page 4
7.3	**Visual inspection**	N/As (1)	-
7.4	**Packaging**	N/As (1)	-
7.5	**Material**	N/As (1)	-
7.6	**Cleaning and disinfecting**	N/As (1)	-
7.7	**Practical performance**	N/As (1)	-
7.8	**Finish of parts**	N/As (1)	-
7.9	**Leakage**	-	-
7.9.1	**Total inward leakage**	N/As (1)	-
7.9.2	**Penetration of filter material**	Pass	Pages 5 - 6
7.10	**Compatibility with skin**	N/As (1)	-
7.11	**Flammability**	N/As (1)	-
7.12	**Carbon dioxide content of inhalation air**	N/As (1)	-
7.13	**Head harness**	N/As (1)	-
7.14	**Field of vision**	N/As (1)	-
7.15	**Exhalation valve(s)**	N/As (1)	-
7.16	**Breathing resistance**	Pass	Pages 7 - 8
7.17	**Clogging**	N/As (1)	-
7.18	**Demountable parts**	N/As (1)	-
9	**Marking**	N/As (1)	-
10	**Information to be supplied by the manufacturer**	N/As (1)	-

N/As: Not Assessed

(1) Not required by BSI Product Certification.

BS EN 149:2001 +A1: 2009

EXAMINATION AND TEST

Model Type: HY8232 FFP3

CLAUSE	REQUIREMENT	ASSESSMENT
7 **7.1**	**REQUIREMENTS** **General** In all tests all samples shall meet the requirements.	-
7.2	**Nominal values and tolerances** Unless otherwise specified, the values stated in this European Standard are expressed as nominal values. Except for temperature limits, values, which are not stated as maxima or minima, shall be subject to a tolerance of ±5%. Unless otherwise specified, the ambient temperature for testing shall be (16 – 32) °C, and the temperature limits shall be subject to an accuracy of ± 1°C.	-

BS EN 149:2001 +A1: 2009

EXAMINATION AND TEST (CONTINUED)

Model Type: HY8232 FFP3

<table>
<tr><th>CLAUSE</th><th>REQUIREMENT</th><th>ASSESSMENT</th></tr>
<tr><td>7.9
7.9.2</td><td>Leakage
Penetration of filter material (Sodium Chloride Method)
The penetration of the filter of the particle filtering half mask shall meet the requirements of Table 1 of the standard. A total of 12 particle filtering half masks shall be tested for each aerosol: 3 as received, 3 after temperature conditioning in accordance with clause 8.3.2, 3 after the simulated wearing treatment described in clause 8.3.1, and 3 after the test for mechanical strength in accordance with clause 8.3.3.
Test in accordance with clause 8.11 of the standard.

Table A. Maximum sodium chloride penetration @ 95 l/min
<table>
<tr><th>Sample No</th><th>Pre-test condition</th><th>Flow through filter (l/min)</th><th>Max Specified Penetration (%)</th><th>Actual Penetration (%)</th></tr>
<tr><td>1</td><td>AR</td><td>95</td><td>1</td><td>0.1938</td></tr>
<tr><td>2</td><td>AR</td><td>95</td><td>1</td><td>0.2798</td></tr>
<tr><td>3</td><td>AR</td><td>95</td><td>1</td><td>0.0553</td></tr>
<tr><td>4</td><td>SW</td><td>95</td><td>1</td><td>0.0998</td></tr>
<tr><td>5</td><td>SW</td><td>95</td><td>1</td><td>0.0573</td></tr>
<tr><td>6</td><td>SW</td><td>95</td><td>1</td><td>0.0145</td></tr>
<tr><td>13</td><td>TC</td><td>95</td><td>1</td><td>0.1547</td></tr>
<tr><td>14</td><td>TC</td><td>95</td><td>1</td><td>0.1020</td></tr>
<tr><td>15</td><td>TC</td><td>95</td><td>1</td><td>0.0924</td></tr>
<tr><td>19</td><td>MS</td><td>95</td><td>1</td><td>0.1526</td></tr>
<tr><td>20</td><td>MS</td><td>95</td><td>1</td><td>0.1308</td></tr>
<tr><td>21</td><td>MS</td><td>95</td><td>1</td><td>0.1011</td></tr>
</table></td><td>See Table A

Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass
Pass</td></tr>
</table>

AR: As Received TC: Temperature Conditioned
SW: Simulated Wear MS: Mechanical strength

BS EN 149:2001 +A1: 2009

EXAMINATION AND TEST (CONTINUED)

Model Type: HY8232FFP3

<table>
<tr><th>CLAUSE</th><th>REQUIREMENT</th><th>ASSESSMENT</th></tr>
<tr><td>7.9
7.9.2</td><td>Leakage (continued)
Penetration of filter material (Paraffin oil method)
The penetration of the filter of the particle filtering half mask shall meet the requirements of Table 1 of the standard. A total of 12 particle filtering half masks shall be tested for each aerosol: 3 as received, 3 after temperature conditioning in accordance with clause 8.3.2, 3 after the simulated wearing treatment described in clause 8.3.1, and 3 after the test for mechanical strength in accordance with clause 8.3.3.
Test in accordance with clause 8.11 of the standard.

Table B. Maximum paraffin oil penetration @ 95 l/min
<table>
<tr><th>Sample No</th><th>Pre-test condition</th><th>Flow through filter (l/min)</th><th>Max Specified Penetration (%)</th><th>Actual Penetration (%)</th></tr>
<tr><td>7</td><td>AR</td><td>95</td><td>1</td><td>0.17</td></tr>
<tr><td>8</td><td>AR</td><td>95</td><td>1</td><td>0.20</td></tr>
<tr><td>9</td><td>AR</td><td>95</td><td>1</td><td>0.30</td></tr>
<tr><td>10</td><td>SW</td><td>95</td><td>1</td><td>0.29</td></tr>
<tr><td>11</td><td>SW</td><td>95</td><td>1</td><td>0.30</td></tr>
<tr><td>12</td><td>SW</td><td>95</td><td>1</td><td>0.30</td></tr>
<tr><td>16</td><td>TC</td><td>95</td><td>1</td><td>0.32</td></tr>
<tr><td>17</td><td>TC</td><td>95</td><td>1</td><td>0.34</td></tr>
<tr><td>18</td><td>TC</td><td>95</td><td>1</td><td>0.33</td></tr>
<tr><td>22</td><td>MS</td><td>95</td><td>1</td><td>0.24</td></tr>
<tr><td>23</td><td>MS</td><td>95</td><td>1</td><td>0.21</td></tr>
<tr><td>24</td><td>MS</td><td>95</td><td>1</td><td>0.24</td></tr>
</table>
</td><td>See Table B</td></tr>
</table>

AR: As Received TC: Temperature Conditioned

SW: Simulated Wear MS: Mechanical strength

BS EN 149:2001 +A1: 2009

EXAMINATION AND TEST (CONTINUED)

Model Type: HY8232 FFP3

CLAUSE	REQUIREMENT	ASSESSMENT
7.16	**Breathing resistance** The breathing resistances apply to valved and valveless particle filtering half masks and shall meet the requirements of Table 2 of the standard. A total of 12 valved particle filtering half masks shall be tested: 3 as received, 3 after temperature conditioning in accordance with clause 8.3.2, 3 after the test for simulated wearing in accordance with clause 8.3.1, and 3 after the flow conditioning in accordance with clause 8.3.4. Test in accordance with clause 8.9 of the standard. Test in accordance with clause 8.9 of the standard.	See Tables C, D and E

Table C: Inhalation resistance @ 30 l/min

Sample No	Pre-test condition	Continuous flow (l/min)	Max spec inhalation resistance (mbar)	Actual inhalation resistance (mbar)	
1	AR	30	1.0	0.52	Pass
2	AR	30	1.0	0.56	Pass
3	AR	30	1.0	0.53	Pass
4	SW	30	1.0	0.59	Pass
5	SW	30	1.0	0.57	Pass
6	SW	30	1.0	0.59	Pass
13	TC	30	1.0	0.58	Pass
14	TC	30	1.0	0.55	Pass
15	TC	30	1.0	0.59	Pass
25	FT	30	1.0	0.52	Pass
26	FT	30	1.0	0.50	Pass
27	FT	30	1.0	0.51	Pass

Table D: Inhalation resistance @ 95 l/min

Sample No	Pre-test condition	Continuous flow (l/min)	Max spec inhalation resistance (mbar)	Actual inhalation resistance (mbar)	
1	AR	95	3.0	1.90	Pass
2	AR	95	3.0	1.92	Pass
3	AR	95	3.0	1.93	Pass
4	SW	95	3.0	1.94	Pass
5	SW	95	3.0	1.93	Pass
6	SW	95	3.0	1.96	Pass
13	TC	95	3.0	2.01	Pass
14	TC	95	3.0	2.03	Pass
15	TC	95	3.0	2.00	Pass
25	FT	95	3.0	2.10	Pass
26	FT	95	3.0	2.03	Pass
27	FT	95	3.0	2.04	Pass

AR: As Received TC: Temperature Conditioned
SW: Simulated Wear FT: Flow Tested at 300 l/min

BS EN 149:2001 +A1: 2009

EXAMINATION AND TEST (CONTINUED)

Model Type: HY8232 FFP3

CLAUSE	REQUIREMENT					ASSESSMENT
7.16	**Breathing resistance (continued)** Table E: Exhalation resistance @ 160 l/min measured in five orientations - worst case recorded.					
	Sample No	Pre-test condition	Continuous flow (l/min)	Max spec exhalation resistance (mbar)	Actual exhalation resistance (mbar)	
	1	AR	160	3.0	1.78	Pass
	2	AR	160	3.0	1.73	Pass
	3	AR	160	3.0	1.78	Pass
	4	SW	160	3.0	1.83	Pass
	5	SW	160	3.0	1.86	Pass
	6	SW	160	3.0	1.83	Pass
	13	TC	160	3.0	1.82	Pass
	14	TC	160	3.0	1.82	Pass
	15	TC	160	3.0	1.82	Pass
	25	FT	160	3.0	1.75	Pass
	26	FT	160	3.0	1.71	Pass
	27	FT	160	3.0	1.75	Pass

AR: As Received TC: Temperature Conditioned
SW: Simulated Wear FT: Flow Tested at 300 l/min

End of Report