

Test Report 8363627.

Handan Hengyong Protective &
Clean

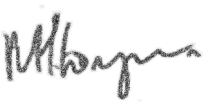
Products Co Ltd

Introduction.

This report has been prepared by P Waller and relates to the activity detailed below:

| Job/Registration Details | Client Details |
|---|---|
| Job number: 8363627 Job type: Testing Samples Submitted Start Date: 10/08/2015 Test type: Type Sample ID: 10156740 Registration: CE 70730 Scheme: PPE CE Pt10 Protocol: PP 123 Scheme Mgr: K Demetriou Quality system: ISO 9001:2008 | Handan Hengyong Protective & Clean Products Co Ltd C-1-901, 9 Yuhua West Road Shijiazhuang Hebei 050000 China |

The report has been approved for issue by M Thompson – Testing Team Manager, PPE

| Approved For Issue | |
|---|----------------------------|
|  | Issue Date: 20 August 2015 |

Objectives.

This is limited testing to only certain clauses or sub-clauses of the standard but these have been followed in full, as defined.

Product Scope.

HY9330- FFP3- Filtering half mask.

Report Summary.

The samples were received on 28 July and the testing was started on 04 August 2015.

The samples submitted complied with the requirements of the limited test work conducted.

Test Samples.

| Sample Id | ER Number | Description |
|-----------|-----------|---------------------------------------|
| 1 | 10156740 | HY9330-filtering half mask - unvalved |

Description of Test Samples.

| Sample Description |
|---|
| HY9930 FFP3 Filtering half mask to protect against particles. |

Test Requirements.

BS EN 149:2001 - A1 + Results Table - Respiratory protective devices. Filtering half masks to protect against particles. Requirements, testing, marking

| Clause | Requirements |
|----------------------|--|
| 7 | Requirements |
| 7.9 | Leakage |
| 7.9.1 | Total inward leakage |
| 7.12 | Carbon dioxide content of inhalation air |
| 7.17 | Clogging |
| 7.17.2 | Breathing resistance |
| 7.17.3 | Penetration of filter material |
| Results table | Actual Test Results <i>See Tables A – F, BS EN 149:2001 + A1:2009</i> |

Glossary of Terms.

PASS: Complies. Tested by BSI engineers at BSI laboratories.

Conditions of Issue.

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Test Results

CLAUSE

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.

The total inward leakage consists of three components: face seal leakage, exhalation valve leakage (if exhalation valve fitted) and filter penetration.

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 x 5 exercises) for total inward leakage shall be not greater than 5% for FFP3

and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than 2% for FFP3.

Test in accordance with clause 8.5 of the standard.

See Table A and Appendix A for Test Panel Data

Pass - See Table A and Appendix A for Test Panel Data

Table A: Total Inward Leakage Results

| Test Panel Member | Pre-test condition | Sample No | A | B | C | D | E | Average (%) |
|-------------------|--------------------|-----------|-------------|------------------------------------|---------------------------------|-------------------------|-------------|-------------|
| | | | Walking (%) | Walking with head side to side (%) | Walking with head up & down (%) | Walking and talking (%) | Walking (%) | |
| MT2 | AR | 1 | 0.6708 | 0.8005 | 2.3157 | 0.4433 | 0.5787 | 0.9618 |
| DT1 | AR | 2 | 5.3937 | 12.8622 | 2.9587 | 0.1870 | 1.5464 | 4.5896 |
| FM1 | AR | 3 | 0.3459 | 0.2889 | 0.2120 | 0.1090 | 0.0637 | 0.2039 |
| MM1 | AR | 4 | 0.5057 | 0.8241 | 0.5320 | 0.1333 | 0.3811 | 0.4752 |
| MY1 | AR | 5 | 0.2781 | 0.6140 | 4.4434 | 0.4967 | 2.9154 | 1.7495 |
| MM2 | TC | 6 | 0.4772 | 2.5409 | 1.1903 | 0.3408 | 0.5894 | 1.0277 |
| NM1 | TC | 7 | 0.3222 | 0.6442 | 3.0402 | 0.0937 | 0.4356 | 0.9072 |
| OR1 | TC | 8 | 1.9498 | 2.3595 | 1.6610 | 0.7178 | 1.2719 | 1.5920 |
| PN1 | TC | 9 | 0.3366 | 0.4328 | 1.9126 | 0.0548 | 0.1357 | 0.5745 |
| RP1 | TC | 10 | 2.9883 | 5.0377 | 9.4587 | 0.0478 | 0.0587 | 3.5182 |

Test Results (Continued).

7.12 Carbon dioxide content of inhalation air

The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1.0% (by volume).

Test in accordance with clause 8.7 of the standard.

Pass – See Table B

Table B: Carbon dioxide content of the inhalation air

| Sample No | Pre-test condition | Maximum Specified CO ₂ (%) | Actual CO ₂ (%) |
|-----------|--------------------|---------------------------------------|----------------------------|
| 11 | AR | 1.0 | 0.69 |
| 12 | AR | 1.0 | 0.69 |
| 13 | AR | 1.0 | 0.79 |

Test Results (Continued).

CLAUSE

7.17 Clogging

7.17.1 General

For single shift use devices, the clogging test is an optional test. For re-usable devices the test is mandatory.

Devices designed to be resistant to clogging, shown by a slow increase of breathing resistance when loaded with dust, shall be subjected to the treatment described in clause 8.10 of the standard.

The specified breathing resistances shall not be exceeded before the required dust load of 833 mg/h/m³ is reached.

Pass

7.17.2 Breathing Resistance

7.17.2.1 Valved particle filtering half masks

After clogging the inhalation resistances shall not exceed

- FFP3: 7 mbar at 95 l/min continuous flow;

The exhalation resistance shall not exceed 3 mbar at 160 l/min continuous flow.

Test in accordance with clause 8.9 of the standard.

N/Ap – Not a design feature of this product

7.17.2.2 Valveless particle filtering half masks

After clogging the inhalation and exhalation resistances shall not exceed

- FFP3: 5 mbar at 95 l/min continuous flow.

Test in accordance with clause 8.9 of the standard.

Pass – See Tables C and D

Table C: Inhalation resistance - post clogging

| Sample No | Pre-test condition | Continuous flow through filter (l/min) | Maximum specified inhalation resistance (mbar) | Actual inhalation resistance (mbar) | Result |
|-----------|--------------------|--|--|-------------------------------------|--------|
| 14 | AR | 95 | 5 | 1.48 | Pass |
| 15 | TC | 95 | 5 | 1.38 | Pass |
| 16 | TC | 95 | 5 | 1.50 | Pass |

Table D: Exhalation resistance - post clogging
measured in five orientations - worst case recorded

| Sample No | Pre-test condition | Continuous flow through filter (l/min) | Maximum specified exhalation resistance (mbar) | Actual exhalation resistance (mbar) | Result |
|-----------|--------------------|--|--|-------------------------------------|--------|
| 14 | AR | 95 | 5 | 1.41 | Pass |
| 15 | TC | 95 | 5 | 1.33 | Pass |
| 16 | TC | 95 | 5 | 1.45 | Pass |

Test Results (Continued).

CLAUSE

7.17 Clogging (Continued)

7.17.3 Penetration of filter material

All types (valved and valveless) of particle filtering half masks claimed to meet the clogging requirement shall also meet the requirements given in clause 7.9.2 of the standard, for the penetration test according to EN 13274-7, after the clogging treatment.

Test in accordance with clause 8.11 of the standard using
EN 13274-7: 2008

Pass – See Tables E and F

Table E: Sodium chloride penetration - post clogging

| Sample No | Pre-test condition | Flowrate through filter (l/min) | Max spec. penetration (%) | Actual penetration (%) | Result |
|-----------|--------------------|---------------------------------|---------------------------|------------------------|--------|
| 14 | AR | 95 | 1 | 0.288993 | Pass |
| 15 | TC | 95 | 1 | 0.110716 | Pass |
| 16 | TC | 95 | 1 | 0.752972 | Pass |

Table F: Paraffin oil penetration - post clogging

| Sample No | Pre-test condition | Flowrate through filter (l/min) | Max spec. penetration (%) | Actual penetration (%) | Result |
|-----------|--------------------|---------------------------------|---------------------------|------------------------|--------|
| 14 | AR | 95 | 1 | 0.500 | Pass |
| 15 | TC | 95 | 1 | 0.195 | Pass |
| 16 | TC | 95 | 1 | 0.900 | Pass |

Appendix A – Test Panel Data.

| Initials | Facial Dimensions (mm) | | | | | |
|----------|------------------------|---------------|------------|----------------|--------------------|-----|
| | Length of face | Width of face | Face depth | Width of mouth | Head Circumference | Sex |
| NM1 | 115 | 138 | 120 | 53 | 565 | M |
| MM1 | 120 | 146 | 130 | 54 | 575 | M |
| MM2 | 124 | 150 | 144 | 50 | 580 | M |
| FM1 | 126 | 143 | 144 | 50 | 560 | M |
| PN1 | 115 | 140 | 113 | 52 | 550 | M |
| RP1 | 119 | 132 | 122 | 51 | 556 | M |
| OR1 | 118 | 133 | 105 | 51 | 550 | F |
| DT1 | 120 | 144 | 130 | 60 | 560 | M |
| MT2 | 129 | 150 | 130 | 51 | 570 | M |
| MY1 | 105 | 133 | 115 | 50 | 550 | F |

Note: All persons were clean shaven

End of Report