

Test Report

EN 149 : 2001

Report no: 07.02.40

Client: INSPEC Asia Pacific
Room 805
Suncome Liauw's Plaza
No 738 Shang Cheng Road
Pu Dor Shanghai
PR China

Client order: TS06/3493

Order(s) received: 11 to 19 December 2006

Manufacturer: Quinlakes Co. Ltd. (Fido)

Model(s): F225C/V

Date(s) of tests: 18 December 2006 to 12 February 2007

Conditions:

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Tests marked are not included in the UKAS accreditation schedule for INSPEC.

Samples will be disposed of four weeks from the date of this report.

Checked: *M.P. Formstone* Approved: *P. Threlfall*

M.P. Formstone P. Threlfall

Issued: 13 February 2007

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Summary of assessment*

Clause	Assessment
7.4 Packaging	
7.5 Material	Ltd
7.6 Cleaning and disinfecting	
7.7 Practical performance	
7.8 Finish of parts	Ltd
7.9.1 Total inward leakage	Ltd
7.9.2 Penetration of filter material: Sodium chloride	Ltd
7.9.2 Penetration of filter material: Paraffin oil	
7.10 Compatibility with skin	Ltd
7.11 Flammability	Pass
7.12 Carbon dioxide content of the inhalation air	Pass
7.13 Head harness	
7.14 Field of vision	
7.15 Exhalation valve(s)	Ltd
7.16 Breathing resistance	Pass
7.17 Clogging	
7.18 Demountable parts	
9 Marking	
10 Information to be supplied by the manufacturer	

Key

	Highlighting shows the clauses requested for each model. Any other clauses were not requested.
Pass	Requirement satisfied.
Ltd	Testing was insufficient to completely verify compliance with clause. Refer to "Procedures / Result detail".
Fail	Requirement not satisfied. Refer to the "Result detail" section for more information.
NAs	Assessment not carried out.
NAp	Requirement not applicable.
NT	Requested but not tested due to early termination following failure.

* Assessment relates only to those items tested in this report.

Product characteristics

Property	Characteristic
Model	F225C/V
Classification	FFP2 claimed
Exhalation valve(s)	Single
Usage	Single

Sample details

Product	Quantity	Received	INSPEC no. (R841 +)
F225C/V filtering facepiece	40	15 Dec 06	01 – 59, 05A and 06A

Procedures

Testing was performed in accordance with EN 149 : 2001, unless specified otherwise below.

7.9.2 Filter penetration testing by the paraffin oil method was carried out using a modified Phoenix SG-20 aerosol generator and a Phoenix model JM-6000 photometer or a TEC Services' model PH-3 photometer. These give similar performance to the instruments specified.

7.16 Exhalation resistance was tested at a continuous flow of 160 l/min.

In addition, the client requested testing to establish filter penetration performance during exposure to 120mg of test aerosol. Results are included at the end of the "Result detail" section.

This testing was carried out in accordance with 7.9.2 extended to 120mg exposure, on samples as follows.

Three samples were tested against each test aerosol, following mechanical strength conditioning in accordance with 8.3.3 and temperature conditioning in accordance with 8.3.2.

Peak penetration during exposure is reported and the penetration after three minutes for comparison purposes.

Result detail

7.5 Material

Samples 23 to 25 were conditioned in accordance with 8.3.1.

Samples 06, 06A, 07, 17 to 19, 46, 47 and 53 to 58 were conditioned in accordance with 8.3.2.

The effects of filter media release were not assessed. Manufacturer to certify.

NAs

7.9.1 Total inward leakage (%)

Subject	Sample	Cond	Walk	Head side/side	Head up/down	Talk	Walk	Mean
SH	04	AR	0.29	0.57	0.23	0.33	0.24	0.33
INH	05A	AR	0.14	0.16	0.20	0.24	0.24	0.20
BH	06A	TC	3.83	5.26	4.45	1.31	3.18	3.61
MDC	07	TC	0.39	0.46	0.45	0.52	0.40	0.44
Maximum permitted			11					8

20 out of 20 individual exercise results were less than 11%

5 out of 5 individual wearer arithmetic means were less than 5%

Subject SC was excluded from the test panel, as the subject could not achieve a satisfactory seal after following user instructions.

Subject facial dimensions:

Subject	Length (mm)	Width (mm)	Depth (mm)	Width (mm)
SH	107	133	111	50
INH	125	153	95	58
BH	125	136	109	52
MDC	120	146	114	57
SC	107	131	112	55

7.9.2 Penetration of filter material

Sodium chloride:

Sample	Condition	Penetration (%)
23	S.W.	0.19
24		0.22
25		0.19
Maximum permitted		6.0

7.10 Compatibility with skin

No problems were encountered during limited total inward leakage testing.

The likelihood of materials in contact with the skin causing irritation or other adverse effect on health was not assessed. Manufacturer to certify.

NAs**7.11 Flammability**

Samples 44 and 45 (A.R.) and 46 and 47 (T.C.) were tested.

Pass**7.12 Carbon dioxide content of the inhalation air****Pass**

Sample	CO ₂ (%)
35	0.69
36	0.70
37	0.65
Maximum permitted	1.0

7.15 Exhalation valve

The valve housing withstood 10N applied for 10s. Samples 12 (A.R.), 19 (T.C.) and 29 (M.S.) were tested.

Pass**7.16 Breathing resistance****Pass**

Sample	Condition	Inhalation resistance (mbar)		Exhalation resistance (mbar)
		At 30 l/min	At 95 l/min	At 160 l/min
11	A.R.	0.49	1.80	1.85
12		0.51	1.78	1.70
13		0.47	1.70	1.67
17	T.C.	0.46	1.64	1.70
18		0.41	1.54	1.69
19		0.45	1.55	1.63
23	S.W.	0.54	1.90	1.91
24		0.56	1.96	1.98
25		0.54	1.97	2.00
50	A.R. + F.C.	0.52	1.78	1.80
51	T.C. + F.C.	0.50	1.75	1.68
52		0.45	1.63	1.70
Maximum permitted		0.7	2.4	3.0

Additional Performance Testing**Penetration of filter material (Sodium Chloride)**

Sample	Condition	Penetration (%)	
		after 3 min	max. during exposure ☒
53	M.S. + T.C.	0.21	0.21
54		0.28	0.31
59		0.25	0.25
Maximum permitted		6.0	

Penetration of filter material (Paraffin Oil)

Sample	Condition	Penetration (%)	
		after 3 min	max. during exposure ☒
56	M.S. + T.C.	1.1	2.0
57		1.1	1.9
58		0.9	1.8
Maximum permitted		6.0	

ANNEX

This Annex comprises two sections.

1. Estimates of the uncertainty of measurement (1 page)

EN 149 : 2001**Estimates of the uncertainty of measurement**

Clause	Test	Uncertainty
7.9.1	Total inward leakage	4.7%
7.9.2	Penetration of filter material - Sodium chloride	4.7%
7.9.2	Penetration of filter material - Paraffin oil	5.0%
7.12	CO ₂ content of the inhalation air	4.0%
7.16	Breathing resistance	1.8%
7.17.2	Breathing resistance after clogging	1.8%
7.17.3	Filter penetration after clogging - Sodium chloride	4.7%
7.17.3	Filter penetration after clogging - Paraffin oil	5.0%

Values expressed as a percentage (%) are relative.

It should be noted that the above values have not been taken into account when making assessment to the pass/fail criteria