

Test Report

EN 149 : 2001 + A1 : 2009

Particle filtering half masks

Report no: 1.20.03.28

Client: NHS Supply Chain
Equinox House
City Link
Nottingham
Nottinghamshire
NG2 4LA
United Kingdom

Client order: Katy Drew

Order(s) received: 2 to 13 March 2020

Model(s): 3M 1863
3M 1873V
3M 8833

Date(s) of tests: 10 to 19 March 2020

Signed: 

Heather Webb, Laboratory Supervisor

Issued: 19 March 2020

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Conditions

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Tests marked are not included in our ISO/IEC 17025 accreditation.

Opinions, comments and interpretations expressed in this report are shown in italics.

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Summary of assessment*

Clause		Assessment (see Key)			
		01	02	03	04
Batch:		01	02	03	04
Model:		3M 1863	3M 1863	3M 1873V	3M 1873V
EXP LOT:		30/06/19	31/08/19	30/06/19	31/08/19
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	Ltd
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd
7.17	Clogging				
7.18	Demountable parts				
9	Marking				
10	Information to be supplied by the manufacturer				

Key

	Shading shows the clauses requested. Any other clauses were not requested.
Pass	Requirement satisfied.
Ltd	Testing requested was insufficient completely to verify compliance with the clause. Refer to the "Result details" section for more information.
Fail	Requirement not satisfied. Refer to the "Result details" section for more information.
NAs	Assessment not carried out.
NAp	Requirement not applicable.
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Clause		Assessment (see Key)			
		05	06	07	08
Batch:		05	06	07	08
Model:		3M 1863	3M 1863	3M 1863	3M 1863
EXP LOT:		30/04/19	31/05/19	31/05/19	31/05/19
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	Ltd
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd
7.17	Clogging				
7.18	Demountable parts				
9	Marking				
10	Information to be supplied by the manufacturer				

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Clause		Assessment (see Key)				
		Batch:	09	10	11	12
		Model:	3M 1863	3M 1863	3M 1863	3M 1863
		EXP LOT:	30/06/19	31/07/19	31/08/19	31/08/19
7.4	Packaging					
7.5	Material	Ltd	Ltd	Ltd	Ltd	
7.6	Cleaning and disinfecting					
7.7	Practical performance					
7.8	Finish of parts					
7.9.1	Total inward leakage					
7.9.2	Penetration of filter material: Sodium chloride					
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd	
7.10	Compatibility with skin					
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(s)					
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd	
7.17	Clogging					
7.18	Demountable parts					
9	Marking					
10	Information to be supplied by the manufacturer					

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Clause		Assessment (see Key)				
		Batch:	13	14	15	16
		Model:	3M 1863	3M 1863	3M 1863	3M 1863
		EXP LOT:	30/11/19	31/12/19	30/11/19	31/12/19
7.4	Packaging					
7.5	Material	Ltd	Ltd	Ltd	Ltd	
7.6	Cleaning and disinfecting					
7.7	Practical performance					
7.8	Finish of parts					
7.9.1	Total inward leakage					
7.9.2	Penetration of filter material: Sodium chloride					
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd	
7.10	Compatibility with skin					
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(s)					
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd	
7.17	Clogging					
7.18	Demountable parts					
9	Marking					
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Clause		Assessment (see Key)				
		Batch:	17	18	19	20
		Model:	3M 1863	3M 1863	3M 1863	3M 1863
		EXP LOT:	31/05/19	31/05/19	31/10/19	31/10/19
7.4	Packaging					
7.5	Material	Ltd	Ltd	Ltd	Ltd	
7.6	Cleaning and disinfecting					
7.7	Practical performance					
7.8	Finish of parts					
7.9.1	Total inward leakage					
7.9.2	Penetration of filter material: Sodium chloride					
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd	
7.10	Compatibility with skin					
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(s)					
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd	
7.17	Clogging					
7.18	Demountable parts					
9	Marking					
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Clause		Assessment (see Key)			
		Batch: 21	22	23	24
Model:		3M 1873V	3M 1873V	3M 1873V	3M 1873V
EXP LOT:		23/09/14	31/05/19	30/06/19	31/07/19
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	Ltd
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd
7.17	Clogging				
7.18	Demountable parts				
9	Marking				
10	Information to be supplied by the manufacturer				

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Clause		Assessment (see Key)			
		Batch: 25	26	27	28
Model:		3M 1873V	3M 1873V	3M 1873V	3M 1873V
EXP LOT:		31/08/19	31/11/19	30/10/19	31/07/19
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	Ltd
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd
7.17	Clogging				
7.18	Demountable parts				
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Clause		Assessment (see Key)			
		Batch: 29	30	31	32
Model:		3M 1873V	3M 1873V	3M 8833	3M 8833
EXP LOT:		30/09/19	30/06/19	31/01/20	30/09/19
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	Ltd
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd
7.17	Clogging				
7.18	Demountable parts				
9	Marking				
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Clause		Assessment (see Key)				
		Batch:	33	34	35	36
		Model:	3M 8833	3M 8833	3M 8833	3M 1873V
		EXP LOT:	30/11/19	31/12/19	30/11/19	29/02/19
7.4	Packaging					
7.5	Material	Ltd	Ltd	Ltd	Ltd	Ltd
7.6	Cleaning and disinfecting					
7.7	Practical performance					
7.8	Finish of parts					
7.9.1	Total inward leakage					
7.9.2	Penetration of filter material: Sodium chloride					
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd	Ltd
7.10	Compatibility with skin					
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(s)					
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd	Ltd
7.17	Clogging					
7.18	Demountable parts					
9	Marking					
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Clause		Assessment (see Key)			
		Batch:	37	38	39
Model:		3M 8833	3M 1873V	3M 1873V	3M 1863
EXP LOT:		31/07/19	30/09/19	31/10/19	01/01/2019
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	Ltd
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	Ltd
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	Ltd
7.17	Clogging				
7.18	Demountable parts				
9	Marking				
10	Information to be supplied by the manufacturer				

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Clause		Assessment (see Key)			
		Batch:	41	42	43
		Model:	3M 1863	3M 1863	3M 1863
		EXP LOT:	01/06/2019	01/07/2019	01/08/2019
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	
7.17	Clogging				
7.18	Demountable parts				
9	Marking				
10	Information to be supplied by the manufacturer				

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Clause		Assessment (see Key)			
		Batch:	44	45	46
		Model:	3M 1863	3M 1863	3M 1873V
		EXP LOT:	01/09/2019	01/10/2019	01/08/2019
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	
7.17	Clogging				
7.18	Demountable parts				
9	Marking				
10	Information to be supplied by the manufacturer				

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Clause		Assessment (see Key)			
		Batch:	47	48	49
		Model:	3M 1873V	3M 8833	3M 8833
		EXP LOT:	01/09/2019	01/09/2019	01/10/2019
7.4	Packaging				
7.5	Material	Ltd	Ltd	Ltd	
7.6	Cleaning and disinfecting				
7.7	Practical performance				
7.8	Finish of parts				
7.9.1	Total inward leakage				
7.9.2	Penetration of filter material: Sodium chloride				
7.9.2	Penetration of filter material: Paraffin oil	Ltd	Ltd	Ltd	
7.10	Compatibility with skin				
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(s)				
7.16	Breathing resistance	Ltd	Ltd	Ltd	
7.17	Clogging				
7.18	Demountable parts				
9	Marking				
10	Information to be supplied by the manufacturer				

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Product characteristics

Property	Characteristic		
Model	3M 1863	3M 1873V	3M 8833
Classification claimed	FFP3	FFP3	FFP3 R D
Exhalation valve(s)	None	One	One

Submission details

Product	EXP LOT	Quantity	Date received	INSPEC batch number	INSPEC specimen no. (1H0098+)
3M 1863 filtering half mask	30/06/19	20	5 March 2020	01	0111, 0114, 0120, 0160
3M 1863 filtering half mask	31/08/19	20		02	0211, 0214, 0220, 0260
3M 1873V filtering half mask	30/06/19	10		03	0311, 0314, 0320, 0360
3M 1873V filtering half mask	31/08/19	10		04	0411, 0411, 0420, 0460
3M 1863 filtering half mask	30/04/19	20	6 March 2020	05	0511, 0514, 0520, 0560
3M 1863 filtering half mask	31/05/19	20		06	0611, 0614, 0620, 0660
3M 1863 filtering half mask	31/05/19	20		07	0711, 0714, 0720, 0760
3M 1863 filtering half mask	31/05/19	20		08	0811, 0814, 0820, 0860
3M 1863 filtering half mask	30/06/19	20		09	0911, 0914, 0920, 0960
3M 1863 filtering half mask	31/07/19	20		10	1011, 1014, 1020, 1060
3M 1863 filtering half mask	31/08/19	20		11	1111, 1114, 1120, 1160
3M 1863 filtering half mask	31/08/19	20		12	1211, 1214, 1220, 1260
3M 1863 filtering half mask	30/11/19	20		13	1311, 1314, 1320, 1360
3M 1863 filtering half mask	31/12/19	20		14	1411, 1414, 1420, 1460
3M 1863 filtering half mask	30/11/19	20		15	1511, 1514, 1520, 1560
3M 1863 filtering half mask	31/12/19	20		16	1611, 1614, 1620, 1660
3M 1863 filtering half mask	31/05/19	20		17	1711, 1714, 1720, 1760
3M 1863 filtering half mask	31/05/19	20		18	1811, 1814, 1820, 1860
3M 1863 filtering half mask	31/10/19	20		19	1911, 1914, 1920, 1960
3M 1863 filtering half mask	31/10/19	20		20	2011, 2014, 2020, 2060
3M 1873V filtering half mask	23/09/14	10		21	2111, 2114, 2120, 2160
3M 1873V filtering half mask	31/05/19	10		22	2211, 2214, 2220, 2260
3M 1873V filtering half mask	30/06/19	10		23	2311, 2314, 2320, 2360
3M 1873V filtering half mask	31/07/19	10		24	2411, 2414, 2420, 2460
3M 1873V filtering half mask	31/08/19	10		25	2511, 2514, 2520, 2560
3M 1873V filtering half mask	31/11/19	10		26	2611, 2614, 2620, 2660

Product	EXP LOT	Quantity	Date received	INSPEC batch number	INSPEC specimen no. (1H0098+)
3M 1873V filtering half mask	30/10/19	10	6 March 2020	27	2711, 2714, 2720, 2760
3M 1873V filtering half mask	31/07/19	10		28	2811, 2814, 2820, 2860
3M 1873V filtering half mask	30/09/19	10		29	2911, 2914, 2920, 2960
3M 1873V filtering half mask	30/06/19	10		30	3011, 3014, 3020, 3060
3M 8833 filtering half mask	31/01/20	10		31	3111, 3114, 3120, 3160
3M 8833 filtering half mask	30/09/19	10		32	3211, 3214, 3220, 3260
3M 8833 filtering half mask	30/11/19	10		33	3311, 3314, 3320, 3360
3M 8833 filtering half mask	31/12/19	10		34	3411, 3414, 3420, 3460
3M 8833 filtering half mask	30/11/19	10		35	3511, 3514, 3520, 3560
3M 1873V filtering half mask	29/02/19	10		6 March 2020	36
3M 8833 filtering half mask	31/07/19	10	37		3711, 3714, 3720, 3760
3M 1873V filtering half mask	30/09/19	10	6 March 2020	38	3811, 3814, 3820, 3860
3M 1873V filtering half mask	31/10/19	10		39	3911, 3914, 3920, 3960
3M 1863 filtering half mask	01/01/2019	20	9 March 2020	40	4011, 4014, 4020, 4060
3M 1863 filtering half mask	01/06/2019	20		41	4111, 4114, 4120, 4160
3M 1863 filtering half mask	01/07/2019	20		42	4211, 4214, 4220, 4260
3M 1863 filtering half mask	01/08/2019	20		43	4311, 4314, 4320, 4360
3M 1863 filtering half mask	01/09/2019	20		44	4411, 4414, 4420, 4460
3M 1863 filtering half mask	01/10/2019	20		45	4511, 4514, 4520, 4560
3M 1873V filtering half mask	01/08/2019	10		46	4611, 4614, 4620, 4660
3M 1873V filtering half mask	01/09/2019	10		47	4711, 4714, 4720, 4760
3M 8833 filtering half mask	01/09/2019	10		48	4811, 4814, 4820, 4860
3M 8833 filtering half mask	01/10/2019	10		49	4911, 4914, 4920, 4960

Procedures

Specimens were selected at random from the submission(s) detailed above.

Testing was performed in accordance with BS EN 149 : 2001 incorporating corrigendum No. 1 (July 2002) and amendment A1 (March 2009), unless otherwise specified below. Reference should be made to the standard when reading this report.

Unless stated otherwise, specimens were tested in the condition as received by INSPEC.

7.5 At the customer's request, testing was performed on one specimen from each batch to clause 8.3.1, Simulated wearing treatment (S.W).

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.

At the customer's request, testing was only performed against the paraffin oil aerosol on one specimen from each batch in the as received (A.R.) condition only and for 3-minute penetration only. Pre-test conditioning and 120 mg exposure tests were not carried out.

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

At the customer's request, testing was only performed on one specimen from each batch in the as received (A.R.) condition, only. Pre-test conditioning was not carried out.

Result details

Model: 3M 1863

INSPEC Batch numbers: 01, 02, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 40, 41, 42, 43, 44 and 45

7.5 Material

The materials used were able to withstand handling and wear during the limited laboratory testing carried out.

Ltd

The effect on materials from “in-use” environmental factors could not be evaluated during laboratory tests. Manufacturer to certify regarding such factors.

NAs

For each batch, a single specimen was conditioned in accordance with 8.3.1. None of the specimens suffered any mechanical failure, collapse or strap breakage.

Ltd

Conditioning to 8.3.2 was not undertaken.

NAs

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

NAs

7.9.2 Penetration of filter material

Paraffin oil:

Specimen	Condition	INSPEC Batch number	Penetration (%) after 3 minutes
0114	A.R.	01	0.100
0214		02	0.147
0514		05	0.124
0614		06	0.147
0714		07	0.061
0814		08	0.113
0914		09	0.135
1014		10	0.124
1114		11	0.087
1214		12	0.124
1314		13	0.113
1414		14	0.124
1514		15	0.135
1614		16	0.180
1714		17	0.113
1814		18	0.106
1914		19	0.135
2014		20	0.135
4014		40	0.135
4114		41	0.061
4214		42	0.045
4314		43	0.062
4414		44	0.092
4514		45	0.124
Maximum permitted for FFP3			1.0

7.16 Breathing resistance

Specimen	Cond.	INSPEC batch No.	Inhalation resistance (mbar)		Exhalation resistance (mbar)
			At 30 l/min	At 95 l/min	At 160 l/min
0111	A.R.	01	0.33	1.13	2.08
0211		02	0.35	1.20	2.09
0511		05	0.34	1.14	2.04
0611		06	0.33	1.13	2.04
0711		07	0.38	1.23	2.11
0811		08	0.36	1.21	2.14
0911		09	0.34	1.15	2.04
1011		10	0.38	1.23	2.18
1111		11	0.39	1.30	2.27
1211		12	0.33	1.11	2.01
1311		13	0.35	1.19	1.93
1411		14	0.39	1.26	2.11
1511		15	0.37	1.22	2.13
1611		16	0.36	1.16	2.04
1711		17	0.40	1.28	2.15
1811		18	0.40	1.26	2.29
1911		19	0.39	1.27	2.18
2011		20	0.41	1.33	2.29
4011		40	0.34	1.23	2.09
4111		41	0.35	1.21	2.11
4211		42	0.33	1.08	1.84
4311		43	0.34	1.22	2.04
4411		44	0.36	1.20	1.94
4511		45	0.40	1.42	2.32
Maximum permitted for FFP3			1.0	3.0	3.0

Model: 3M 1873V

INSPEC batch numbers: 03, 04, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 36, 38, 39, 46 and 47

7.5 Material

The materials used were able to withstand handling and wear during the limited laboratory testing carried out.

Ltd

The effect on materials from “in-use” environmental factors could not be evaluated during laboratory tests. Manufacturer to certify regarding such factors.

NAs

For each batch, a single specimen was conditioned in accordance with 8.3.1. None of the specimens suffered any mechanical failure, collapse or strap breakage.

Ltd

Conditioning to 8.3.2 was not undertaken.

NAs

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

NAs

7.9.2 Penetration of filter material

Paraffin oil:

Ltd

Specimen	Condition	INSPEC Batch number	Penetration (%) after 3 minutes
0314	A.R.	03	0.147
0414		04	0.135
2114		21	0.135
2214		22	0.282
2314		23	0.429
2414		24	0.124
2514		25	0.169
2614		26	0.169
2714		27	0.135
2814		28	0.104
2914		29	0.158
3014		30	0.158
3614		36	0.271
3814		38	0.147
3914		39	0.147
4614		46	0.135
4714	47	0.169	
Maximum permitted for FFP3			1.0

7.16 Breathing resistance

Specimen	Cond.	INSPEC batch No.	Inhalation resistance (mbar)		Exhalation resistance (mbar)
			At 30 l/min	At 95 l/min	At 160 l/min
0311	A.R.	03	0.40	1.31	1.05
0411		04	0.37	1.24	1.09
2111		21	0.42	1.44	1.11
2211		22	0.36	1.21	0.99
2311		23	0.44	1.46	1.20
2411		24	0.43	1.42	1.17
2511		25	0.36	1.21	1.07
2611		26	0.43	1.41	1.09
2711		27	0.36	1.21	1.08
2811		28	0.39	1.31	1.07
2911		29	0.39	1.28	1.16
3011		30	0.39	1.23	1.10
3611		36	0.39	1.26	1.06
3811		38	0.46	1.55	1.22
3911		39	0.35	1.27	0.98
4611		46	0.38	1.34	1.08
4711		47	0.35	1.18	0.93
Maximum permitted for FFP3			1.0	3.0	3.0

Model: 3M 8833

INSPEC batch numbers: 31, 32, 33, 34, 35, 37, 48 and 49.

7.5 Material

The materials used were able to withstand handling and wear during the limited laboratory testing carried out.

Ltd

The effect on materials from “in-use” environmental factors could not be evaluated during laboratory tests. Manufacturer to certify regarding such factors.

NAs

For each batch, a single specimen was conditioned in accordance with 8.3.1. None of the specimens suffered any mechanical failure, collapse or strap breakage.

Ltd

Conditioning to 8.3.2 was not undertaken.

NAs

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

NAs

7.9.2 Penetration of filter material

Paraffin oil:

Ltd

Specimen	Condition	INSPEC Batch number	Penetration (%) after 3 minutes
3114	A.R.	31	0.059
3214		32	0.082
3314		33	0.081
3414		34	0.080
3514		35	0.090
3714		37	0.090
4814		48	0.135
4914		49	0.085
Maximum permitted for FFP3			1.0

7.16 Breathing resistance

Specimen	Cond.	INSPEC batch No.	Inhalation resistance (mbar)		Exhalation resistance (mbar)
			At 30 l/min	At 95 l/min	At 160 l/min
3111	A.R.	31	0.47	1.67	1.27
3211		32	0.47	1.63	1.26
3311		33	0.46	1.56	1.27
3411		34	0.50	1.61	1.29
3511		35	0.49	1.67	1.25
3711		37	0.55	1.75	1.31
4811		48	0.52	1.74	1.20
4911		49	0.35	1.28	1.03
Maximum permitted for FFP3			1.0	3.0	3.0

Estimates of the uncertainty of measurement

Clause	Test	Uncertainty
7.4	Packaging	Not applicable
7.5	Material	See Note 1
7.6	Cleaning and disinfecting	Not applicable
7.7	Practical performance	See Note 1
7.8	Finish of parts	Not applicable
7.9.1	Total inward leakage	± 4.7%
7.9.2	Penetration of filter material - Sodium chloride	± 4.8%
7.9.2	Penetration of filter material - Paraffin oil	± 6.3%
7.10	Compatibility with skin	Not applicable
7.11	Flammability	See Note 1
7.12	CO ₂ content of the inhalation air	± 8.0%
7.13	Head harness	Not applicable
7.14	Field of vision	See Note 1
7.15	Exhalation valve(s)	See Note 1
7.16	Breathing resistance	± 7.2%
7.17.2	Breathing resistance after clogging	± 7.2%
7.17.3	Filter penetration after clogging - Sodium chloride	± 4.8%
7.17.3	Filter penetration after clogging - Paraffin oil	± 6.3%
7.18	Demountable parts	Not applicable

Note 1 The acceptance criterion for this test is a straightforward “Pass/Fail”, rather than a numerical value. Consequently, as there is no value to be reported, uncertainty has not been reported either.

Note 2 The uncertainty value is based on a standard uncertainty multiplied by a coverage factor $k = 2$, which provides for a confidence level of approximately 95%. Values expressed as a percentage (%) are relative.

Note 3 It should be noted that the above values have not been taken into account when making assessment to the pass/fail criteria.

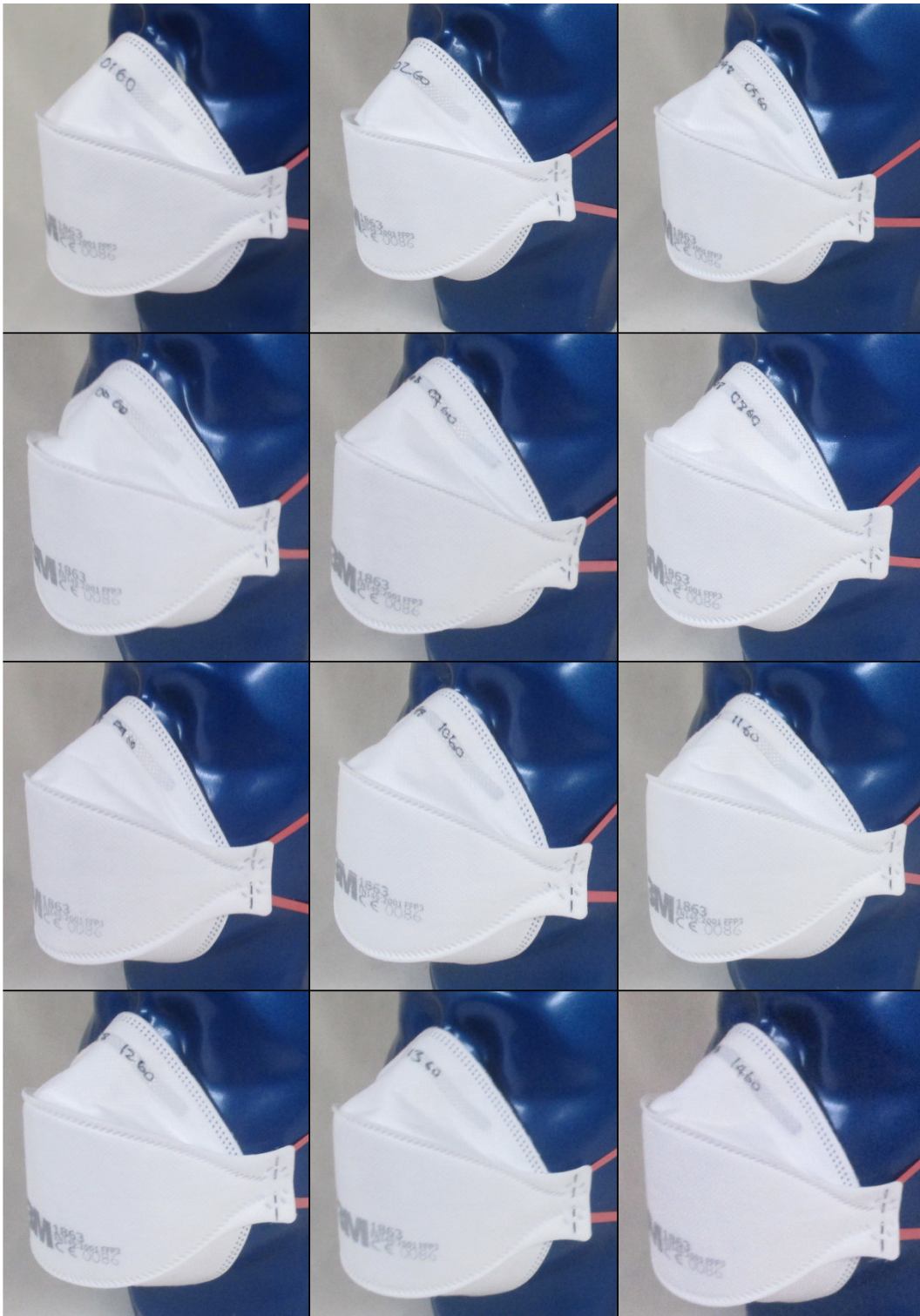
ANNEX

This Annex comprises one section.

1. Photographs of the products tested. (5 pages)

END OF REPORT

**3M 1863 filtering half mask,
INSPEC batch references 01, 02, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14**



INSPEC Testing Services' specimen numbers 0160, 0260, 0560, 0660, 0760, 0860, 0960, 1060, 1160, 1260, 1360 and 1460.

Date 14 March 2020

**3M 1863 filtering half mask,
INSPEC batch references 15, 16, 17, 18, 19, 20, 40, 41, 42, 43, 44 and 45**



**INSPEC Testing Services' specimen number 1560, 1660, 1760,
1860, 1960, 2060, 4060, 4160, 4260, 4360, 4460 and 4560.**

Date 14 March 2020

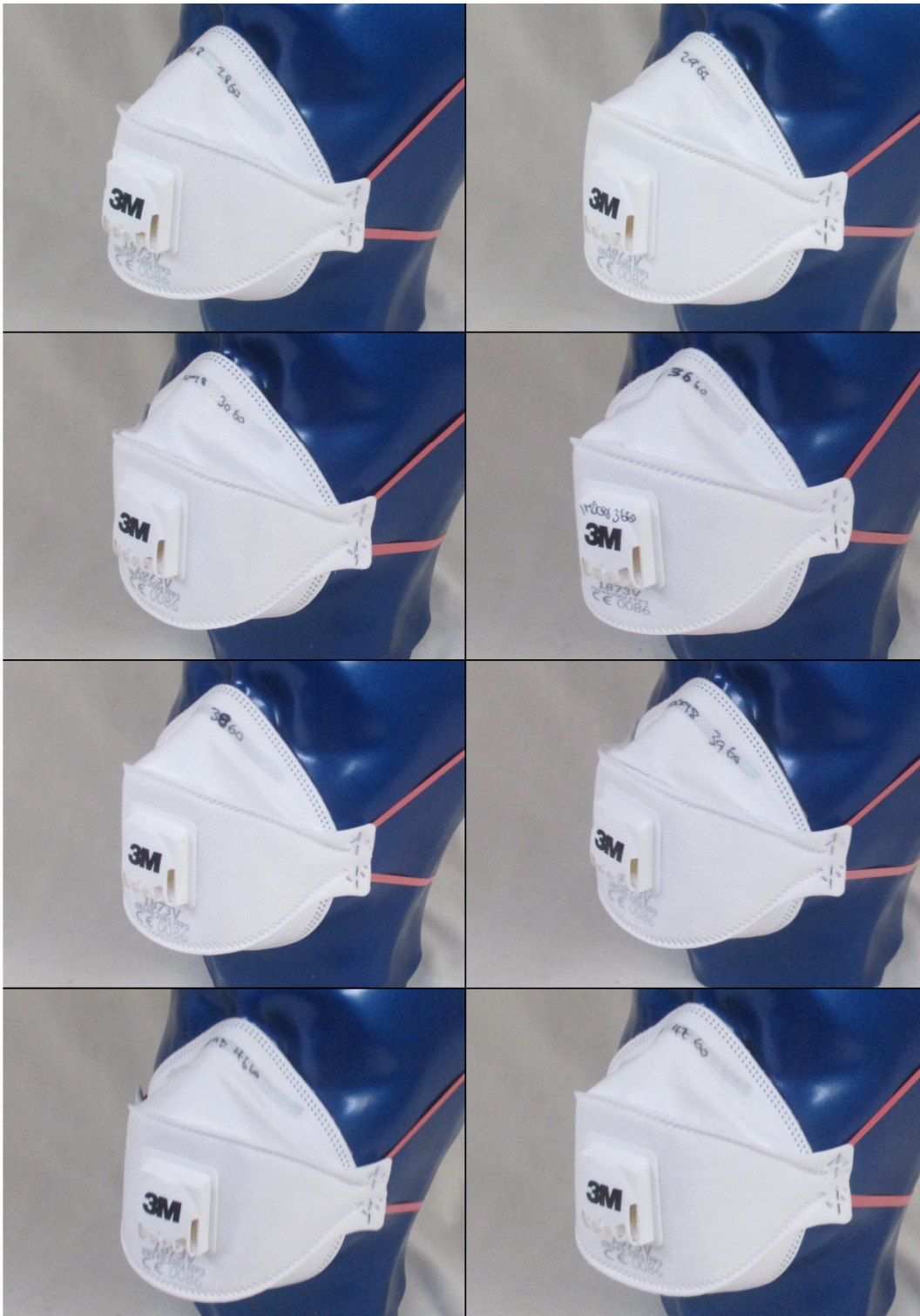
**3M 1873V filtering half mask,
INSPEC batch references 03, 04, 21, 22, 23, 24, 25, 26 and 27**



**INSPEC Testing Services' specimen numbers 0360, 0460, 2160,
2260, 2360, 2460, 2560, 2660 and 2760.**

Date 14 March 2020

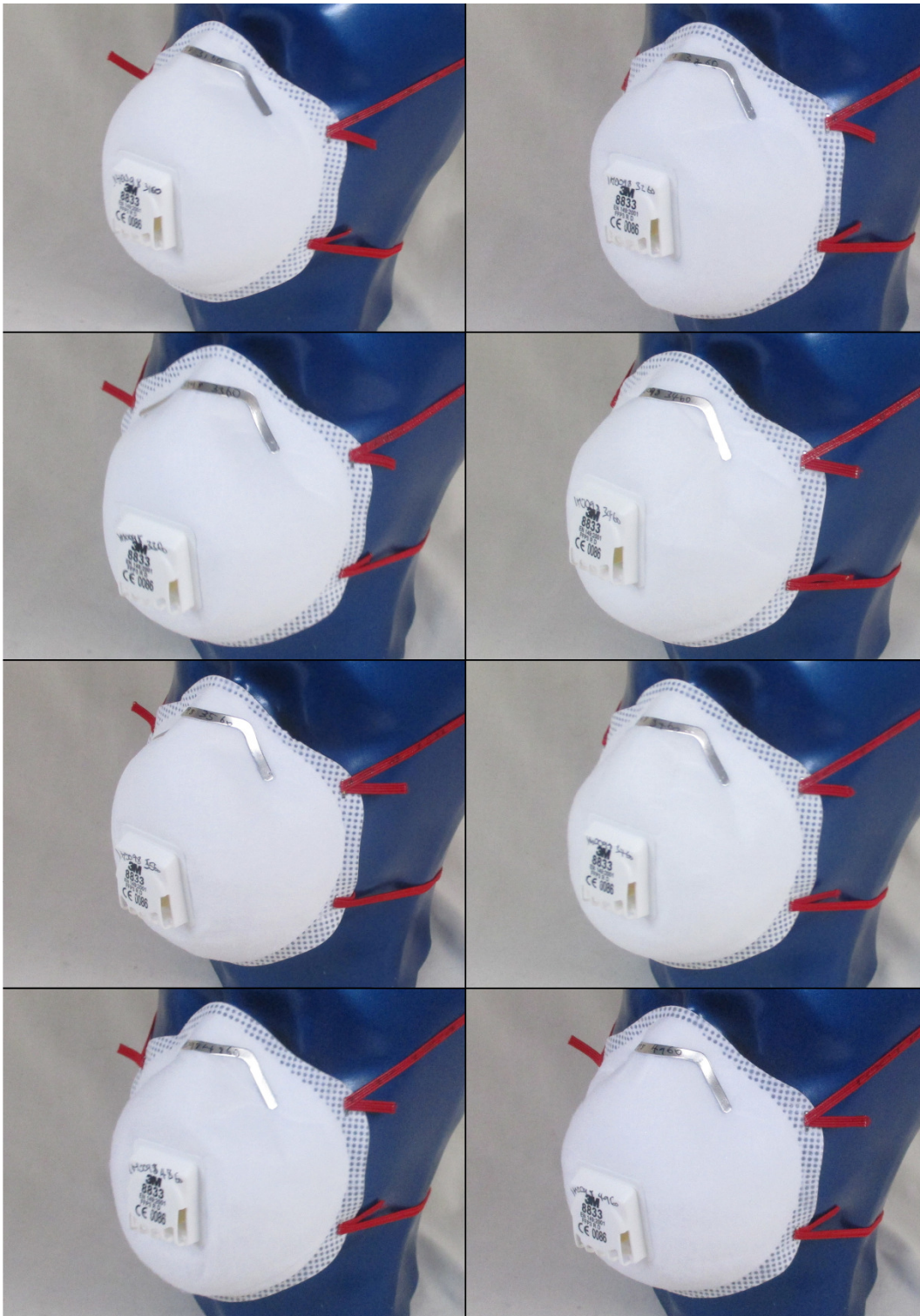
**3M 1873V filtering half mask,
INSPEC batch references 28, 29 30, 36, 38, 39, 46 and 47**



**INSPEC Testing Services' specimen numbers 2860, 2960 3060,
3660, 3860, 3960, 4660 and 4760.**

Date 14 March 2020

**3M 8833 filtering half mask,
INSPEC batch references 31, 32, 33, 34, 35, 37, 48 and 49**



**INSPEC Testing Services' specimen numbers 3160, 3260, 3360,
3460, 3560, 3760, 4860 and 4960**

Date 14 March 2020