

# Test Report

## EN 149 : 2001 + A1 : 2009

### Particle filtering half masks

**Report no:** 1.20.06.24

**Client:** NHS Supply Chain  
United Kingdom

**Client order:** via e-mail, 2 to 13 March 2020

**Order(s) received:** 2 March to 11 June 2020

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

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

**Signed:** 

Heather Webb, Laboratory Supervisor

**Issued:** 11 June 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**

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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                               |                      |          |          |          |
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|----------|---|----------------------|----------|----------|----------|
|          |   | 09                   | 10       | 11       | 12       |
| 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                               |                      |          |          |          |
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|----------|---|----------------------|----------|----------|----------|
|          |   | 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                               |                      |          |          |          |
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|--------|---|----------------------|----------|----------|----------|----------|
|        |   | 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                               |                      |          |          |          |          |
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|----------|---|----------------------|----------|----------|----------|
|          |   | 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                               |                      |          |          |          |
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|----------|---|----------------------|----------|----------|----------|
|          |   | 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                               |                      |          |          |          |
| 9        | Marking   |                      |          |          |          |
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|----------|---|----------------------|----------|----------|----------|
|          |   | 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                               |                      |          |          |          |
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|----------|---|----------------------|----------|----------|----------|
|          |   | 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      |
| 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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|--------|---|----------------------|----------|----------|----------|------------|
|        |   | Batch:               | 37       | 38       | 39       | 40         |
|        |   | 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                                    |                      |          |          |          |            |
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| 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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|--------|---|----------------------|------------|------------|------------|
|        |   | 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  |                      |            |            |            |

### 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.   |
| NT   | Requested but not tested due to early termination following failure.  |

\* Assessment relates only to those specimens which were tested and are the subject of this report.

| 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  |                      |            |            |            |

### 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.   |
| NT   | Requested but not tested due to early termination following failure.  |

\* Assessment relates only to those specimens which were tested and are the subject of this report.

| 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  |                      |            |            |            |

### 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.   |
| NT   | Requested but not tested due to early termination following failure.  |

\* Assessment relates only to those specimens which were tested and are the subject of this report.

**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.

This report contains information previously provided in INSPEC report number 1.20.03.28.

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                           |
| <b>Maximum permitted for FFP3</b> |           |                     | <b>1.0</b>                      |

## 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                         |
| <b>Maximum permitted for FFP3</b> |       |                  | <b>1.0</b>                   | <b>3.0</b>  | <b>3.0</b>                   |

**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                              | <b>A.R.</b> | 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               |                                 |
| <b>Maximum permitted for FFP3</b> |             |                     | <b>1.0</b>                      |

## 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                         |
| <b>Maximum permitted for FFP3</b> |       |                  | <b>1.0</b>                   | <b>3.0</b>  | <b>3.0</b>                   |

**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**

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



## 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                         |
| <b>Maximum permitted for FFP3</b> |       |                  | <b>1.0</b>                   | <b>3.0</b>  | <b>3.0</b>                   |

**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 <sub>2</sub> 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**

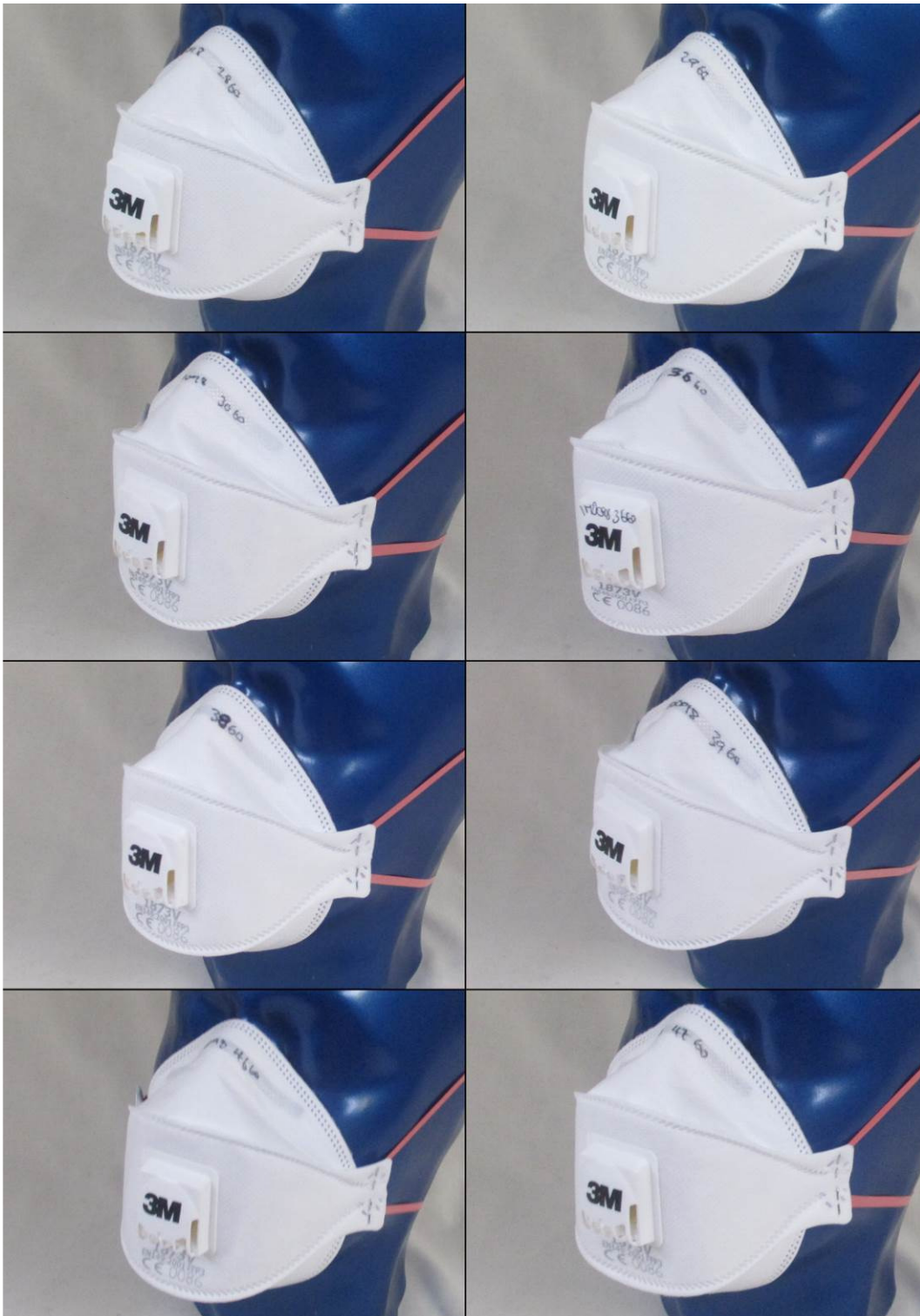


**INSPEC Testing Services' specimen numbers 0360, 0460, 2160,  
2260, 2360, 2460, 2560, 2660 and 2760.**

**Date 14 March 2020**



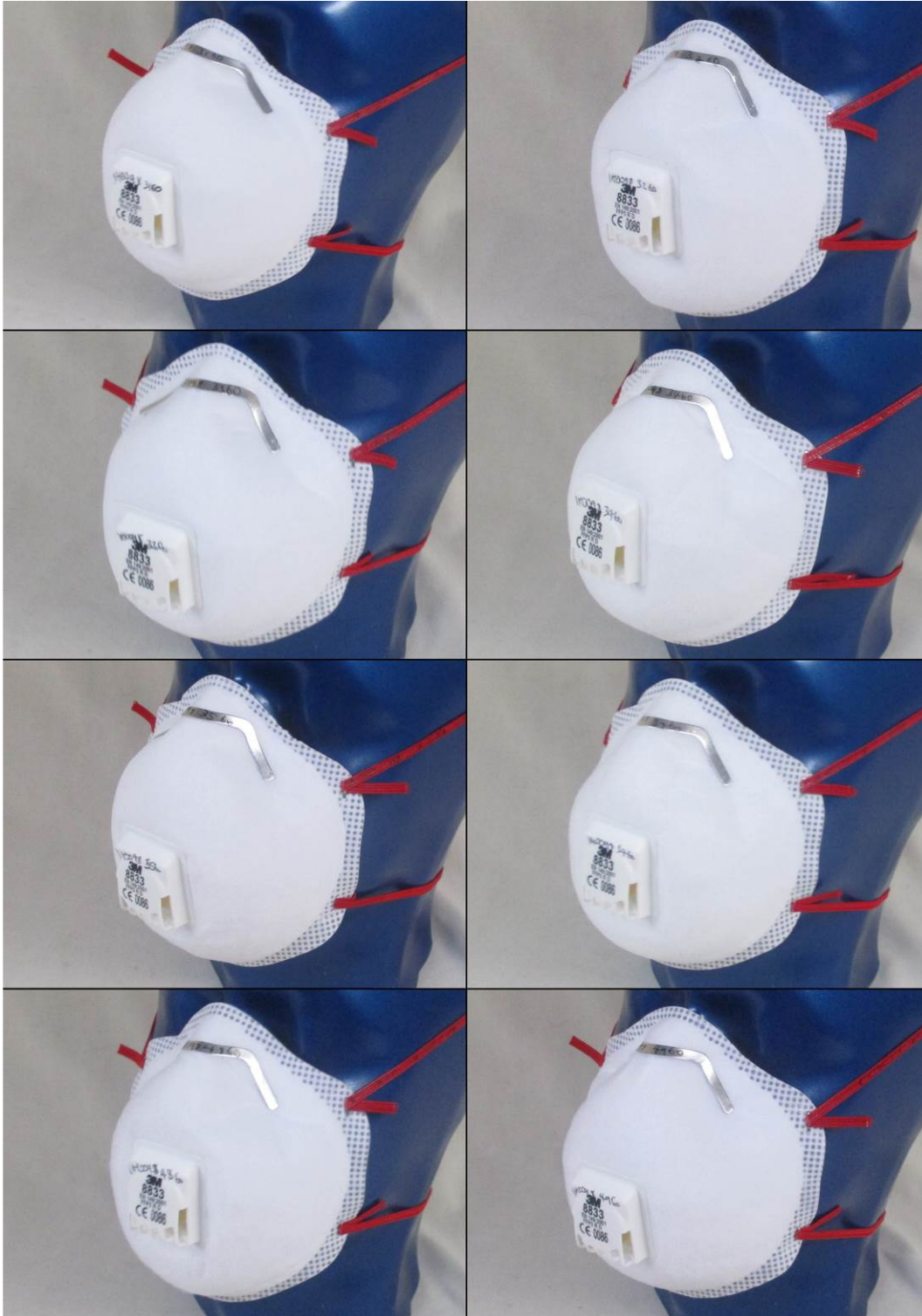
**3M 1873V filtering half mask,  
INSPEC batch references 28, 29 30, 36, 38, 39, 46 and 47**



**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**