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3M™ Particulate Respirators 8000 Series

Technical Data Sheet

Product Description

The 3M™ Particulate Respirators 8000 Series meet the requirements of European Standard EN149:2001 + A1:2009, filtering facepiece respirators for use against particles. They provide effective respiratory protection for use in industries where workers will be exposed to solid (dust) particles and/or non-volatile liquid particles.

Applications

These respirators are suitable for use in concentrations of solid (dust) particles and/or non-volatile liquid particles up to the following limits:

Product	EN 149:2001+A1:2009 Classification	Maximum Workplace Exposure Limit (WEL)*
8710E 8710S 8812	FFP1 NR D	4
8810 8822	FFP2 NR D	12
8832	FFP3 NR D	50

*Many countries apply Assigned Protection Factors (APFs) which reduce the maximum concentrations of particles in which these products can be used. See national regulations and EN 529:2005.

Respiratory protection is only effective if it is correctly selected, fitted and worn throughout the time when the wearer is exposed to hazards.

Standards

Products are classified by filtering efficiency and maximum total inward leakage performance (FFP1, FFP2 and FFP3), also by usability and clogging resistance.

Performance tests in this standard include filter penetration; extended exposure (loading) test; flammability; breathing resistance and total inward leakage. Reusable products are also subjected to cleaning, storage and mandatory clogging resistance tests (clogging is optional for non-reusable products). A full copy of EN 149:2001+A1:2009 can be purchased from your national standards body.

Filter penetration

The filter penetration, initial and after 120mg of loading with both 120mg of NaCl* and Paraffin Oil, shall not exceed the following limits:

EN 149:2001+A1:2009 Classification	Maximum Filter Penetration
FFP1	20%
FFP2	6%
FFP3	1%

*Loading of NaCl may be stopped if filter penetration during loading is observed to decrease.

Total inward leakage

Ten subjects perform five test exercises whilst wearing the respirator. The total inward leakage inside of the respirator due to face seal leakage, filter penetration and valve leakage is measured for each subject exercise. The subject mean total inward leakage for 8 out of 10 subjects shall not exceed the following limits:

EN 149:2001+A1:2009 Classification	Maximum Total Inward Leakage
FFP1	22%
FFP2	8%
FFP3	2%

Breathing resistance

The breathing resistance of the respirator is tested during inhalation (continuous flow) and exhalation (cyclical flow). The breathing resistance of the respirators shall not exceed the following limits:

EN 149:2001+A1:2009 Classification	Maximum Breathing Resistance		
	Inhalation at 30l/min	Inhalation at 95l/min	Exhalation at 160l/min
FFP1	0.6 mbar	2.1 mbar	3.0 mbar
FFP2	0.7 mbar	2.4 mbar	3.0 mbar
FFP3	1.0 mbar	3.0 mbar	3.0 mbar

Clogging

For single shift use respirators (NR), the clogging test is optional. For re-usable respirators (R) this test is mandatory. The respirators are loaded with very high amount of Dolomite dust which will tend to clog the filter. After loading with the required amount of dust, the breathing resistance of the respirators shall not exceed the following limits:

EN 149:2001+A1:2009 Classification	Maximum Breathing Resistance	
	Inhalation at 95l/min	Exhalation at 160l/min (continuous flow)
FFP1	4.0 mbar (valved respirator) 3.0 mbar (unvalved respirator)	3.0 mbar (valved respirator)
FFP2	5.0 mbar (valved respirator) 4.0 mbar (unvalved respirator)	3.0 mbar (valved respirator)
FFP3	7.0 mbar (valved respirator) 5.0 mbar (unvalved respirator)	3.0 mbar (valved respirator)

Flammability

Tested respirators are mounted on a metallic head which rotates with a linear speed of 60mm/s. The respirators are passed within 20mm of the tip of an 800°C (±50°C) propane burner flame. The respirator shall not burn or continue to burn within 5 seconds of removal from the flame.

Components and materials

The following materials are used in the production of the 3M™ Particulate Respirators 8000 Series:

Component	Material
Straps (yellow for FFP1, blue for FFP2 and red for FFP3)	8710E, 8710S – Thermoplastic elastomer (TPE) 8810, 8812, 8822, 8832 – Polyisoprene
Staples	8710E, 8710S – no staples 8810, 8812, 8822, 8832 – Steel
Filter / Inner Shell	Polypropylene / Polyester
Cool Flow™ Valve	8812, 8822, 8832 - Polypropylene / Polyisoprene
Nose clip	8710E, 8810, 8832 – Aluminium 8710S, 8812, 8822 – Steel
Nose foam	Polyurethane

These products do not contain components made from natural rubber latex.

	Product	Typical weight
	3M™ Particulate Respirator 8710E 3M™ Particulate Respirator 8710S	8g
	3M™ Particulate Respirator 8810	8g
	3M™ Particulate Respirator 8812	13g
	3M™ Particulate Respirator 8822	13g
	3M™ Particulate Respirator 8832	14g

Storage and Transportation

3M™ Particulate Respirators 8000 Series have a shelf life of 5 years from date of manufacture. End of shelf life is marked on the product packaging and upon the product. Before initial use, always check that the product is within the stated shelf life (use by date). Product should be stored in clean, dry conditions within the temperature range: – 20°C to + 25°C with a maximum relative humidity of <80%. When storing or transporting this product use original packaging provided.

⚠ Warnings and Use Limitations

- Always be sure that the complete product is:
  - Suitable for the application;
  - Fitted correctly;
  - Worn during all periods of exposure;
  - Replaced when necessary.
- Proper selection, training, use and appropriate maintenance are essential in order for the product to help protect the wearer from certain airborne contaminants. Failure to follow all instructions on the use of these respiratory protection products and/or failure to properly wear the complete product during all periods of exposure may adversely affect the wearer's health, lead to severe or life threatening illness or permanent disability.
- For suitability and proper use follow local regulations, refer to all information supplied or contact a safety professional/3M representative.
- Before use, the wearer must be trained in use of the complete product in accordance with applicable Health and Safety standards/guidance.
- These products do not contain components made from natural rubber latex.
- These products do not protect against gases/vapours.
- Do not use in atmospheres containing less than 19.5% oxygen. (3M definition. Individual countries may apply their own limits on oxygen deficiency. Seek advice if in doubt).
- Do not use for respiratory protection against atmospheric contaminants/concentrations which are unknown or immediately dangerous to life and health (IDLH).
- Do not use with beards or other facial hair that may inhibit contact between the face and the product thus preventing a good seal.
- Leave the contaminated area immediately if:
  - Breathing becomes difficult.
  - Dizziness or other distress occurs.
- Discard and replace the respirator if it becomes damaged, breathing resistance becomes excessive or at the end of the shift.

- Dispose in accordance with local regulations.
- Do not alter, modify, clean or repair this respirator.
- Before initial use, always check that the product is within the stated shelf life (use by date).
- In case of intended use in explosive atmospheres, contact 3M.

Fitting Instructions

Before fitting device, ensure hands are clean.

All respirator components should be inspected for damage prior to each use.

8710E and 8710S only

See Figure 1

1. and 2. Pre-stretch around entire length of each strap by pulling at 3cm intervals between both hands.
3. Cup respirator in one hand with nosepiece at fingertips, allow headbands to hang freely below hand.
4. Hold respirator under chin, with nosepiece up.
5. Locate the upper strap across the crown of the head and the lower strap below the ears.
6. Straps must not be twisted.
7. Using both hands, mould noseclip to the shape of the lower part of the nose to ensure a close fi t and good seal. Pinching the noseclip using only one hand may result in less effective respirator performance.
8. The seal of the respirator on the face should be fi t-checked before entering the workplace.

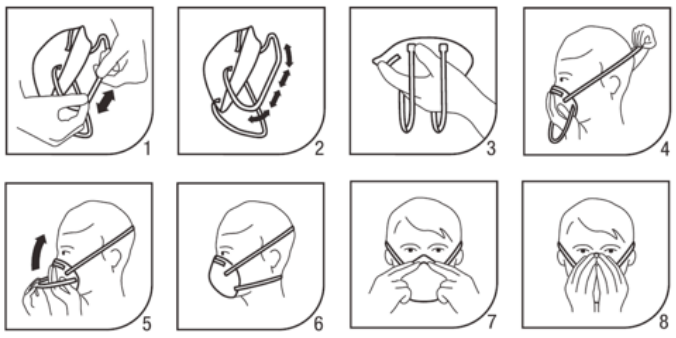

Figure 1

8810, 8812, 8822 & 8832 only

See Figure 2

1. Cup respirator in one hand with nosepiece at fingertips, allow headbands to hang freely below hand.
2. Hold respirator under chin, with noseclip up.
3. Locate the upper strap across the crown of the head and the lower strap below the ears.
4. Straps must not be twisted.
5. Using both hands, mould noseclip to the shape of the nose to ensure a close fit and good seal. Pinching the noseclip using only one hand may result in less effective respirator performance.
6. The seal of the respirator on the face should be fit-checked before entering the workplace.

Figure 2

Fit Check

1. Cover the front of the respirator with both hands being careful not to disturb the fit of the respirator.
2. (a) UNVALVED respirator - EXHALE sharply;
   (b) VALVED respirator - INHALE sharply;
3. If air leaks around the nose, re-adjust the noseclip to eliminate leakage. Repeat the above fit check.
4. If air leaks at the respirator edges, work the straps back along the sides of the head to eliminate leakage. Repeat the above fit check.

If you CANNOT achieve a proper fit DO NOT enter the hazardous area. See your supervisor.

Users should be fit tested in accordance with national requirements.

For information regarding fit testing procedures, please contact 3M.

Disposal

Contaminated products should be disposed as hazardous waste in accordance with national regulations.

Marking

NR = Non reusable (single shift use only)

D = Meets the clogging requirements

End of Shelf Life. Date format: YYYY/MM/DD

Temperature Range

Maximum Relative Humidity

Name and address of Legal Manufacturer

Dispose of in accordance with local regulations

Approvals

These products are CE Marked to the requirements of Community Directive 89/686/EEC or European Regulation (EU) 2016/425. The applicable legislation can be determined by reviewing the Certificate and Declaration of Conformity at www.3m.com/Respiratory/certs.

Made in UK, in an ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified plant.

Made in Russia (8832 only), in an ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certified plant.

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