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3M™ Aura™ Particulate Respirators 9300+ Series

Technical Data Sheet

Description

The 3M™ Aura™ Particulate Respirators 9300+ Series meet the requirements of European Standard EN 149:2001 + 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:

Model	EN 149+A1 Classification	Exhalation Valve	Threshold Limit Value (TLV)
9310+	FFP1 NR D	Unvalved	4
9312+	FFP1 NR D	Valved	4
9320 9320D+	FFP2 NR D	Unvalved	12
9322+	FFP2 NR D	Valved	12
9330+	FFP3 NR D	Unvalved	50
9332+	FFP3 NR D	Valved	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:

	Maximum Breathing Resistance		
EN 149:2001+A1:2009 Classification	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:

	Maximum Breathing Resistance	
EN 149:2001 +A1:2009 Classification	Inhalation at 95l/min	Inhalation at 160l/ min
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™ Aura™ Particulate Respirators 9300+Series:

Component	Material
Straps	Polyisoprene
Staples	Steel
Nose Foam	Polyurethene
Nose clip	Aluminium
Filter	Polypropylene
Valve	Polypropylene
Exhalation Valve	Polyisoprene

This product does not contain components made from natural rubber latex.

Product Range






Product	Typical weight
3M ™ Aura ™ Particulate respirator 9310+	10g
3M ™ Aura ™ Particulate respirator 9312+	15g
3M ™ Aura ™ Particulate respirator 9 9320+ / 9320D+	10g
3M ™ Aura ™ Particulate respirator 9322+	15g
3M ™ Aura ™ Particulate respirator 9330+	10g
3M ™ Aura ™ Particulate respirator 9332+	15g

Please contact 3M for information about which products are available outside the EU.

Storage and Transportation

3M™ Aura™ Particulate Respirators 9300+ 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 the respirator, remove bend in noseclip, align top and bottom panels together before pushing the top panel flat. Store

respirator in original packaging provided.

Warnings and 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 and refer to all information supplied. For more information 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 product do not protect against gases/vapours such as glutaraldehyde.
- 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:

  a. Breathing becomes difficult.

  b. Dizziness or other distress occurs.

  c. The respirator becomes damaged

  d. You taste or smell contaminants, or an irritation occurs
- Discard and replace the respirator if it becomes contaminated with blood or other infectious material, damaged, breathing resistance becomes excessive or at the end of a shift.
- Do not alter, modify, clean or repair this respirator.
- In case of intended use in explosive atmospheres, contact 3M.
- Before initial use, always check that the product is within the stated shelf life.

Fitting Instructions

Before fitting device, ensure hands are clean. All respirator components should be inspected for damage prior to each use.

1. With reverse side up, separate top and bottom panels to form a cup shape. Bend slighty at centre of the noseclip.
2. Ensure both panels are fully unfolded.
3. Cup respirator in one hand with open side towards face. Take both straps in other hand. Hold respirator under chin, with nosepiece up, and pull straps over head.
4. Locate the upper strap across the crown of the head and the lower strap below the ears. Straps must not be twisted. Adjust top and bottom panels for a comfortable fit, ensuring panels are not folded in.
5. Using both hands, mould nose clip to the shape of the lower part of the nose to ensure a close fit and good seal. Pinching the nose clip 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.

Seal 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 nose clip to eliminate leakage. Repeat the above seal 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 seal check.

If you CANNOT achieve a proper seal 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 requirement

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

The 3M Aura Particulate Respirators 9300+ meet the performance requirements of the European Standard EN 149 for Filtering half masks to protect against particles. The Certificate and Declaration of Conformity are available from the following website: www.3M.com\Respiratory\certs

Made in UK, in an ISO 9001 and ISO 14001 certified plant.
3M™ Aura™ 9300D+ Series - Made in Germany in an ISO 9001 and ISO 14001 certified plant.

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