Use of Respiratory Protective Equipment Guideline

Section 1 - Purpose and Scope

(1) The University of Queensland is committed to managing exposure to airborne contaminants in the workplace and preventing occupational diseases caused by breathing in contaminated air. Suitable respiratory protective equipment (RPE) that is correctly fitted to the user will minimise exposure to airborne contaminants. However, under the hierarchy of risk control, the use of RPE should always be considered in combination with more effective, higher order controls. The purpose of this Guideline is to provide information on:

a. fit testing of tight-fitting respirators; and
b. respirator use, maintenance and storage.

(2) This Guideline must be read in conjunction with the Selection, Use and Maintenance of Respiratory Protective Equipment Procedure and Personal Protective Equipment Procedure. Collectively, these three documents outline the UQ's respiratory protection program.

Section 2 - Fit Testing

Fit Testing Protocol

(3) A fit testing protocol compliant with AS/NZS 1715:2009 Selection, Use and Maintenance of Respiratory Protective Equipment must be used when fitting a tight-fitting respirator to the face of the user. The most commonly used protocol in Australia and internationally is OSHA 1910.134 Respiratory protection. Other valid protocols (available via Standards Databases through UQ Library) include:

a. ISO 16975-3 Respiratory protective devices – Selection, use and maintenance,
b. INDG-479 Guidance on respiratory protective equipment (RPE) fit testing, and
c. ANSI/AIHA Z.88.10 Respirator fit testing methods.

Types of Fit Test

(4) Qualitative – a pass/fail test that relies on the ability of the wearer to taste or smell a sweet or sour test agent. This type of fit test can only be used on half-face respirators.

(5) Quantitative – uses specialised equipment to numerically measure how much air leaks into a respirator. This type of fit test can be used on half-face respirators, full-face respirators, and powered air purifying respirators.

(6) Quantitative fit testing is the preferred methodology for UQ workers.

Fit Factor

(7) Quantitative fit testing uses equipment such as a PortaCount or AccuFIT to provide a numerical value representing the fit of the respirator to the wearer's face. The value is referred to as the fit factor. A minimum fit factor of 100 is required to achieve a pass for disposable respirators and a minimum fit factor of 500 is required to achieve a pass for

a full-face respirator. The ambient aerosol condensation nuclei counter (CNC) quantitative fit testing technique is preferred to the controlled negative pressure (CNP) quantitative technique because this latter technique cannot be used for disposable RPE.

Factors Affecting Fit Testing

(8) A fit test must not be conducted if there is any facial hair between the face of the wearer and the respirator seal, including stubble, moustache and sideburns. The practice of beard wrapping with disposable balaclavas or resistance bands while fit testing is not compliant with the standards and protocols and is not an acceptable practice. Accordingly, facial hair that can interfere with the respirator seal should be shaved within 24 hours prior to the fit test. Long hair may also interfere with the respirator seal and should be tied back.

(9) Individuals being fit tested will need to refrain from smoking, vaping, chewing gum, eating and drinking flavoured beverages for thirty minutes prior to the fit test. These activities can increase the likelihood of a failed fit test due to the introduction of contaminants into the breathing space of the respirator.

(10) Anything else that may interfere with the fit test should be positioned so that it does not interfere with the seal e.g. jewellery, clothing, fashion eyewear. Gels, creams, lotions and barrier wipes may also interfere with the seal and should be applied at least one hour prior to the fit test.

(11) Prescription eyewear, cultural head dress and PPE intended to be used while working with the respirator and which has the potential to interfere with the seal, should be worn during the fit test to determine compatibility.

Frequency of Fit Testing

(12) All UQ workers using tight-fitting respirators must be fit tested:

a. before initial use of a respirator;
b. before a new make or model is to be used;
c. when there is a change to wearer’s facial features that may affect the facial seal. e.g. significant weight fluctuation or facial surgery; and
d. at least annually.

Transferability of Results

(13) UQ workers who have been successfully fit tested should be provided with a document that can be presented to others as evidence of successful fit testing, such as a wallet sized card. The document should include:

a. the person’s name;
b. date of test;
c. protocol and methodology used;
d. make, model and size of respirator/s successfully fit tested; and
e. fit test provider details.

(14) A proforma wallet sized fit-testing card can be found in section 5.

(15) UQ will accept fit testing results from external providers and organisations where sufficient information is provided to demonstrate that the methodology used meets the requirements of this document.

Section 3 - Respirator Use

Provision of RPE

(16) An adequate supply of appropriate RPE, as outlined in the Selection, Use and Maintenance of Respiratory Protective Equipment Procedure, must be provided to UQ workers and be fit tested where needed.

Fit Check

(17) To ensure a tight-fitting respirator is achieving a good seal against the users' face, a negative or positive fit check should be carried out by the user each time it is put on. A fit check is different to a fit test and must not be used as a substitute for fit testing.

(18) A negative pressure fit check involves the wearer closing off the respirator air inlet and inhaling. This action should cause a vacuum and partial inward collapse of the respirator against the face. If this does not occur, the respirator should be readjusted and the fit check repeated.

(19) A positive pressure fit check involves the wearer closing the off the respirator inlet and breathing out. This action should cause slight outward expansion of the respirator. If air escapes through the sealing edge of the respirator during a positive fit check, the respirator should be readjusted and the fit check repeated.

Proper Use

(20) RPE must be used in accordance with the recommendations outlined by the product manufacturer and the principles outlined in this Procedure.

(21) Furthermore, users of tight-fitting respirators should take precautions to prevent leakage around the facepiece, this includes:

a. shaving facial hair that may interfere with the facepiece seal or valve function; and
b. ensuring RPE is compatible with PPE, prescription glasses and cultural head dress.

Section 4 - Respirator Maintenance and Storage

Cleaning and Disinfection

(22) Reusable respirators must be kept in a sanitary condition by cleaning and disinfection using a methodology recommended by the product manufacturer. Respirator face pieces must not be shared for use with other people.

Storage

(23) RPE must be stored in a clean, dry and airtight container to prevent contamination, damage and deterioration. They should also be kept in an easily accessible location.

Periodic Inspection

(24) RPE should be inspected each time it is put on and during cleaning. Items to check during an inspection include:

a. Sealing surfaces free of damage.
b. Elastic and rubber parts are pliable and do not appear to have deteriorated.
c. Inhalation and exhalation valves are clean.

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d. Straps are not worn and retain elasticity.
e. Face shields of full-face respirators are clean.

(25) Respirators must not be used if they are missing parts, are damaged, are contaminated or have deteriorated.

Repair of Reusable Respirators

(26) Minor repairs can be made in accordance with manufacturers recommendations and using compatible manufacturers parts e.g. replacing the straps of a reusable respirator. However, more significant repairs must be completed by a competent person with the appropriate technical expertise.

(27) Respirator modifications beyond the recommendations of the manufacturer must not occur or be accepted.

Section 5 - Appendix

Proforma fit-testing card

(28) See linked Proforma fit-testing card.

Status and Details

Status	Current
Effective Date	9th December 2022
Review Date	9th December 2028
Approval Authority	Director, Health Safety and Wellness
Approval Date	9th December 2022
Expiry Date	Not Applicable
Policy Owner	Lucy Beikoff Director, Health, Safety and Wellness
Enquiries Contact	Health, Safety and Wellness Division

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