



Transitioning to the new respiratory protection standards

SF-010, Occupational Respiratory Protection

Acknowledgement of Country

We acknowledge the traditional owners of the various lands in which we live, meet and work.

In the SA office, we're on the land of the Gadigal People of the Eora Nation.

We pay our respects to Elders, past and present.



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SF-010, Occupational Respiratory Protection - Nominating Organisations

Nominating Organisation	Stakeholder Interest Category (SIC)	Role Title
Association of Accredited Certification Bodies	Certification Bodies	Participating Member
Australasian Fire and Emergency Service Authorities Council	Technical Associations	For Information Only
Australian Chamber of Commerce and Industry	Suppliers' Associations	Participating Member
Australian Council of Trade Unions (ACTU)	Unions and Employee Associations	Participating Member
Australian Industry Group	Manufacturers' Associations	Participating Member
Australian Institute of Health & Safety	Professional Associations	Participating Member
Australian Institute of Occupational Hygienists	Professional Associations	Participating Member
Australian Institute of Petroleum	User and Purchasing Bodies	Participating Member
Composites Australia Inc	Manufacturers' Associations	Participating Member
CSIRO	Research and Academic Organisations	Participating Member
Department of Health and Aged Care (Australian Government)	Government Organisations	Participating Member
Fire and Emergency New Zealand	New Zealand	Participating Member
Individual Expert	Independent	Co-Opted
Joint Accreditation System of Australia & New Zealand	Certification Bodies	Participating Member
National Measurement Institute	Testing Bodies	Participating Member
New Zealand Institute of Safety Management	New Zealand	Participating Member
New Zealand Occupational Hygiene Society	New Zealand	Participating Member
NEXTgen	Independent	Co-Opted
Royal Australian Chemical Institute Inc.	User and Purchasing Bodies	Participating Member
Safe Work Australia	Regulatory and Controlling Bodies	For Information Only
SafeWork NSW	Testing Bodies	Participating Member
Site Safe New Zealand Inc	New Zealand	Participating Member
Standards New Zealand (SNZ)	New Zealand	Ex-Officio
Therapeutic Goods Administration (TGA)	Regulatory and Controlling Bodies	Participating Member
VicLab (Testing Interests Australia)	Testing Bodies	Participating Member
Weld Australia	Technical Associations	Chairperson
WorkSafe New Zealand	New Zealand	Participating Member

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Standards

- Voluntary documents that set out specifications, procedures and guidelines.
- Aim to ensure products, services and systems are safe, consistent, and reliable.
- No requirement for the public to comply with standards, unless State and Commonwealth governments often refer to them in legislation. Standards then become mandatory.
- Form “best practice” to support “duty of care”

Categories of standards include, but are not limited to:

International Standards

These are developed by ISO, IEC and ITU for countries to adopt for national use.

National Standards

These are developed either by a national standards body (like Standards Australia) or other accredited bodies. Created in Australia or are adoptions of international standards.

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Benefits of ISO Respiratory Protection Devices (RPD) Standards

- Harmonise standards globally.
- Standardise terminology and definitions.
- Potential to harmonise protection factors.
- Change the focus from:
 - performance by design (product centric), to;
 - performance required by the wearer (human centric)
- Greater consideration of the burden of RPD upon the wearer e.g. individual characteristics, Intensity of work and the 'work of breathing'



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Standards Australia SF-010 Committee long term plans to adopt

- With the history of ISO standards development, previous committees and Standards Australia's plan was to adopt the ISO suite of standards.
- ISO standards took longer than anticipated leading to current standards AS/NZS 1715/1716 being quite old.
- The first ISO standards adopted by SF-010 was in 2015 being the Human Factors (HF) Technical Specifications. Second HF editions were adopted in 2021. Third HF edition adopted in 2024.

AS/NZS 1716:2012

PREFACE

This Standard was prepared by the Joint Australian/New Zealand Standards Committee SF-010, Occupational Respiratory Protection to supersede AS/NZS 1716:2003.

This Standard was revised with the objective of incorporating some improvements but keeping these to a minimum, in light of current work still under way by ISO (International Organization for Standardization) in the field of respiratory protective devices.

The changes that have been made are mostly editorial or to clarify and improve existing testing procedures for exhalation resistance as well as include specific requirements for full facepieces used in extreme environments by fire and emergency services (special use facepieces).

It is anticipated that a new series of ISO Standards will be published in the next few years that will incorporate major developments that will address most, if not all, concerns highlighted in the previous edition. When such ISO Standards are published, it is planned that they be adopted as the next revision of AS/NZS 1716.

Advice on the selection, use and maintenance of respiratory protective equipment is not covered by the Standard but given in AS/NZS 1715, *Selection, use and maintenance of respiratory protective equipment*.

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Existing standards

AS/NZS 1715:2009

Selection, use and maintenance of
respiratory protective equipment

AS/NZS 1716:2012

Respiratory Protective Devices

-
- Australia & New Zealand have adopted the ISO Respiratory Standards which will eventually replace AS/NZS 1715 & 1716 Standards
 - Both standards remain current and have been reconfirmed until 2030
 - Planned supersede date will be reviewed in 3 years
 - The new ISO standards are operational in parallel with the existing AS/NZS 1715 and AS/NZS 1716 during the transition period

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Australia & New Zealand Respiratory Protection Standards

Current Standard

AS/NZS 1715:2009, *Selection, use and maintenance of respiratory protective equipment*

Planned to be
superseded by
1 JAN 2030

New AS/NZS ISO Respiratory Standards & Technical Specifications

AS/NZS TS ISO 16975.1:2023 (ISO/TS 16975.1:2016)

Selection, use and maintenance – Part 1: Establishing and implementing a respiratory protective device program

AS/NZS TS ISO 16975.2:2023 (ISO/TS 16975.2:2016)

Selection, use and maintenance – Part 2: Condensed guide to establishing and implementing a respiratory protective device program

AS/NZS ISO 16975.3:2023 (ISO 16975-3:2017)

Selection, use and maintenance – Part 3: Fit-testing procedures

AS/NZS ISO 16975.4:2024 (ISO/TS 16975.4:2022)

Selection, use and maintenance – Part 4: Selection and usage guideline for respiratory protective devices under pandemic/epidemic/outbreak of infectious respiratory disease

Main one for Workplaces

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AS/NZS 1716:2012 – One standard with many sections

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AS/NZS 1716:2012 Respiratory Protective Devices

Planned to be superseded
by 1 JAN 2030

New AS/NZS Respiratory Standards & Technical Specifications

Terms & Definitions

AS/NZS ISO 16972:2023
(ISO 16972:2020)
Terms and Definitions

+

Classification

SA/SNZ TS ISO
16973:2023 (ISO/TS
16973:2016)
Classification



For Manufacturers

Performance

AS/NZS ISO 17420.1:2022
(ISO 17420-1:2021, MOD)
General

AS/NZS ISO 17420.2:2021
(ISO 17420-2:2021
(ED 1.0) MOD)
Filtering RPD

AS/NZS ISO
17420.3:2021
(ISO 17420-3:2012)
Thread connection

AS/NZS ISO 17420.4:2022
(ISO 17420-4:2021, MOD)
Supplied Breathable
Gas RPD

AS/NZS ISO
17420.6:2022
(ISO 17420-6:2021, MOD)
Special Application
Escape

AS/NZS ISO 17420.7:2022
(ISO 17420-7:2021, MOD)
Special application
marine, mining, welding
and abrasive blasting

SA/SNZ ISO /TS
17420.8:2023 (ISO/TS
17420-8:2021, MOD)
CBRN Nuclear Filtering

SA/SNZ ISO/TS
17420.9:2023
(ISO/TS 17420-9:2021, MOD)
CBRN Supplied Air

Test Methods

AS/NZS ISO 16900.1:2021
(ISO 16900-1:2019)
Test Method Inward Leakage

AS/NZS ISO 16900.2:2023
(ISO 16900-2:2017)
Breathing Resistance

AS ISO 16900.3:2015
(ISO 16900-3:2012)
Particle Penetration

AS ISO 16900.4:2015
(ISO 16900-4:2011)
Gas Capacity

AS/NZS ISO 16900.5:2021
(ISO 16900-
5:2016/Amd.1:2018)
Headforms & tools

AS/NZS ISO 16900.6:2022
(ISO 16900-6:2021)
Mechanical Strength

AS/NZS ISO 16900.7:2021
(ISO 16900-7:2020)
Practical Performance

AS/NZS ISO 16900.8:2021
(ISO 16900-8:2015)
Airflow Assisted RPD

AS/NZS ISO 16900.9:2023
(ISO 16900-9:2015)
CO2 Concentration

AS/NZS ISO 16900.10:2022
(ISO 16900-10:2015)
Flame Heat Exposure

AS ISO 16900.11:2015
(ISO 16900-11:2013)
Field of Vision

AS/NZS ISO 16900.12:2021
(ISO 16900-12:2016)
Work of Breathing

AS/NZS ISO 16900.13:2021
(ISO 16900-13:2015)
Closed Circuit CO2

AS/NZS ISO 16900.14:2021
(ISO 16900-14:2020, MOD)
Sound Level Measurement

Underpinning Science

Human Factors

AS/NZS ISO 16976.1:2024
(ISO 16976-1:2022)
Respiratory Flowrate

AS/NZS ISO 16976.2:2024
(ISO 16976-2:2022)
Anthropometrics

AS/NZS ISO 16976.3:2024
(ISO 16976-3:2022)
Physiological Limitations

AS/NZS ISO 16976.4:2024
(ISO 16976-4:2023)
Work of Breathing

AS/NZS ISO 16976.5:2024
(ISO 16976-5:2023)
Thermal Effects

AS/NZS ISO 16976.6:2024
(ISO 16976-6:2023)
Psycho-physiological

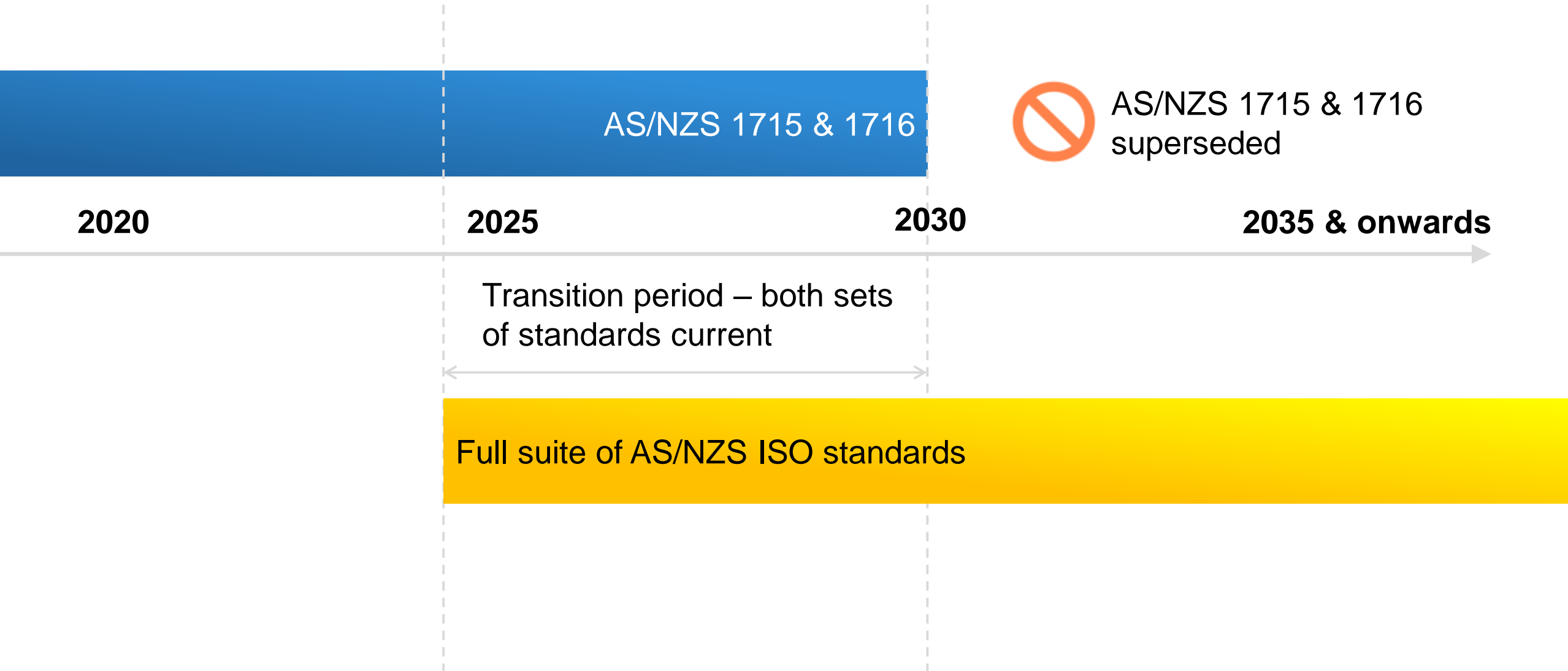
AS/NZS ISO 16976.7:2024
(ISO 16976-7:2023)
Hearing and Speech

AS/NZS 16976.8:2024
(ISO 16976-8:2023)
Ergonomics Factors

Note: **ISO 17420.5:2021 Special Application Fire Services** has been published by ISO but is not planned to be currently adopted in Australia at this time but will in the future to align with AFAC timeline with future local planned adoption of ISO 11999. AFAC has indicated its intention to align with (under development) through

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Transition Period Timeline 2025–2030 and beyond



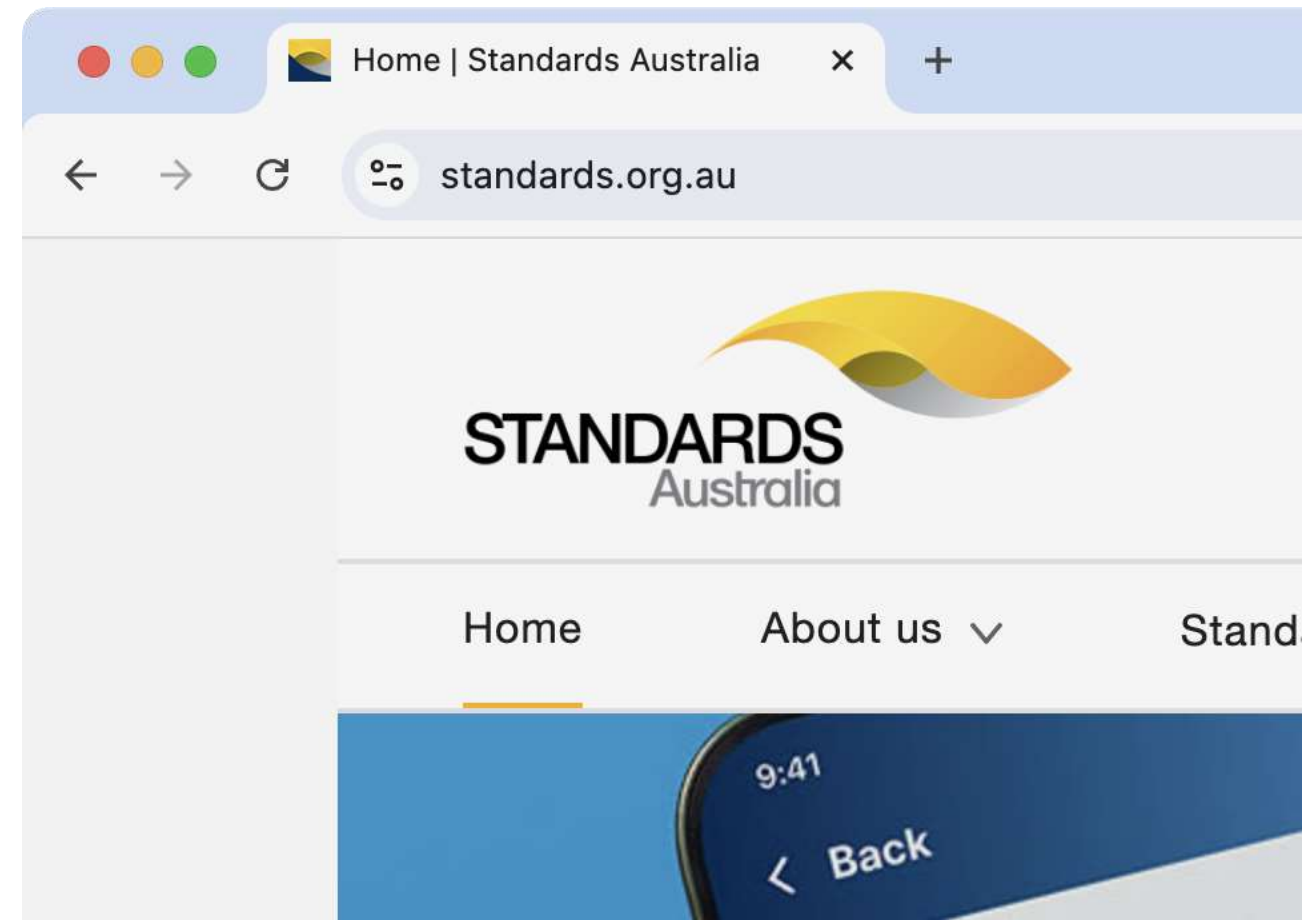
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Standards Australia communication

Lots of communication and education required for all stakeholders.

Planned Communications

- Webinars
- Whitepaper
- Landing page for all information and resources accessible to all stakeholders
- Superseded date communications on Standards Australia Store and referenced landing page



Respirator Manufacturers

- Critical for all manufacturers to be aware of and become familiar with.
- Manufacturers already working on products planned to be released in next few years and beyond, so should start using AS/NZS ISO standards as requirement reference.
- Start to plan for existing products to be tested/classified/marked to ISO standards/classifications.
- Certification bodies do not accredit to superseded standards, though some limited exceptions may apply
- 5 years will go quickly...

Testing Laboratories

- Chicken and egg challenge
- Limited test labs globally accredited to ISO standards
 - Viclabs (Australia) - Range of 16900 standards
 - BSI (UK) – Range of 17420 standards
- With our transition timeline to ISO and communication to industry, expecting more labs to become accredited to ISO as more commercially attractive moving forward

Certification Bodies

- Certification bodies will work with manufacturers on their transition plan for their product range.
- Key partner for manufacturers to work with.

Workplaces/Users

- Awareness that changes are coming with the standards & classification of respirators they use in future years.

Regulators

- Legislative amendments may be required to replace current standards mentioned i.e. silica regulation
- Moving forward to also reference AS/NZS ISO standards where AS/NZS 1716 & 1715 is referenced when reviewed/updated
- Training for Inspectors and relevant parties on new standards, transition timeline & on how to interpret
- Closer to 2030, remove references to AS/NZS 1716 & 1715 in documentation/resources e.g. codes of practice and only reference AS/NZS ISO standards 2030 onwards

Transitioning to new respiratory protection standards

Comparison between existing Standards and ISO Classification

	Today AS/NZS	ISO
Basic Classification	Type	Total Inward Leakage (TIL) Lab Test
Work Rates	Not Classified	4 Work Rate Classes W1, W2, W3, W4
Particle Filters	3 (P1, P2, P3)	Potential for 20 (4 Work rates and 5 Efficiencies F1, F2, F3, F4, F5)
Gas and Vapour	Classified by capacity (AUS, Class 1, Class 2, Class 3)	Classified by capacity and work rate for wider range of gas/vapour classes
Selection and Use	Based on Required Minimum Protection Factor	Based on ISO Classification – Protection level linked to TIL – Work Rates

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ISO TS 16973 Classification – Protection Class

- Protection Classification will be derived from Total Inward Leakage (TIL% max)
- 15-member panel
- Passing fit test required
- No type related limits on class
- Theoretically, a respirator can achieve the highest or lowest PC class regardless of what 'type' it is.

Protection Class	TIL MAX (%)
PC1	20
PC2	5
PC3	1
PC4	0.1
PC5	0.01
PC6	0.001

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ISO TS 16975-1 Selection and Use – Protection Level

- ISO defines Protection Level as “the degree of respiratory protection allocated to a respiratory protective device, that is expected to be provided to wearers when used within an effective respiratory protection program”.
- ISO ‘protection levels’ are based on a laboratory test and assigned regardless of ‘Type’ of respirator.
- Protection Level applied like an “Assigned Protection Factor (APF)” or “Required Minimum Protection Factor (RMPF)” to reduce workers exposure to beneath the Workplace Exposure Standards/Limits.

Class	Protection Level $PL = \frac{1}{TIL_{MAX}} * 100 * \frac{1}{SF}$ (%)
PC1	4
PC2	10
PC3	30
PC4	250
PC5	2000
PC6	10000

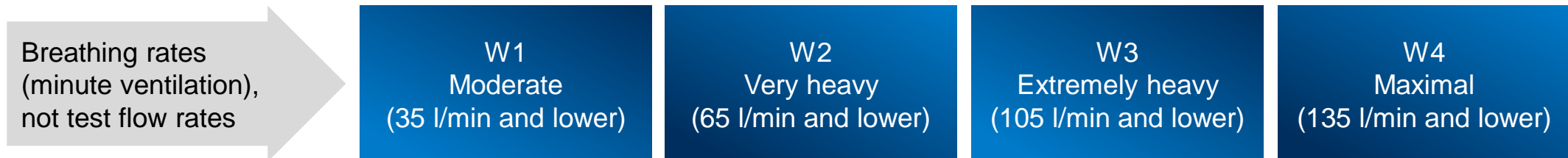
Further real-world performance validation of Protection Levels from ISO required. Area of discussion for the committee to lower Protection Levels

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SA/SNZ ISO TS 16973 Classification – Work Rates

4 Work Rate Classes

- Examples for different types of work in ISO TS 16973
- Work rates comes from ISO 8996
- Work Rate Class drives performance requirement flow rates
- Manufacturer determines what Work Rate Class to test to



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Determining Work Rate Class

Selection and use standard ISO 16975.3 Section 7.3.3.4 directs user to what Work Rate Class is needed

- W1 – W2 likely would cover about 70-80% of industrial workplaces

W1	Average for full work shifts including breaks
W2	Sitting at ease: light manual work (writing, typing, drawing, sewing, bookkeeping); hand and arm work (small bench tools, inspection, assembly or sorting of light materials); arm and leg work (driving vehicle in normal conditions, operating foot switch or pedal, standing drilling (small parts), milling machine (small parts), coil winding, small armature winding, machining with low power tools)
W3	To:
W4	Sustained hand and arm work (hammering in nails, filing); arm and leg work (off-road operation of lorries, tractors or construction equipment); arm and trunk work (work with pneumatic hammer, tractor assembly, plastering, intermittent handling of moderately heavy material, weeding, hoeing, picking fruits or vegetables, pushing or pulling light-weight carts or wheelbarrows, forging); walking at a speed of up to 5,5 km/h

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Determining Work Rate Class

Selection and use standard ISO 16975.3 Section 7.3.3.4 directs user to what Work Rate Class is needed

- W1 – W2 likely would cover about 70-80% of industrial workplaces

W1

W2

W3

W4

Average for full work shifts including breaks

Intense arm and trunk work (carrying heavy material, shovelling, sledgehammer work, sawing, planing or chiselling hard wood, hand mowing, digging, pushing or pulling heavily loaded hand carts or wheelbarrows, chipping castings, concrete block laying)

To:

Very intense activity at fast pace; working with an axe; intense shovelling or digging; climbing stairs, ramp or ladder; walking quickly with small forms; running; walking at a speed greater than 5,5 km/h

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Determining Work Rate Class

Selection and use standard ISO 16975.3 Section 7.3.3.4 directs user to what Work Rate Class is needed

- W1 – W2 likely would cover about 70-80% of industrial workplaces

W1

W2

W3

W4

Continuous work for up to 2 h without breaks

Safety and rescue work with heavy equipment and/or personal protective equipment; fit individuals pacing themselves at 50 % to 60 % of their maximal aerobic capacity; walking quickly or running with protective equipment and/or tools and goods; walking at 5 km/h and 10 % elevation

To:

Continuous work for up to 15 min without breaks.

Rescue and fire-fighting work at high intensity; fit and well-trained individuals pacing themselves at 70 % to 80 % of their maximal aerobic capacity; searching contaminated spaces; crawling under and climbing over obstacles; removing debris; carrying a hose; walking at 5 km/h and 15 % elevation

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Determining Work Rate Class

Selection and use standard ISO 16975.3 Section 7.3.3.4 directs user to what Work Rate Class is needed

- W1 – W2 likely would cover about 70-80% of industrial workplaces

W1

W2

W3

W4

Continuous work for less than 5 min without breaks

Rescue and firefighting work at maximal intensity; fit and well-trained individuals pacing themselves at 80 % to 90 % of their maximal physical work capacity; climbing stairs and ladders at high speed; removing and carrying victims; walking at 5 km/h and 20 % elevation

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SA/SNZ ISO TS 16973 Classification – Respiratory Interface Class

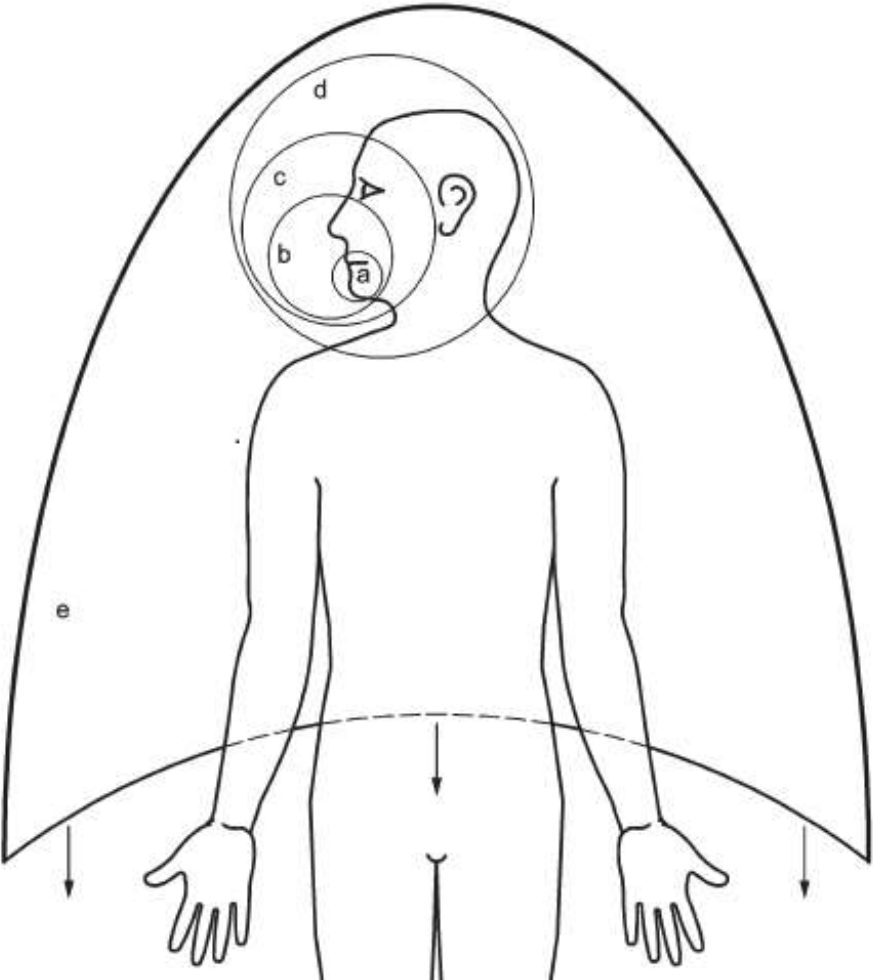


Table 3 – Respiratory interface classes

RI Class	RI area	Type
eL	e – more than head, up to complete body	L – Loose fitting
eT	e – more than head, up to complete body	T – Tight fitting
dL	d – Head	L – Loose fitting
dT	d – Head	T – Tight fitting
cL	c – Face	L – Loose fitting
cT	c – Face	T – Tight fitting
bL	b – Nose and mouth	L – Loose fitting
bT	b – Nose and mouth	T – Tight fitting
aL	a – Mouth only	L – Loose fitting
aT	a – Mouth only	T – Tight fitting

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SA/SNZ ISO TS 16973 Classification – Filtration

Class (Minimum particle filter efficiency)	F1 (80%)	F2 (95%)	F3 (99%)	F4 (99,9%)	F5 (99,99%)	Product Label Colours: Particulate = White Gas & Vapour = Blue
Type Gas filter	OV Organic Vapours	BC Basic	AC Acidic	OG Organic Gases	NOX Nitrous Oxides	
Class	1 2 3 4	1 2 3 4	1 2 3 4	1	1 2 3	
Type Specific gas filter	ND Nitrogen Dioxide	OZ Ozone	HCN Hydrogen Cyanide	MB Methyl Bromide	FM Formaldehyde	HG Mercury
	1 2 3	1	1 2 3 4	1 2 3	1 2 3	1 2 3
Type Specific gas filter	AH Arsine	HF Hydrogen Fluoride	CD Chlorine Dioxide	CO Carbon Monoxide	ETO Ethylene Oxide	PH Phosphine
	1	1 2 3	1	1 2 3	1 2	1 2 3
Class	1	1 2 3	1	1 2 3	1 2	1 2 3

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SA/SNZ ISO TS 16973 Classification – Special Applications

Each may have its own minimum Protection Level /
Protection Class, Work Rate and specific testing

						ESMN t Mining Escape
FF5 Structural Firefighting R2						ES MA t Marine Escape
FF4 Structural Firefighting R1			MN4 Firefighting R2			ES CBRN t CBRN Escape
FF3 Hazardous Materials	CBRN3 First on-scene responder		MN3 Firefighting R1			ES FF t Escape from fire
FF2 Rescue	CBRN2 Responder (known threat environment)	MA2 Firefighting	MN2 Underground explosive atmosphere			ES XX t Escape General Filtering (xx is gas filter type)
FF1 Wildland Firefighting	CBRN1 Gas Receiver/First Receiver	MA1 Hazardous Materials	MN1 Underground non-explosive atmosphere	AB Abrasive Blasting	WE Welding	ES t Escape General Supplied breathable gas
Class Firefighting	Class Chemical, Biological, Radiological and Nuclear	Class Marine (Shipboard and Offshore)	Class Mining	Class Abrasive Blasting	Class Welding	Class Escape (Nominal service life in t min)

RPD Classification for Special Application

Transitioning to new respiratory protection standards

SA/SNZ TS ISO 16973 Classification Example

A filtering facepiece protecting the wearer against harmful particles, with a total inward leakage of < 20%, being validated for ISO work rate 1 and having a minimum filter efficiency of 99%. See Table below.

Performance	Class
Protection class	PC1
Work rate	W1
Respiratory Interface	bT
Particle Filter Efficiency	F3w1

ISO RPD classification and marking: PC1 W1 bT F3

Refer to SA/SNZ TS ISO 16973 Annex B for further classification examples of different respirator types

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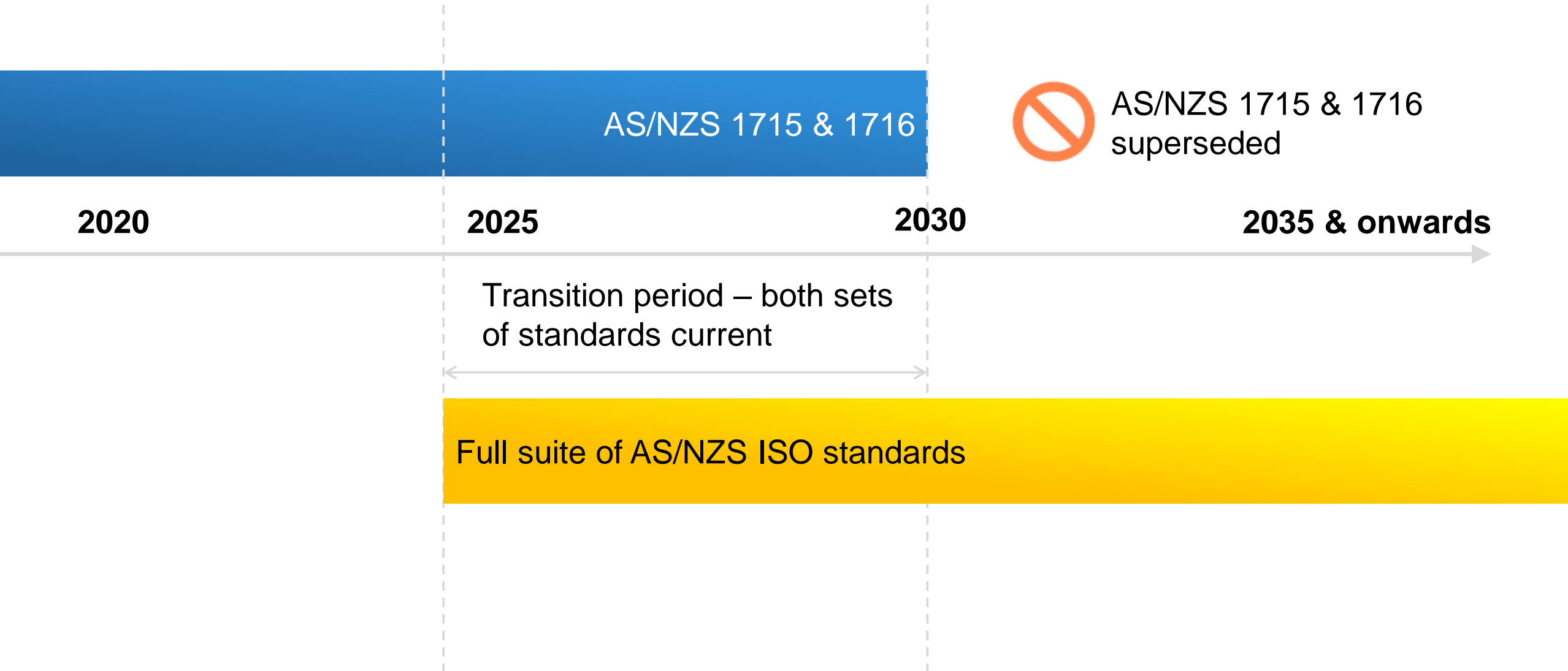
Conclusion

- Australia & New Zealand are some of the first countries globally to adopt the suite of ISO RPD standards
- AS/NZS 1715 & 1716 planned to be superseded in 2030
- Changes are coming to RPD standards, terminology and classification in future years
- The committee is currently reviewing the protection levels in 16975.1 and is seeking additional support from ISO
- Lots of market education is required during the transition period and ongoing
- Still a few years away from actual ISO-classified products on the market



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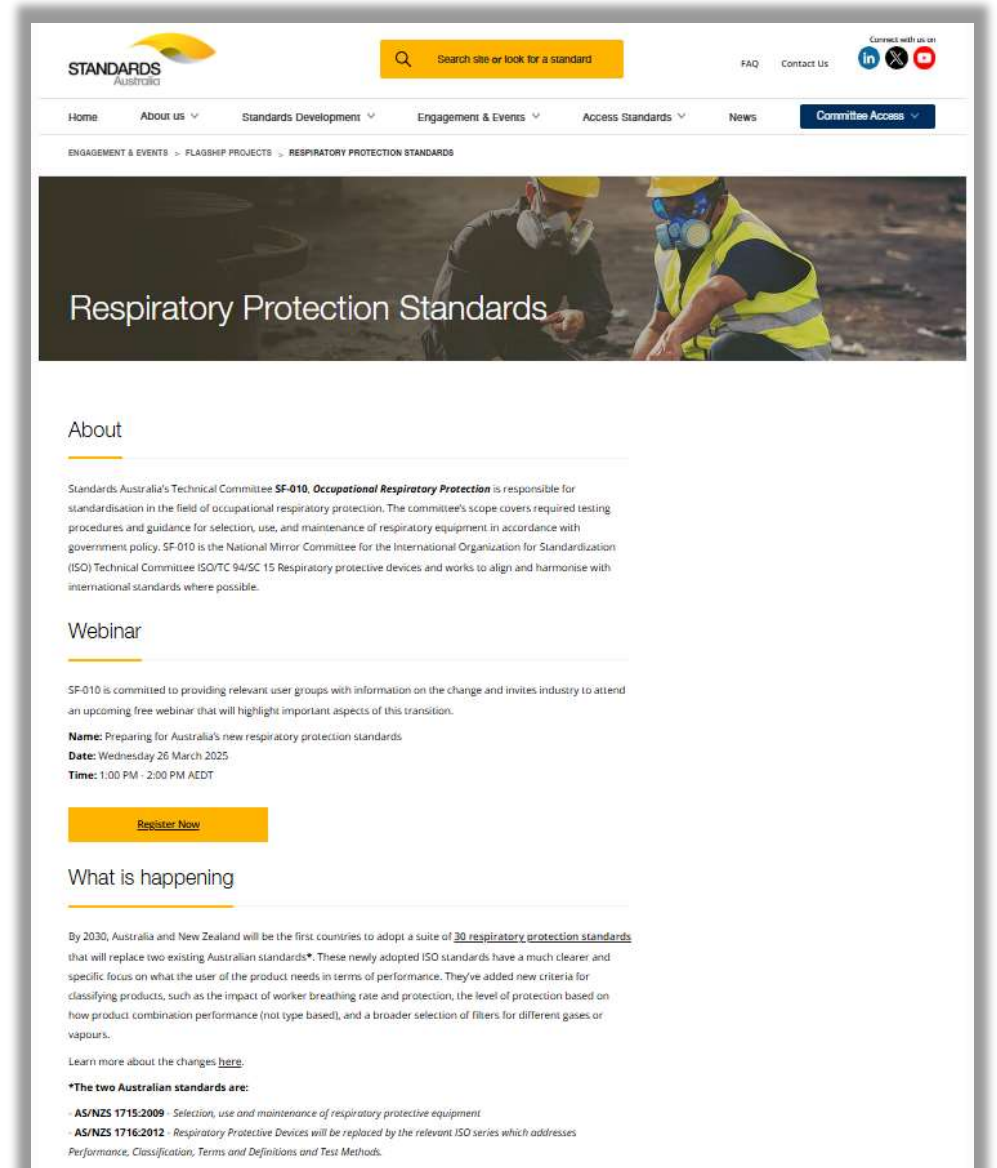
Transition Period Timeline 2025–2030 and beyond



Transitioning to new respiratory protection standards

Stay updated

- **Visit the dedicated webpage:** For the latest updates and detailed information, visit our Respiratory Protection Standards webpage:
- **Complete the post-event survey:** Please complete the post-event survey to let us know the best way to provide you with information in the future.
- **Follow Standards Australia on LinkedIn:** Stay connected and receive updates by following Standards Australia on LinkedIn.
- **Contact us:** If you have any questions or need further information, feel free to reach out to our team.



The screenshot shows the 'Respiratory Protection Standards' page on the Standards Australia website. The page features a header with the Standards Australia logo, a search bar, and navigation links. A large banner image shows two workers in full respiratory protection gear. Below the banner, the page is divided into sections: 'About', 'Webinar', and 'What is happening'. The 'About' section describes the role of the SF-010 Technical Committee. The 'Webinar' section provides details about an upcoming free webinar on the new standards, including the name, date, and time, with a 'Register Now' button. The 'What is happening' section explains the transition to 30 new ISO standards by 2030, replacing existing Australian standards, and lists the specific standards being replaced.

Standards Australia

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Respiratory Protection Standards

About

Standards Australia's Technical Committee **SF-010, Occupational Respiratory Protection** is responsible for standardisation in the field of occupational respiratory protection. The committee's scope covers required testing procedures and guidance for selection, use, and maintenance of respiratory equipment in accordance with government policy. SF-010 is the National Mirror Committee for the International Organization for Standardization (ISO) Technical Committee ISO/TC 94/SC 15 Respiratory protective devices and works to align and harmonise with international standards where possible.

Webinar

SF-010 is committed to providing relevant user groups with information on the change and invites industry to attend an upcoming free webinar that will highlight important aspects of this transition.

Name: Preparing for Australia's new respiratory protection standards
Date: Wednesday 26 March 2025
Time: 1:00 PM - 2:00 PM AEDT

[Register Now](#)

What is happening

By 2030, Australia and New Zealand will be the first countries to adopt a suite of **30 respiratory protection standards** that will replace two existing Australian standards*. These newly adopted ISO standards have a much clearer and specific focus on what the user of the product needs in terms of performance. They've added new criteria for classifying products, such as the impact of worker breathing rate and protection, the level of protection based on how product combination performance (not type based), and a broader selection of filters for different gases or vapours.

Learn more about the changes [here](#).

***The two Australian standards are:**

- **AS/NZS 1715:2009** - Selection, use and maintenance of respiratory protective equipment
- **AS/NZS 1716:2012** - Respiratory Protective Devices will be replaced by the relevant ISO series which addresses Performance, Classification, Terms and Definitions and Test Methods.

