



Science Advice

COVID-19 Disposable respiratory protection

Reference COVID-19 (1)
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1. Overview

1.1. Purpose of this document

1.1.1. This document provides a comprehensive overview of the issue. It includes information and commentary on the background information to support a decision-maker to make an evidence-informed decision.

1.2. Key issue/question

1.2.1. Are P2 masks suitable for protection against COVID-19.

1.3. Recommendation/response

1.3.1. Yes. The test standard for P2 masks in the Australian/New Zealand Standard for Respiratory protection standard is equivalent to the test standard for FFP2 in the European Union Standard (EU 149:2001+A1:2009 (E)).

2. Background and context

- 2.1.1. The World Health Organization reports that based on available evidence, the SARS-CoV-2 virus (COVID-19) is transmitted via droplets and fomites through close contact, not by airborne transmission.¹
- 2.1.2. Droplet transmission occurs when respiratory droplets travel from the respiratory tract of the infectious individual to the susceptible mucosal surfaces of the recipient, generally over short distances (1-2 metres). Droplets are $>5 \mu\text{m}$ in size, and are generated when an infected person coughs, sneezes or talks. Respiratory droplets fall to the ground, under the effect of gravity, soon after being expelled and so only those people in close contact with the infected individual are at risk of exposure.
- 2.1.3. The World Health Organisation has recommended the use of N95 or FFP2 masks for protection against COVID-19.

3. Mask selection

3.1. Standards and manufacturers claims

3.1.1. Different jurisdiction has different but similar standards for respiratory protection. Before a manufacturer can advertise that their product meets a certain specification it must be tested against that specification. Therefore, if two standards are similar but the mask has only been tested against one standard the manufacturer can only state that their mask meets that standard that it is tested against.

3.2. Relevant standards

Common mask standard term	Jurisdiction	Standard Reference
N95	United States	NIOSH-42C FR84
FFP2	European Union	EN 149-2001
P2	Australia / New Zealand	AS/NZ 1716:2012

There are other comparable standards from, Korea, Japan and China. These have not yet been found in the New Zealand market. But more information is available in Reference 3.

Comparison of standards (relevant to preventing penetration of respiratory droplets)

	N95	FFP2	P2
Filter performance	95%	94%	94%
Total inward leakage	NA	≤8%	≤8%
Particle size parameter in the test	~0.3 µm	0.2-2 µm	0.2-2 µm
Flow rate	85 L/min	95 L/min	95 L/min

4. Conclusion

4.1.1. Masks that meet the P2 standard in New Zealand meet the standards recommended by the WHO, therefore we do not need separate P2 masks into pandemic and non-pandemic depending on whether they meet the international standards or not.

5. Useful additional resources

WHO videos on when and how to where a mask for COVID-19

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks>

6. References

1. Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19). Interim guidance. 27 February 2020. Geneva, World Health Organization.
apps.who.int/iris/handle/10665/331215
2. Transmission of Covid-19 and the role of face masks in health settings (12 March 2020) NZ Ministry of Health. <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-novel-coronavirus-information-specific-audiences/covid-19-novel-coronavirus-resources-health-professionals#infectionprevention> Downloaded 18 March 2020. Saved on SharePoint
3. Comparison of FFP2, KN95, and N95 and other filtering face piece respirator classes (January 2020).3M Science
https://nzfe.sharepoint.com/sites/wg_RespCap_CoronaVirusWorkingGroup/Shared%20Documents/Science,%20References%20&%20%20Practices/2020-03-17%203M%20respiratory%20comparison%20tech%20bulletin.pdf
4. The standards referenced in section 3.2

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