PM2.5 HEALTH-BASED AMBIENT AIR QUALITY STANDARDS

The WHO says: "Particulate pollution has health impacts even at very low concentrations – indeed no threshold has been identified below which no damage to health is observed."
https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health

There is no safe level of fine particulate pollution.
Particulate matter is harmful to everybody even to so-called healthy people.

So why are we using these graded PM2.5 health-based categories extending way beyond good air quality?
Different categories exist around the world, even in Australia, but none echo the science. It is more confusing when many jurisdictions report in overly complicated Air Quality Indexes (AQIs).

The above categories are used by EPA Victoria, Australia.

Air pollution ($PM_{2.5}$ µg/m³)	AirRater (from 2021)	New enHealth	Previous AirRater
0 to 9	Good	Good	Good
10 to 24	Fairly good	Good	Fair
25 to 49	Fairly poor	Fair	Poor
50 to 99	Poor	Poor	Poor
100 to 299	Very poor	Very poor	Very poor (to 249)
300+	Extremely poor	Extremely poor	Terrible (250+)

Different health-based categories are used by Tasmania, Australia.

Health Tasmania has set the GOOD category at 0-9 ug/m3 not 25ug/m3.
Note: It is widely claimed Tasmania has some of the cleanest air in the world. But it is still not good enough when 5ug/m3 is considered good ambient air.

Table 0.1. Recommended AQG levels and interim targets

Pollutant	Averaging time	Interim target				AQG level
		1	2	3	4	
$PM_{2.5}$, µg/m³	Annual	35	25	15	10	5
	24-hour[a]	75	50	37.5	25	15

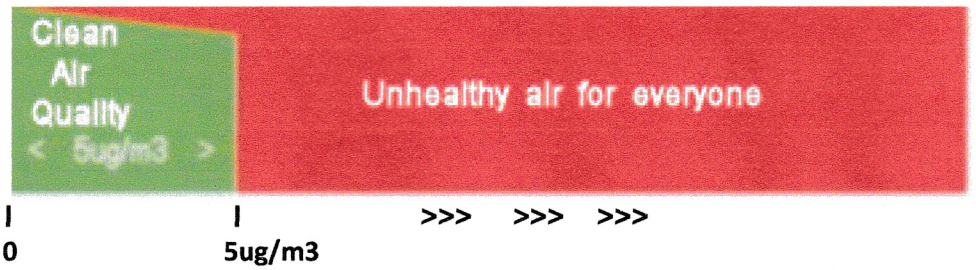
World Health Organisation PM2.5 AQ Guidelines - 2021
Why is there not a Guideline for harmful PM1.0 ultra fines?

The 2021 WHO AQ Guidelines are already outdated as they continue to use 24 hour and annual averages. There is nothing shorter than a 24 hour average.
There is nothing to make all the states easily comparable to one another, or to make air pollution levels easier to understand when states can go it alone as indicated by the WHO Guidelines or by our National Environment Protection Council

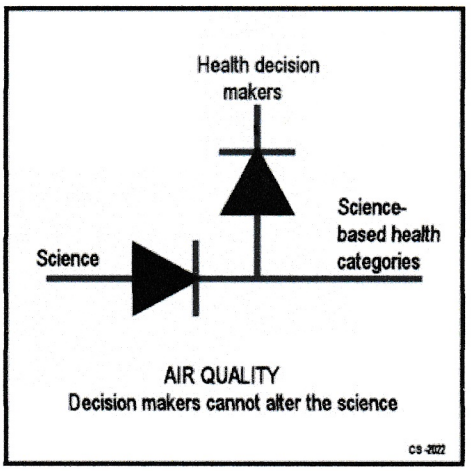
It is time Australia **caught up with the health science and adopted PM2.5 BINARY HEATH-BASED CATEGORIES and Comments, with:-**

i) **One hour rolling average monitoring,**
NB: 1-hour averages are already in use in some jurisdictions.
ii) **10 minute near real-time reporting for raw PM2.5 data.**
iii) **Just two health-based categories:-**
iv) **0-5ug/m3 Green for good air.**
v) **Red unhealthy air for everyone.**
vi) **Any episode above 5ug/m3 being classed as an exceedance.**
vii) **Confusing AQIs removed. Individual raw pollutant readings coming straight off the instruments.**
viii) **No exceptions, e.g. bushfires, planned burning, solid fuel heating, etc. Smoke is smoke as far as our health is concerned.**

This is what the mandatory health-based PM2.5 category right across Australia should look like:



5ug/m3 is considered to be good ambient air.
5ug/m3 should be considered a Practical Threshold for AAQ when there is no safe level of Particulate Matter and where 0ug/m3 is almost impossible to meet.



"Every single disease that is non-communicable is impacted by air pollution. It is not only involved in worsening diseases but in causing them, and new diseases that would not otherwise occur are happening because of air pollution" – Sir Stephen Holgate, National Clean Air Conference Nov.20/21

PM2.5 Health-based categories V.5.2 – C. Stott 1.7.2023