

# Glossary

Term or phrase	Meaning
<i>AMSAAP</i>	<i>Approved methods for sampling and analysis of air pollutants in NSW (2005)</i> , available from the DECC website: <a href="http://www.environment.nsw.gov.au/air/amsaap">www.environment.nsw.gov.au/air/amsaap</a>
<i>AMMAAP</i>	<i>Approved methods for modelling and assessment of air pollutants in NSW (2005)</i> , available from the DECC website: <a href="http://www.environment.nsw.gov.au/resources/ammodelling05361.pdf">www.environment.nsw.gov.au/resources/ammodelling05361.pdf</a>
AAQ NEPM (also 'Air NEPM')	Ambient Air Quality National Environment Protection Measure
Absorption	The removal of a pollutant by dissolving it in a liquid.
Accuracy of measurement	An indication of how close measured values are to the 'real' value of a quantity, or to a standard. In scientific measurement 'precision' and 'accuracy' are different.
<i>Action for Air</i>	The NSW Government's 25-year air quality management plan, released in March 1998.
Acute (impact)	A (health) impact that is associated with a short-term exposure to a pollutant. (See also chronic.)
Adsorption	The removal of a pollutant through its adherence to a solid surface, usually with high porosity.
Advisory Reporting Standard	A health-based indicator to assess the results of monitoring for particles as PM <sub>2.5</sub> and for toxic air pollutants. The Advisory Reporting Standard does include a timeframe for compliance. Established by NEPC.
Aerodynamic diameter (equivalent aerodynamic diameter)	The 'size' of an airborne particle. The 'aerodynamic diameter' of a particle of any physical size, shape and density is the diameter of a spherical particle with a density of one g/cm <sup>3</sup> that behaves the same way in air.
Aerosol	A dispersion of solid or liquid particles in a gas.
Afterburner	Fuel burning equipment (usually a gas burner arrangement) designed for destroying, by combustion, organic vapours and aerosols before they are released to the atmosphere.

<b>Term or phrase</b>	<b>Meaning</b>
Agricultural stubble burning	The practice of burning the stalks and residue after harvesting of cereal crops like rice and wheat, or of cotton crops and sugar cane. (In the sugar industry the residue after harvesting is called ‘trash’.)
Air pollution collection technique	Any technique or device used to manage air pollution through dispersion, capture or control.
Air-to-cloth ratio	A key factor in determining filter performance. The ‘air-to-cloth ratio’ is the ratio of air flow volume per unit of time to area of filter. It is equal to the average velocity of gas flow. Commonly given in Imperial units.
Air impurity (POEO Act definition)	Includes ‘smoke, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, mists, odours and radioactive substances’.
<i>Air NEPM</i> (see <i>AAQ NEPM</i> )	Ambient Air Quality National Environment Protection Measure
Air pollution (POEO Act)	The emission to air of any impurity, including odour.
Air shed	The geographic region that shares an air mass; the air mass in a region. For light wind speeds air shed behaviour is usually influenced by surrounding mountains and the ocean.
Air toxics	Substances generally identified as toxic to humans, often being those materials identified under the National Pollutant Inventory as toxic. They are frequently emitted as colourless vapours or gases, although toxic solid particles are also included. Not to be confused with toxins, which are specifically only toxic compounds formed by biological processes.
Airless gun	A spray painting device that atomises the paint as it enters the spraying system, using a high pressure-drop nozzle.
Ambient air	The external air environment. Ambient air does NOT include the air environment inside buildings or structures.
Anabatic flow	Movement of warmer air upslope from low ground.
Appropriate Regulatory Authority (ARA)	The government authority that has designated responsibility under the POEO Act for the environmental regulation of premises or activities.
Atmospheric stability	The property of the atmosphere that determines the extent to which mixing of air and pollutants occurs and hence the effectiveness of dispersion.

<b>Term or phrase</b>	<b>Meaning</b>
Authorised Officer	Person who is appointed by the Appropriate Regulatory Authority (ARA) under the POEO Act to act on its behalf to deal with environmental problems.
Averaging period	The time over which the concentration of an air pollutant is measured. These are prescribed for the key pollutants and goals in the <i>AAQ NEPM</i> .
Baghouse	The general term for fabric filters and their supporting structure.
Benzene	Benzene is the fundamental aromatic (cyclic) organic compound. Its chemical formula is C <sub>6</sub> H <sub>6</sub> . Benzene is one of the five toxic compounds listed in the Air Toxics NEPM.
Bill	A draft act of parliament, not yet approved by parliament.
By-law	Subordinate legislation. Frequently enacted by local government, under the legal authority of an empowering act.
Carbon monoxide (CO)	The first oxide of carbon, typically a product of incomplete combustion of organic fuels. Its chemical formula is CO.
Chronic (impact)	A (health) impact that is severe and associated with long-term exposure to a pollutant. (See also acute.)
Cities for Climate Protection (CCP™)	Cities for Climate Protection (CCP™) Australia is an international trademarked program of the International Council for Local Environmental Initiatives (ICLEI) delivered in collaboration with the Australian Greenhouse Office. The program assists local governments and their communities to reduce greenhouse gas emissions.
Clean-Up Notice	A notice under section 91 of the POEO Act to take clean-up action including preventing, removing, mitigating and destroying pollution, ascertaining the extent of pollution and remedial planning.
Climate change	Major and widespread climate changes that occur. Human civilizations arose after extreme, global ice age climate jumps. Severe droughts and other regional climate events during the current warm period have shown similar tendencies of abrupt onset and great persistence, often with adverse effects on societies. Commonly used in the narrow context of ‘global warming’ due to greenhouse gases.
Collecting efficiency	The percentage of air pollutant collected by control equipment.

Term or phrase	Meaning
Compliance	Operation which satisfies the applicable statutory requirements and consent and licence conditions for pollution.
Concentration	<p>A measure of the amount (mass) of a pollutant in a given volume of air. Because the amounts of pollutants in air are typically small the units are typically milligrams per cubic metre (<math>\text{mg}/\text{m}^3</math>) for emissions and micrograms per cubic metre (<math>\mu\text{g}/\text{m}^3</math>) in the ambient air. Nanograms per cubic metre (<math>\text{ng}/\text{m}^3</math>) are used for chlorodioxins because of their extreme toxicity at very low concentrations.</p> <p>Sometimes volume ratios are used in place of concentrations for gases, expressed as parts per million (ppm) or parts per billion (ppb).</p>
Continuous direct mass measurement technique	A method for continuously monitoring particulate matter in ambient air. The method provides near real-time measurement of mean particle concentration.
Criteria pollutant	A term used in some overseas jurisdictions, particularly by the US EPA. (See 'Key pollutant'.)
Crop stubble burning	The practice of burning off stalks and residue after harvesting cereal crops.
Cyclone	An air pollution collection device that collects particulate matter by separating it from a gas stream forced into a vortex within a cylindrical tube.
DEC	<p>Department of Environment and Conservation NSW.</p> <p>In April 2007, the name of the Department of Environment and Conservation NSW changed to the Department of Environment and Climate Change NSW.</p>
DECC	Department of Environment and Climate Change NSW
Density	<p>The amount of mass per unit volume in matter.</p> <p>The SI (metric) unit is the kilogram per cubic metre, <math>\text{kg}/\text{m}^3</math>. Another metric unit is the gram per cubic centimetre, <math>\text{g}/\text{cm}^3</math> (= gram per millilitre: <math>\text{g}/\text{mL}</math>).</p> <p><math>1 \text{ g}/\text{cm}^3 = 1 \text{ g}/\text{mL} = 1000 \text{ kg}/\text{m}^3</math></p> <p>See also 'Concentration'.</p>

Term or phrase	Meaning
Dioxins (see also 'Furans')	Generic name for a large family of cyclic organic chemicals. Those of environmental concern contain varying amounts of chlorine and some are toxic to humans. Often grouped with furans because of the latter's similar structure, chemical activity and toxicity. The generic family name 'dioxins' is commonly used to refer loosely to the chlorinated forms of dioxins and furans only. Measurements are usually expressed in terms of toxic equivalents (TEQ)—see under 'TEQ'.
Discretionary power	A power granted to an officer acting under the authority of legislation to exercise a measure of personal judgment in relation to the administration of the legislation. An example would be in determining whether an activity has been carried out in an environmentally unsatisfactory manner under section 95 of the POEO Act for the purposes of issuing a Prevention Notice. Such powers are generally subject to judicial review.
Diesel vehicle emissions	Emissions from both stationary and mobile diesel vehicles as defined in the POEOCAR Regulation.
Directions	Requirements to undertake actions intended to prevent, minimise or ameliorate the effects of pollution as specified in notices or licence conditions under the POEO Act or other environmental or local government legislation, primary or subordinate.
Dispersion	The spreading of a pollutant through a medium—air in the context of the Toolkit—mostly as a result of the turbulent motion of the medium, so as to reduce the concentration of the pollutant as the distance from the source of its release increases.
Dispersion modelling	Use of mathematical and physical principles to quantitatively predict concentrations of pollutants in the environment after release from a source. The three modelling packages usually encountered in air quality in Australia are <ul style="list-style-type: none"> <li>• AusPlume—developed by the Victorian EPA and widely used and accepted</li> <li>• TAPM—a CSIRO model developed to address regional pollution problems, and</li> <li>• Calpuff—a more sophisticated technique that can be used for difficult odour predictions.</li> </ul>
Downwash	The downward flow of air on the downwind side of a building or structure.
Drainage flow	Katabatic flow (of cold air) down slopes from high ground. It is significant in air basins and valleys in light wind conditions, and commonly experienced at night with clear skies.

Term or phrase	Meaning
Dry scrubber	A gas-cleaning system where a gaseous pollutant is brought into contact with a granular solid that reacts with or adsorbs the pollutant, which is removed from the gas stream by filtration.
Dust	Solid particles suspended in air, usually referring to coarse, wind-blown particles.
Duty to warn	Obligation on an authorised officer to warn people in relation to providing information about (air) pollution issues.
Electrostatic painting	A painting process that uses the particle-attracting property of electrostatic charges to reduce overspray.
Emission limit	Limit on the amount of pollutant that can be released for activities specified under the POEO Act or in conditions attached to an Environment Protection Licence or a consent granted under the EP&A Act. The stringency of limits varies with time, more modern plant being required to meet lower limits.
Enforcement officer	Person authorised under the POEO Act to issue Penalty Notices for specific offences.
EPA	Environment Protection Authority, part of the Department of Environment and Climate Change NSW.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPHC	<p>Environment Protection and Heritage Council. Formed following changes to natural resource and environment-related Ministerial Councils agreed by the Council of Australian Governments in June 2001.</p> <p>EPHC was created by amalgamating the National Environment Protection Council (NEPC), the environment protection components of the Australian and New Zealand Environment and Conservation Council (ANZECC), and Heritage Ministers' Meetings. The natural resource management components of ANZECC were transferred to the Natural Resource Management Ministerial Council.</p> <p>In October 2003, EPHC was renamed the Environment Protection and Heritage Council of Australia and New Zealand, but continues to be known as the Environment Protection and Heritage Council.</p> <p>As it is a statutory body the NEPC will continue to exist and will operate under the umbrella of the EPHC.</p>

Term or phrase	Meaning
Epidemiology	In the context of air pollution, epidemiology is statistical research to link the effects of exposure to known pollutants to human disease or mortality, specifically to indicate the degree of risk that people with particular medical conditions, exposure patterns or lifestyle have of being adversely affected by the pollutant. Studies of large populations are necessary because of the need to eliminate confounding factors in attributing causes to diseases and mortality.
Exceedence	An instance when the pollutant concentration exceeds the standard or consent condition concentration. Although in common use in an environmental context, the word has not progressed into general usage.
Fabric filter	A device which removes particles from gases by passing the dirty gases through a filter medium of natural or synthetic cloth, in woven or felted form.
Felted-filter medium	A fabric filter medium consisting of a felted mass of fibres, in contrast to woven filter media. Felted media are frequently 'needled' or punched with small holes to improve strength.
Filter cake	The compacted particulates that accumulate on a fabric filter and enhance the filtration capability of the filtration device.
Fire management	All activities associated with the management of fire prone land, including the use of fire to meet land management goals and objectives.
Formaldehyde (H <sub>2</sub> CO)	Formaldehyde (methanal) is the simplest aldehyde (alkanal). Its chemical formula is H <sub>2</sub> CO. Formaldehyde is one of the five toxic compounds listed in the Air Toxics NEPM. It is emitted from some surface adhesives during curing and is also a key intermediate in the formation of photochemical air pollution.
Fugitive emissions	Air pollutants that enter the atmosphere directly without being first drawn into a hood, enclosure or cover leading to a ducting system and control equipment before discharge through a stack.
Fumigation	In meteorology, the sudden mixing back down to ground level of a slowly-dispersing pollutant plume trapped in a stable air layer aloft. This occurs when the stable layer, usually formed overnight, breaks up as the lower atmosphere warms during the day.

Term or phrase	Meaning
Furans (see also 'Dioxins')	Generic name for a large family of cyclic organic chemicals. Those of environmental concern contain varying amounts of chlorine and some are toxic to humans. Often grouped with dioxins because of the latter's similar structure, chemical activity and toxicity. The generic family name 'dioxins' is commonly used to refer loosely to the chlorinated forms of dioxins and furans only.
Greenhouse gases	Gaseous components of the atmosphere that contribute to the greenhouse effect.  The major natural greenhouse gases are water vapor (contributing about 36–70% of the greenhouse effect not including clouds), carbon dioxide (contributing 9–26%) and ozone (contributing 3–7%). Their effects are not additive in a simple way. Other greenhouse gases include, but are not limited to: methane, nitrous oxide, sulfur hexafluoride, and chlorofluorocarbons.
Global air pollution	Air pollution of concern globally. The common anthropogenic global pollutants (carbon dioxide, methane, nitrous oxide and CFCs) are not significant pollutants in a local or regional context.
High-volume air sampler	A device for sampling a relatively large volume of air, usually over a 24-hour period on a 6-day frequency, through a filter paper to determine gravimetrically the amount of trapped particulate matter. The collected particulate matter may subsequently be analysed for specific substances. Use of a high-volume air sampler is the internationally accepted and traditional method of measuring particulate pollution. Aerodynamically designed inlets can be fitted to high-volume samplers to sample PM <sub>10</sub> and PM <sub>2.5</sub> .
Hygroscopic	Having a tendency to absorb moisture.
Inhalable (fraction of) particles	Particles with an aerodynamic size less than approximately 100 µm that can be inhaled by the nose or throat. (See also 'Thoracic particles' and 'Respirable particles'.)
Intermittent sampling	Sampling at intervals, either determined or random, in contrast to continuous sampling.
Inversion	An atmospheric condition in which the temperature increases (rather than decreases) with height, tending to significantly influence dispersion patterns.
Investigation level	A concentration of air pollution nominated by the NEPC in a NEPM for investigation with a view to establishing a standard concentration when a program of research and study has been completed.

Term or phrase	Meaning
Isokinetic testing	An in-stack technique for measuring either the particulate or aerosol pollutants in the gas stream within a stack or extraction system. The velocity of gas entering the sampling tube must be the same as the velocity of the gas flowing past the tube. Must be used for reliable particulate measurement.
Katabatic flow	Movement down slope of colder air from high ground. See also 'Drainage flow'. Important in air basins and valleys in light wind conditions, and commonly experienced at night.
<p>Key pollutant (NEPM)</p> <p>In some overseas jurisdictions (such as the US EPA) and in some Australian sources the term 'criteria pollutant' is used for statutorily prescribed pollutants.</p>	<p>The air pollutants specified in the Air NEPMs and the NSW government air quality standards and goals, being:</p> <ul style="list-style-type: none"> <li>• carbon monoxide</li> <li>• nitrogen dioxide</li> <li>• photochemical ozone</li> <li>• sulfur dioxide</li> <li>• lead</li> <li>• particles (PM<sub>10</sub> and PM<sub>2.5</sub>)</li> <li>• air toxics (benzene, formaldehyde, toluene, PAHs, xylenes)</li> <li>• fluorides (for vegetation protection).</li> </ul>
Land breeze	Air flow from land to ocean (or lake) at night.
LG Act	<i>Local Government Act 1993</i>
Load-based licensing (LBL)	A NSW scheme that links licence fees to the amount of pollution released by a premises to the environment.
Local air pollution	Air pollution that impacts air quality primarily in the vicinity of its source.
Manometer	<p>A device for measuring pressure of a gas or liquid. The most common types are:</p> <ul style="list-style-type: none"> <li>• U-tube liquid column, which measure pressure by difference in height of a liquid in the two arms of a U-shaped tube mounted either vertically or inclined,</li> <li>• Diaphragm, which measures pressure by deflection of a metallic or other membrane exposed to the fluid on one side,</li> <li>• Bourdon, which measure pressure by progressive unfurling of a spiral metal tube as the pressure inside increases,</li> <li>• Piezoelectric, which measures the very small voltage generated by pressure on a crystal of suitable material - the very small voltages making this amenable to digital processing.</li> </ul>

Term or phrase	Meaning
Manual gravimetric method	A manual method for sampling particles by drawing air through a filter and determining the mass by weighing the filters. High-volume sampler for ambient air and particulate emission test for discharge gases.
Mass	<p>The amount of matter. The SI (metric) unit is the kilogram (kg). Units commonly used are</p> <ul style="list-style-type: none"> <li>• the gram (<math>g = 10^{-3} \text{ kg}</math>)</li> <li>• the milligram (<math>mg = 10^{-3} g = 10^{-6} \text{ kg}</math>)</li> <li>• the microgram (<math>\mu g = 10^{-6} g = 10^{-9} \text{ kg}</math>).</li> </ul> <p>For toxics the very small unit of nanogram (ng) is used (<math>ng = 10^{-9} g = 10^{-12} \text{ kg}</math>).</p> <p>In common usage the term 'weight' is used to mean 'mass' but the scientific meaning of 'weight' is the force of gravity on mass.</p> <p>The imperial unit of mass is the pound (lb) which is widespread in earlier engineering literature and still used in the USA.</p> <p>1.00 lb = 0.4536 kg      1.00 kg = 2.205 lb</p>
Mechanical collection of particulates	Removal of particles from an air or gas stream using inertial forces to divert the trajectory of the particles from the trajectory of the carrying air or gas stream (see 'Cyclones').
Mechanical shaking	A means of cleaning the filter medium in some types of fabric filters by shaking the bags.
Mercury	One of the 'heavy metals' of environmental concern and the only liquid metal at normal temperature. Mercury used to be called 'quicksilver' and was used in 'liquid in glass' thermometers. Elemental mercury enters the air during the combustion of fuels in which it is a very volatile impurity. Volatile organo-mercury compounds are also found in the atmosphere.
Meteorology	The study of the physics of the atmosphere. Sub-categories encountered in air quality management are meso-meteorology (e.g. the Sydney air basin) and micro-meteorology (e.g. the lower layers of the atmosphere and individual plumes). The meteorology normally encountered in the media is synoptic meteorology (derived from the movement of pressure systems over the continent).
Micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ )	A concentration unit commonly used for particulate pollution in ambient air, as measured at STP (standard temperature and pressure).

Term or phrase	Meaning
Monitoring network	An array of ambient monitors designed to measure selected air quality aspects for specific purposes. In the context of the Toolkit, the monitoring network is the DECC network of monitoring stations set up to monitor air quality in the Sydney metropolitan area, the Lower Hunter region and the Illawarra region.
Monitoring station	A facility for measuring the concentration of one or more pollutants and meteorological parameters in the ambient air of a region or sub-region.
Monitoring station (performance)	A monitoring station used to measure achievement against an AAQ NEPM goal.
Multi-cyclone	An array of small diameter cyclone collectors arranged to clean large volumes of gases in parallel.
NEPC	The National Environment Protection Council established by section 8 of the Commonwealth <i>National Environment Protection Council Act 1994</i> and the equivalent provisions of the corresponding acts of participating states and territories—in NSW the <i>National Environment Protection Council (New South Wales) Act 1995</i> . NEPC is incorporated, for administrative purposes, into the Environment Protection and Heritage Council (EPHC).
NEPM	National Environment Protection Measure
Nitrogen dioxide (NO <sub>2</sub> )	One of a number of oxides of nitrogen. It forms relatively rapidly in air from emitted nitric oxide (NO) and is one of the six key air pollutants identified in the AAQ NEPM. It is a brownish, highly reactive gas.
Nitrogen oxides (NO <sub>x</sub> )	Nitrogen oxides, whether in the nitric oxide (NO) or nitrogen dioxide (NO <sub>2</sub> ) form. They are rapidly converted from one to the other in an atmosphere which is photochemically reactive. NO <sub>x</sub> is a precursor of photochemical smog measured as ozone.
No Burn order	An order that can be issued by the EPA under the POEO Act prohibiting the burning of fires in the open or incinerators when a combination of meteorological conditions and pollution emissions has the potential to lead to high pollution levels.
Non-woven fabric filter	See felted-filter medium.
Notices	Legal directives issued by an authority to a premises or operator of an activity to undertake work or operate in a specified manner by a specified date.

Term or phrase	Meaning
NTP (different from STP)	Normal temperature and pressure: 20°C and 101.325 kilopascals (kPa).
Odour	A sensation of smell as detected by the olfactory nerve. Intensity of odour is measured as the odour unit.
Odour unit (ou)	Number of odour units in standard volume of a gas is the number of dilutions with odour-free air needed to bring a sample of odorous gas to the point at which a panel of people just fail to detect the odour. There are several ways of measuring odour units and the method should be specified when results are given.
Opacity (percentage of gas stream)	<p>The percentage of incident light scattered and absorbed by the particles in the gas stream (i.e. the percentage of incident light <i>not</i> transmitted through the gas stream)</p> <p>% opacity = 100 – % transmittance</p> <p>See also ‘Transmittance (percentage of gas stream)’.</p>
Order of magnitude	The size of a quantity expressed as the nearest power of 10. When a quantity is said to have ‘changed by an order of magnitude’ the quantity has either increased ten-fold or decreased to one tenth.
Overspray	Paint, powder and solvent that miss the item being coated. A source of particulate pollution that must be managed in spray painting activities.
Ozone (O <sub>3</sub> )	A tri-atomic molecular form of oxygen, O <sub>3</sub> . Ozone is a very strong oxidizing agent that causes damage to sensitive body tissues, vegetation and materials. It is used as the surrogate for all other products of the photochemical oxidation processes in the formation of ‘smog’ or photochemical air pollution. (‘Smog’ here refers to the Los Angeles type and not the original ‘smoke and fog’ of nineteenth century London.) Ozone is used to set the ambient air standard for this type of pollution in the AAQ NEPM. The chief precursors for photochemical smog are NO <sub>x</sub> and VOCs with sufficient intensity of sunlight.
Ozone depletion, ozone layer	The depletion of ozone in the stratosphere (upper atmosphere) caused by chlorofluorocarbons (CFCs) that are now controlled under the Montreal Protocol and the NSW <i>Ozone Protection Act 1989</i> . Ozone in the stratosphere protects life at the earth’s surface from ultraviolet radiation and is to be distinguished from ozone in the lowest layer of the atmosphere, the troposphere, where it is a harmful pollutant above certain concentrations.

Term or phrase	Meaning
PAH	Polycyclic Aromatic Hydrocarbons. These include toxic chemicals and one of them, Benzo(a)pyrene, is listed as the marker for PAHs in the Air Toxics NEPM.
Paint	A mixture of a pigment and a volatile vehicle or 'solvent' that together form a liquid that can be applied to a surface, providing an adherent coating that imparts colour and often protects the surface. Much of the solvent evaporates on drying and curing of the paint with resultant VOC emissions. Newer water-based products have lower VOC emissions.
Paint vehicle	The liquid constituent of paint, consisting of solvent or thinner and resin (film-forming component).
Particulate Removal Efficiency	The efficiency of removal of particles from a gas stream in an air pollution control device.
Particulates	The term for finely divided solid and liquid matter suspended in the atmosphere.
PCB	Polychlorinated biphenyls (PCBs) are a family of over 200 synthetic chemicals that were used widely in industry as oils because of their low reactivity and good electrical properties. Although not listed in the Air Toxics NEPM they are prioritised by the EPHC for further investigation.
Penalty Notice	A notice issued by an officer of the appropriate regulatory authority requiring that a prescribed penalty be paid by a prescribed date for a prescribed offence, or the matter contested in Court.
Permeability	The property of material to allow a liquid or gas to pass through it.
Persistent Organic Pollutant (POP)	Persistent Organic Pollutants are chemicals that remain in the environment for long periods of time and so become widely distributed geographically. They are controlled globally under the Stockholm Convention.
Photochemical smog	The products of hundreds of photochemically catalysed reactions, between the families of VOCs and NO <sub>x</sub> to produce a mix of oxidant materials, principally ozone, but also including peroxyacylnitrates (PAN) and fine particles or organic materials.
Plume	A trail of pollution issuing from a localised source, which may or may not be visible.
PM <sub>10</sub> (particles as)	Particulate matter with an equivalent aerodynamic diameter of 10 micrometers (10 µm) or less.

<b>Term or phrase</b>	<b>Meaning</b>
PM <sub>2.5</sub> (particles as)	Particulate matter with an equivalent aerodynamic diameter of 2.5 micrometers (2.5 µm) or less.
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
POECAR	Protection of the Environment (Clean Air) Regulation 2002
Powder coating	A coating that contains no organic solvents. The coatings are either thermoplastic or thermosetting powders.
ppb	Parts per billion by volume (one in 10 <sup>9</sup> ). 1 ppb = 10 <sup>-3</sup> ppm
pphm	Parts per hundred million by volume (one in 10 <sup>8</sup> ). 1 pphm = 10 ppb = 10 <sup>-2</sup> ppm
ppm	Parts per million by volume (one in 10 <sup>6</sup> ). 1 ppm = 100 pphm = 1000 ppb
Precision	In the context of the scientific measurement of a quantity, precision is a measure of the closeness together of individual measurements of the quantity, without reference to its 'real' value. Precision is usually expressed by the standard error of the set of measurements—the smaller the standard error the higher the precision of measurement. In scientific measurement 'precision' and 'accuracy' are different.
Prescribed biomass burning (Definition from the Department of Environment, Australia)	Biomass burning is the combustion of organic matter. Burning can be from natural or man-made fires. Examples are the burning of crop stubble, forest residues and vegetation burnt for land clearing. 'Prescribed burning' is a term used to describe the deliberate use of fire for management purposes. Fire is used as a tool to reduce the risk of wild fires by clearing out highly flammable leaves and branches shed by native vegetation in parks, reserves, on farms and bush blocks.
Pressure drop	The loss in pressure across an air or gas flow device or ducting system. It is particularly important for wet scrubbers and fabric filters, being a key measure for the operation of air pollution control devices.
Prevention Notice	A notice under section 95 of the POEO Act to take action to prevent or reduce, to monitor and analyse or undertake planning to prevent air pollution.

Term or phrase	Meaning
Public register	A publicly accessible register maintained by an appropriate regulatory authority under the POEO Act. A public register lists, among other things, details of environment protection licences and notices issued on premises, convictions in prosecutions undertaken under the Act, the results of civil proceedings and a summary of conclusions of any mandatory audits undertaken under the Act.
Pulse cleaning	A means of cleaning the filter medium in some types of fabric filters by forcing a short pulse of medium-pressure cleaning air through the bags in opposition to the normal flow.
Rate (of gas flow)	The volume of gas or air flowing past a point in unit time. The SI (metric) unit is cubic metres per second ( $\text{m}^3/\text{s}$ ). The common imperial unit is cubic feet per minute (cu. ft/min or cfm).  $1.0 \text{ m}^3/\text{s} = 2119 \text{ cfm}$
Rate (of flow or emission)	The amount of pollutant emitted (in a gas stream) per second, usually as the mass per second in kilograms per second (or different units of mass as appropriate).
Region (in AAQ NEPM)	An area within a boundary surrounding population centres as determined by the relevant jurisdiction (NSW).
Regional air pollution	Air pollution that occurs over a large area.
Regional Pollution Index (RPI)	An index based on measured ozone and nitrogen dioxide concentrations and visibility. It is calculated and reported twice daily for three regions in Sydney.
Residence time	The time a gas or particles remain in some defined space. It can be used to describe the time a gas takes to pass through a piece of control equipment or to remain in a combustion zone. It can also be used to describe how long particulate matter remains suspended in the atmosphere.
Respirable (fraction of) particles	Particles that can reach the alveoli and be trapped in the lung, having passed the defences of the bronchio-pulmonary system. It has been shown that 50% of the particles with an aerodynamic diameter of $4 \mu\text{m}$ belong to the respirable fraction.
Reverse air cleaning	A means of cleaning the filter medium in some types of fabric filters by forcing a flow of cleaning air through the bags in the reverse direction to the normal flow.
Ringelmann Chart	A set of cross-hatched squares in gradations of 20% darkness used to estimate the intensity of black-grey smoke emissions.

Term or phrase	Meaning
Sampling	The process of taking a portion of a material or population for examination or analysis to obtain a representative picture of the whole. The selection may be probabilistic ('random'), systematic or judgmental.
Scheduled activity or premises	Activities or premises listed in Schedule 1 of the POEO Act for which the DECC (EPA) is the ARA.
Scrubbing	The process of removing pollutants from a gas stream by passing it through a liquid (the 'scrubbing liquor').
Sea breeze	Air flow from ocean (or lake) to land during day.
Sensitivity (of measurement)	The degree of response of a measuring instrument to a given input.
Settling chamber	A simple type of air pollution control device in which particulate pollution is allowed to settle or fall out of an air stream as it passes through it.
Smog (see also 'Photochemical smog')	<p>Originally referring to the mixture of coal smoke and fog in London (smoke + fog = smog).</p> <p>In Australia 'smog' now more commonly refers to Los Angeles-type photochemical smog. This is the product of many photochemically catalysed reactions, between the families of VOCs and NO<sub>x</sub> to produce a mix of oxidant materials, principally ozone, but also peroxyacylnitrates (PANs) and fine particles or organic materials.</p>
Smoke	Black or grey coloured visible emissions, usually resulting from poor combustion. When white or another colour it indicates the presence of fine particles or aerosol droplets.
Smoke meter	An instrument often attached to combustion equipment to indicate approximately when the Ringelmann smoke levels might be exceeded. These instruments rely on simple optics, are very dependent on manual cleaning and inadequate for correlation with particulate loadings.
SO <sub>x</sub>	Sulfur oxides, consisting of sulfur dioxide (SO <sub>2</sub> ) and sulfur trioxide (SO <sub>3</sub> ), but usually expressed as the equivalent sulfur dioxide .
Solvent recovery	Recovery of vapours from solvents, for example by use of a solid adsorbent material that holds the vapour molecules on its surface, from which they can be regenerated for recycling. This is desirable if cost is a major consideration or if incineration is impractical, as with chlorinated solvents.

Term or phrase	Meaning
STP (different from NTP)	Standard temperature and pressure: 0°C and 101.325 kilopascals (kPa)
Standard (NEPM)	A 'national environment protection standard' is a quantifiable characteristic of the environment against which environmental quality can be assessed. In the case of air quality, each standard is a pollutant concentration level as measured over a defined averaging period.
Standard (ASO, ISO)	A 'standard' is a published document which sets out specifications and procedures designed to ensure that a material, product, method or service is fit for its purpose and consistently performs in the way it was intended.  Standards establish a common language which defines quality and establishes safety criteria.
Stratosphere	The layer of the atmosphere immediately above the troposphere. The stratosphere begins about 10 km and ends approximately 50 km above the earth's surface. The ozone layer is at the top of the stratosphere.
Sub-region (in AAQ NEPM)	A populated area within a region whose air quality differs from other areas in the region due to the topography, meteorology and sources of pollutants.
Subordinate legislation	Regulations, ordinances, notices and statutory policies, etc. These depend on and are constrained by primary legislation (an Act of Parliament) which has been passed by the legislature.  Regulations are drafted by the Executive and not disallowed by Parliament in a prescribed time of review.  Ordinances, Notices and Statutory Policies are generally simply issued by the executive arm of government.  Unofficial policies and guidelines are issued to aid interpretation of primary and subordinate legislation.
Sulfur dioxide	The principal oxide of sulfur resulting from combustion of sulfur bearing fuels.

Term or phrase	Meaning
Surface coating	Coating of surfaces for decoration or protection. A number of basic coating operations are used, including spraying, dip coating, flow coating, roller coating and electro-coating. Variations and combinations of these operations may be used, each designed for a special task. For example, articles may be coated by spraying using air-atomised, airless-electrostatic or hot-spray methods. The composition and physical properties of these coatings vary widely. Organic solvents and thinners are required for many of these operations. The evaporated solvents become VOC emissions.
TEOM	Tapered element oscillating microbalance, a particle measuring device.
TEQ	Toxic equivalent, commonly used in specifying chlorodioxin and furan measurements. There are many isomers (differing forms) of these compounds depending on the number of chlorine atoms attached and their position on the organic molecule, having widely varying toxicities. A set of recognised toxic equivalence factors are used to bring the toxicity of a measurement to common equivalent value. See POEOCAR for the accepted factors for each isomer.
Thoracic (fraction of) particles	Inhalable particles that pass the larynx. It has been shown that 50% of the particles in air with an aerodynamic diameter of 10 µm belong to the thoracic fraction. (See also 'Inhalable particles' and 'Respirable particles'.)
Toluene (C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub> )	Toluene (methyl benzene) is the simplest alkyl substituted aromatic (cyclic) organic compound. Its chemical formula is C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub> . Toluene is one of the five toxic compounds listed in the Air Toxics NEPM.
Transmittance (percentage of gas stream)	<p>The 'percentage transmittance' of a gas stream is the percentage of incident light transmitted through the stream (i.e. the light <i>not</i> scattered and absorbed by the particles in the gas).</p> <p>% opacity = 100 – % transmittance</p> <p>See also 'Opacity (percentage of gas stream)'.</p>
Transmissometer	An instrument for measuring the opacity of air by measuring the amount of light transmitted through it, using extensive measures to ensure repeatability and reliability of measurement, such as automatic lens cleaning, a controlled frequency light source to eliminate interference and routine automatic calibration. Adequate to correlation with particulate loadings for specific duties. Not to be confused with a 'smoke meter'. (See also 'smoke meter'.)

Term or phrase	Meaning
Troposphere	The lowest layer of the atmosphere extending from the earth's surface to about 10 km where there is a transition (at the tropopause) to the stratosphere. The troposphere is the most turbulent and the location of most meteorological phenomena such as cloud precipitation.
TSP	Total suspended particulates. All airborne particles or aerosols less than 100 µm in aerodynamic diameter.
Venturi	A narrow throat in a pipe, where the fluid (gas or liquid) flow is faster. The pressure within the fluid here is lower than in the slower moving fluid in wider sections of the pipe.
Venturi scrubber	A high-energy particulate scrubber.
Volatile organic compound (VOC)	Any organic compound (usually liquid) that readily evaporates at normal temperatures and persists in the air as a vapour. A key precursor to the formation of photochemical air pollution measured as ozone.
Volume	<p>The space occupied by matter (not to be confused with mass or weight). The SI (metric) unit is the cubic metre (m<sup>3</sup>) and this is commonly used in air volume measurements. The litre is 10<sup>-3</sup> m<sup>3</sup> (there are 1000 litres in one cubic metre) but is more commonly used in water or liquid measurements.</p> <p>The imperial unit used in air volume measurements is the cubic foot (cu. ft.) which is widespread in earlier literature and still used in the USA.</p> <p>1.00 cu. ft. = 2.832 x 10<sup>-2</sup> m<sup>3</sup></p> <p>1.00 m<sup>3</sup> = 35.3 cu. ft.</p>
Vortex	A whirling mass of air (or water). Vortices are induced in cyclones to cause the separation of suspended particles from the air stream.
Wet scrubber	An air pollution control device designed for removing particles from gas by capturing the particles on or in liquid (usually water) droplets and separating the droplets from the gas stream.
Woven fabric filter	A fabric filter medium consisting of various styles of woven cloth using natural or synthetic materials.
Xylenes	Xylenes are dimethyl benzenes and are similar to toluene. There are three isomers, all have the same chemical formula of C <sub>6</sub> H <sub>4</sub> (CH <sub>3</sub> ) <sub>2</sub> . Xylenes as a total of all isomers are listed in the Air Toxics NEPM.