



STACK EMISSION TESTING  
AIR QUALITY • ODOUR • NOISE

# Capability Statement



[www.airlabs.com.au](http://www.airlabs.com.au)

Airlabs Environmental Pty Ltd (Airlabs) is an Australian-owned environmental consultancy specialising in stack emission, air quality, odour & noise monitoring. For over 20 years, our dedicated staff have provided cost-effective, compliant and reliable services throughout Australia and to an international market.

We have both the experience and systems in place to facilitate testing at short notice anywhere in Australia or overseas. We aim to provide a service which is tailored to meet our clients' individual needs, and are pleased to offer you the following capabilities.

## Stack Emission Testing & CEMS Certification

### General Stack Testing

Airlabs is accredited to ISO/IEC 17025 by the National Association of Testing Authorities (NATA Accreditation No. 15463) for a wide range of stack emission parameters utilising Australian, State EPA and International Test Methods. Our complete Scope of Accreditation can be found on the NATA website ([www.nata.asn.au](http://www.nata.asn.au)). A summary of the most frequently requested stack tests and methods in which we are NATA accredited is given below:

Parameter	Method
Selection of Sampling Positions	AS4323.1, NSW EPA TM-1
Velocity, Flow Rate and Temperature	USEPA 2, ISO 10780, NSW EPA TM-2
Moisture Content	USEPA 4, NSW EPA TM-22
Particulate Matter	AS4323.2, USEPA 5 & 17, NSW EPA TM-15 & OM-9
PM <sub>10</sub> & PM <sub>2.5</sub>	USEPA 201A, NSW EPA OM-5
Dioxins & Furans (PCDD/Fs) and 'Dioxin-Like' PCBs	USEPA 23, USEPA SW-846 23A, NSW EPA TM-18
Polycyclic Aromatic Hydrocarbons (PAHs)	CARB 429, USEPA SW-846 0010 & 23A, NSW EPA OM-6
Multi-Metals	USEPA 29, NSW EPA TM-12 & TM-13
Mercury	USEPA 30B & 102, NSW EPA TM-14
Hexavalent Chromium	CARB 425, USEPA 306, USEPA SW-846 0061 NSW EPA OM-3 & OM-4
Aldehydes and Ketones	USEPA SW-846 0011
Cyanide	US South Coast 202.1
Sulphur Dioxide (SO <sub>2</sub> )	USEPA 6 & 6C, NSW EPA TM-4
Sulphur Trioxide (SO <sub>3</sub> ) and Sulphuric Acid Mist (H <sub>2</sub> SO <sub>4</sub> )	USEPA 8, NSW EPA TM-3
Reduced Sulphur Compounds	USEPA 15, 15A, 16, 16A, 16B, NSW EPA TM-5 & TM-33
Acid Gases/ Halides & Halogens (HCl, HBr, HF, Cl <sub>2</sub> , Br <sub>2</sub> )	USEPA 26 & 26A, NSW EPA TM-7 & TM-8
Total Fluoride	USEPA 13B, NSW EPA TM-9 & TM-10
Ammonia	USEPA CTM 027, US South Coast 207.1
Nitrogen Oxides (NO, NO <sub>2</sub> , NO <sub>x</sub> )	USEPA 7D, 7E & 20, NSW EPA TM-11
Nitrous Oxide (N <sub>2</sub> O)	ISO 21258
Carbon Monoxide (CO)	USEPA 10 & 10A, NSW EPA TM-32
Oxygen (O <sub>2</sub> ) & Carbon Dioxide (CO <sub>2</sub> )	USEPA 3A, NSW EPA TM-24 & TM-25
Volatile Organic Compounds (VOCs)	USEPA 18 & 25A, USEPA SW-846 0030, 0031, 0040 VIC EPA 4230, NSW EPA TM-34
Odour	AS/NZS 4323.3 & 4323.4, NSW EPA OM-7

### Calibration & Certification of Continuous Emission Monitoring Systems (CEMS)

In addition to general stack testing, we are NATA accredited for calibration and certification of CEMS equipment installed on stacks by USEPA PS, NSW EPA CEM, ISO and BS EN 14181 Quality Assurance Procedures and Test Methods.

## Odour Testing and Chemical Speciation

### Odour Testing

The odour concentration (in Odour Units) of a stack gas or air sample is determined using Dynamic Olfactometry, a 'dilution to threshold' technique, in which the sample is presented to a trained panel of odour assessors at varying dilutions. This technique delivers directly comparable data for different odour types, and also provides input data for air dispersion models when determining odour impacts. This type of knowledge is invaluable when assessing odour complaints or preparing a development application.

Airlabs is NATA accredited in both the sampling and analysis of odour by Australian/ New Zealand Standard 4323.3, as well as for sampling of area sources (e.g. landfill surfaces, wastewater ponds and compost windrows) for odour impact assessment using the Flux Chamber Technique (AS/NZS 4323.4). In situations where the human perception of odour is also important in evaluating odour impacts, we offer odour intensity (perceived strength) and hedonic tone (degree of pleasure or displeasure) testing using the German VDI 3882 Guidelines, and field assessments of ambient air by VDI 3940.

### Chemical Speciation

The ability to chemically speciate and quantify the diverse array of compounds present in air emissions is a necessary step towards efficient monitoring and control. We have various techniques available, including Gas Chromatography–Mass Spectrometry (GC-MS) and Proton Transfer Reaction-Mass Spectrometry (PTR-MS) to determine odorous species and environmentally significant volatile organic compounds in air and stack gas emissions.

## Air Dispersion Modelling

Subsequent to stack emission and odour testing, air dispersion modelling is frequently employed to determine the impact of air emissions on surrounding receptors. We are experienced with a wide range of air dispersion models, allowing us to select the most appropriate to suit a particular application. Models that we commonly utilise include:

- *Steady state:* **AUSPLUME, AERMOD, ISC**
- *Non-steady state:* **CALPUFF, TAPM**
- *Traffic:* **CALRoads, ADMS-Roads**

Airlabs can process meteorological data obtained from on-site monitoring stations or external providers, such as the Bureau of Meteorology or the EPA. Additionally, where available meteorological data is inadequate for modelling purposes, we are able to produce suitable datasets using the CSIRO prognostic model **TAPM** (The Air Pollution Model).

## Workplace Air & Noise Testing

Airborne contaminants in the workplace generally comprise of dusts, chemicals, microorganisms or noise. Airlabs utilises a variety of recognized testing procedures, including Australian Standards, NIOSH & OSHA methods, to determine compliance. Our core occupational tests are as follows:

- Dust (inhalable and respirable)
- Asbestos
- Welding Fumes/ Metals
- Noise
- Microorganisms (Total CFUs, Bacteria, Yeasts & Moulds)
- Volatile Organic Compounds (VOCs)
- Crystalline Silica
- Acid Gases
- Formaldehyde
- Isocyanates
- Herbicides & Pesticides
- Toxic Gases (e.g. CO, H<sub>2</sub>S, NH<sub>3</sub> & O<sub>3</sub>)

Our reports include a comparison with relevant occupational guidelines and limits, such as Safe Work Australia Exposure Standards, and any recommendations based on the test results or observations.

## Environmental Noise & Vibration

In addition to workplace noise testing, we offer environmental noise assessments in accordance with Australian Standard 1055 'Acoustics - Description and Measurement of Environmental Noise'.

We also monitor the exposure of the human body and structures to vibration in accordance with Australian Standard 2670 'Vibration and Shock – Guidance to the Evaluation of Human Exposure to Whole Body Vibration' and the German Standard (DIN) 4150 'Structural Vibration – Effect of Vibration on Structures', respectively.

## Greenhouse Gases

Airlabs can provide testing and consultancy services to quantify greenhouse gas emissions from industrial processes. This includes major greenhouse contributors, namely carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). To assist manufacturers of nitric acid in meeting their greenhouse gas reporting requirements, we offer NATA accredited testing for N<sub>2</sub>O in industrial emissions by ISO 21258.

## Air Ingress Survey (Leak Detection)

Airlabs offers helium tracer gas surveys to detect sources of air ingress in vacuum systems (e.g. power station condenser systems) and other types of industrial plant leakage. We utilise a portable mass spectrometer which offers an extremely low detection limit, enabling us to detect even the smallest of leaks.

We can also provide fugitive emissions monitoring & reporting known as Leak Detection & Repair (LDAR) programs. LDAR programs are designed to limit hydrocarbon emissions to the atmosphere from operating equipment through leak repair & recording.

## Ambient Air Monitoring

Short and long-term air quality monitoring is commonly undertaken to determine pollutant levels at sensitive receptors, which can then be compared with relevant guidelines. This may be required due to specific activities in the vicinity, ongoing operation of industrial facilities or specific one-off incidents which can cause high pollution episodes.

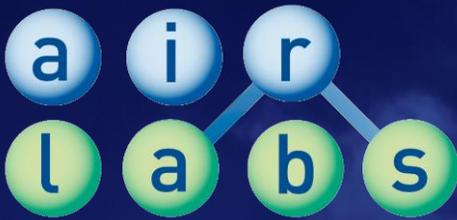
Ambient air monitoring is also conducted to:

- Understand the local air quality trends and patterns in a specific area of interest; and
- Provide adequate background air-quality data for air quality impact assessments.

Our ambient air quality monitoring capabilities include particulate matter (total suspended particulates, dust deposition, PM<sub>10</sub> and PM<sub>2.5</sub>), gases (CO, CO<sub>2</sub>, SO<sub>2</sub>, NOx), odour, volatile organic compounds (methane & non-methane hydrocarbons) and semi-volatile organic compounds (dioxins & furans, PAHs, PCBs and OCPs).

## Compressed Air Contaminant Classification

We offer testing and classification of compressed air systems in accordance with the ISO 8573 series, analysing for particles, water and oil. We can also identify gaseous and microbiological contaminants when assessing the purity of your compressed air supply.



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### Quality Assurance

Airlabs Environmental has developed and implemented a NATA accredited Quality Assurance (QA) system that conforms to the requirements of ISO 17025. Our QA system outlines procedures aimed at ensuring the accuracy, precision and completeness of test results. This incorporates such areas as the technical competence of all personnel, selection of suitable test methods, specification of testing equipment and facilities, calibration procedures, selection of external analytical facilities, scientific independence and professional integrity. It also addresses important facets of the operation of our organisation including managerial practices and client interaction.

**NATA Accreditation No. 15463**

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