Employers must ensure their employees are not exposed to an atmospheric concentration of a hazardous substance above the exposure standard (if any) for a hazardous substance or any of its ingredients (Occupational Health and Safety Regulations 2017 (OHS Regulations)). The exposure standards referenced in the OHS Regulations are listed in the Safe Work Australia publication entitled “Workplace Exposure Standards for Airborne Contaminants”.

**What is an exposure standard?**

Exposure standards represent airborne concentrations of substances in a person's breathing zone, which according to current knowledge, should neither impair employees' health nor cause them undue discomfort. Where there is an Australian exposure standard for a hazardous substance it should be recorded on the SDS for the substance.

There are essentially three different types of exposure standards:

- **Time-weighted average (TWA)**
  This standard represents an atmospheric concentration averaged over an eight-hour working day and applies to a 40-hour working week.

- **Short term exposure limit (STEL)**
  A short term exposure limit is an atmospheric concentration averaged over a 15-minute period.

- **Peak limitation**
  This standard represents a peak or maximum concentration that should not be exceeded at any time during a working day. This type of standard is applied to rapidly acting substances and irritants.

Exposure standards do not represent 'no effect' levels at which every employee can be guaranteed adequate protection. Given the range of individual susceptibility, a small proportion of employees exposed to concentrations at or below the exposure standard may suffer mild and transitory discomfort and in some cases, exhibit symptoms of illness.

**What if there is no exposure standard for the substance?**

Even if a hazardous substance does not have a specific Australian exposure standard, it may still present a risk to health when used in the workplace. If there is no Safe Work Australia exposure standard, exposure must be controlled to the lowest practicable level. In these circumstances, overseas exposure standards may be used as a guide, if available.

**What is atmospheric monitoring?**

Atmospheric monitoring involves the use of suitable and valid sampling and analytical techniques to obtain an estimate of the level of airborne contaminants (such as gases, vapours, dusts, fumes and mists) inhaled by employees. The results of the monitoring are then compared with the relevant Safe Work Australia exposure standards to determine if an employee's exposure to substances is excessive. Results of atmospheric monitoring can only be directly compared to the exposure standards if personal monitoring was performed in the breathing zone of the employee for an appropriate period of time, and the sample is considered representative of exposure. Therefore, you should monitor by taking personal samples in the breathing zone of an employee.

The results of static or fixed position monitoring should not be used as an indicator of actual employee exposure to a substance. However, in certain circumstances static or fixed position monitoring can help assess the effectiveness of risk controls.

Interpretation of the results of atmospheric monitoring should be undertaken by a competent person, such as an occupational hygienist or safety professional, as it requires a good understanding of exposure standards. The interpretation process may also have to take into account working shifts longer than eight hours, the potential for skin absorption and exposure to other substances.
When is monitoring required?
The OHS Regulations require atmospheric monitoring for a hazardous substance when there is an exposure standard for the hazardous substance or any of its ingredients and there is uncertainty as to whether the exposure standard may be exceeded, or
- atmospheric monitoring is necessary to determine if there is a risk to health through inhalation under the particular conditions of work.

In other words, atmospheric monitoring is needed if you are not sure whether the exposure standard may be exceeded, or if you cannot determine the risk to health with confidence by simply reviewing the information about the substance and examining the nature of the work.

Some examples of situations where atmospheric monitoring may be needed include:
- symptoms have been reported which may be related to the use of the substance
- there is evidence (such as fine deposits or strong odours of the substance in the work area) that the risk controls (such as engineering controls) have deteriorated as a result of poor maintenance
- process modifications or changes in work practices have occurred that may adversely affect employee exposure
- following an abnormal, significant environmental event where airborne contaminants or harmful concentrations of gaseous substances may be present in the workplace at levels that may exceed the exposure standard.

Note that atmospheric monitoring is not required for a hazardous substance if health monitoring is also required by the OHS Regulations for that substance and that health monitoring includes biological monitoring. This is because biological monitoring takes into account all routes of exposure, including inhalation.

For further information about atmospheric monitoring, refer to relevant Australian Standards, technical journals or publications issued by the WorkSafe Victoria (WorkSafe) and Safe Work Australia. You may wish to consult with professionals, such as occupational hygienists, engineers and chemists, or the manufacturers/suppliers of hazardous substances.

Results of atmospheric monitoring
The OHS Regulations require the results of atmospheric monitoring be provided to all employees on whom personal monitoring was conducted and to any employee who has been, or has the potential to be, exposed to the substance/s. It is important that all monitoring results are communicated to the employees involved, regardless of whether the results indicate excessive or minimal employee exposure to the substance/s.

Employers are required to keep the results of atmospheric monitoring for 30 years unless the WorkSafe specifies a lesser period. If a lesser period is determined to be appropriate for a particular hazardous substance, this information will be posted in the Victorian Government Gazette. The records of monitoring may be kept in any form, as long as the information contained in them is readily retrievable, easy for employees to access, and presented in plain English.

The record of atmospheric monitoring results needs to contain sufficient detail to determine:
- the substances concerned
- when the monitoring was done and by whom
- what type of monitoring was done (that is, personal or static sample, full-shift, short-term or grab sample), and the duration of monitoring
- sampling techniques/equipment and analytical methods used
- where samples were taken, the operations in progress at the time and, in the case of personal samples, the names of those individuals concerned, details of the tasks performed and the duration of those tasks
- what the results were and whether the results reflected normal operating conditions,
- conclusions about the effectiveness of any control measures and where necessary, any action that may have been taken as a consequence of the monitoring results.
This guidance has been reviewed and updated for the sole purpose of amending year and regulation references relating to the Occupational Health and Safety Regulations, in line with amendments which came into effect on 18 June 2017.