



Breathing Air Quality & Testing

As an employer, there is a clear responsibility under the requirements of the HSE to provide fit for purpose safety equipment for all employees that may work in an environment or carry out a process, which may be hazardous to the employee's health. This applies to both abrasive blasting and paint spraying activities.

Should an employer fail to provide and maintain this equipment, they will be liable for any damages claimed by an affected employee.



Air fed Helmet & Mask

The Legal Requirements

It is a legal requirement to ensure that the quality of breathable air being supplied to an operator is at a suitable standard.

COSHH regulations state that 'testing should be conducted at least **once every 3 months** and more frequently when the quality of the air supplied cannot be assured'.

Compressed Air Supply

Compressed air for air fed helmets and masks originates from a compressor system and is filtered in a multistage breathing air filter.

The maintenance, examination and testing of compressors should be carried out according to the manufacturer's instructions. The siting of air inlets to compressors should be located so that contaminated air cannot be drawn into the compressed air system.



Breathing Air Filter

However, because compressors themselves can generate and concentrate a wide range of contaminants, you should take extra care in assuring air quality.

Compressors which are moved from site to site, such as those used on construction sites, will require a higher standard of maintenance and should be sited so that the quality of air they provide is not compromised by nearby contaminants.

Air Quality

As the air fed helmet or mask wearer's life and health depend on the air supplied by the compressor, you should ensure that the air supplied meets the quality requirements in British Standard BS EN 12021:1999 Respiratory protective devices. This states that breathing air should not contain any contaminants at a concentration which can cause toxic or harmful effects and in any event contaminants should be as low as possible and no greater than:-

British Standard BS EN 12021:1999 Respiratory protective devices.

Substance	Allowable limit
Oxygen	21% ± 1% by volume
Carbon Monoxide	As low as possible but not more than 15 ppm
Carbon Dioxide	Not more than 500 ppm
Oil (droplets or mist)	Not more than 0.5 mg/m ³
Odour & Taste	Without significant odour or taste
Water	No free liquid water. Dew point to be >5 °C below the likely lowest temperature. Where conditions are not known the pressure dew point shall not exceed -11°C.

In addition to the pressure and airflow rate requirements of the helmet or mask must meet the requirements specified by the manufacturer.

e.g Nova Blast Helmet air flow must be > 170 L/min
Sperian Airvisor 2 Spray Mask air flow must be > 260 L/min

Periodic testing of air quality

The purpose of periodically testing air quality is to make sure that the control measures you have put in place are delivering the air quality required by BS EN 12021. You should base the frequency of such tests on a risk assessment, but they should take place at least every three months, and more often when the quality of air cannot be assured to these levels.

As part of the risk assessment, if a mobile compressor is being used consideration should be given as to how often the air supply should be checked when the compressor is moved.

You should keep records of air quality tests for five years.



Breathing Air Test Kit