

# TIP sheet

## Compressed Air

T025 – APRIL 2008



### RTA minimum requirements

Managers and supervisors must identify, register, risk assess, and then eliminate or minimise all risks associated with compressed air work to as low as reasonably practicable prior to work being commenced.

SWMS must be developed and documented for all tasks involving compressed air based on the results of the completed risk assessment.

Some of the hazards associated with compressed air work include:

- Injection of air into the skin. This can cause an air embolism in the circulatory system and may require corrective surgery.
- Foreign bodies embedded into the skin and eyes (e.g. dust, dirt).
- Excessive noise that may cause hearing loss and ruptured ear drums.
- Strike with uncontrolled hose or coupling.
- Manual handling injuries from dragging/moving hoses and compressors.
- Trip hazards from hoses laying in walkways/work areas.
- Pinch points and other mechanical hazards associated with portable compressors.

### Risk assessment

Risk assessments shall be undertaken for all work activities that expose workers to compressed air hazards and shall consider the following factors:

- The condition of the equipment being used (compressors, hoses, couplings etc.) and if they are rated to the appropriate Australian Standard.
- The type, frequency and duration of the compressed air work.
- The environment in which the compressed air work is to be undertaken (e.g. dirty/dusty conditions, uneven work surfaces, cramped conditions).
- The pressure at which the compressor is operating at.
- The level of experience of the personnel involved in the work.
- Any other identified hazards associated with the work.

### Control the risk

All risks identified and assessed through the risk assessment process are required to be eliminated or minimised to as low as reasonably practical through the introduction of risk control measures.

Risk control measures shall be implemented in accordance with the hierarchy of controls set out within the OHS Regulation 2001.

The following risk control measures shall be undertaken where practicable:

- Do not discharge compressed air in the direction of yourself, others, plant and equipment, or areas with dust build up.
- Never use compressed air to clean clothes or cool yourself or others.
- Do not use compressed air to clean down work areas or equipment.
- Do not play practical jokes with compressed air or use it to propel objects at other persons.
- All couplings must have safety clips fitted to them to prevent inadvertent uncoupling when under pressure – never use makeshift tie-wire.
- Ensure all components comply with the appropriate Australian Standard and are regularly maintained in a fit for purpose condition.
- Wear appropriate eye protection, compliant with AS/NZS1337, and hearing protection, compliant with AS/NZS 1270.
- Under no circumstances shall the pressure of the compressed air exceed the maximum working pressure of any of the components in use.

- The setting of safety valves or reducing valves shall only be adjusted by a competent person.
- Keep work areas clean through regular housekeeping activities to minimise airborne dust levels.
- Workers are to report all defects immediately to the appropriate supervisor and cease the use of the defected equipment.

### Competency based training

All personnel required to undertake tasks involving compressed air work must be trained in safe work methods associated with the task. At a minimum, the training shall incorporate:

- The induction of all personnel who are required to work on site in accordance with the OHS management plan.

- The nature of the hazards involved in working with compressed air.
- The means adopted to control the risks.
- Emergency and first aid.
- SWMS associated with the work.
- The safe operation of all plant and equipment required.
- Associated safety equipment.
- PPE use, care, maintenance and storage.

## Review

Risk assessments, SWMS, and work procedures must be reviewed and revised when there is evidence that:

- The original risk assessment is no longer valid or is older than 3 years.
- An injury or illness results from the work.
- A change in legislation or guidance material (e.g. Australian Standard, Code of Practice etc.) has been made that effects work involving compressed air.
- A significant change is proposed at the place of work (e.g. new compressed air equipment is introduced to the site), or in the work practices or procedures to which the assessment relates.

## Personal Protective Equipment

Fit-for-purpose PPE, as prescribed in the risk assessment and SWMS, shall be available and:

- Meet the appropriate Australian Standard where applicable.
- Be appropriate for the person and the task.
- Be used as per the original equipment manufacturer directions.
- Be inspected regularly and before each use for wear, damage and 'use-by' dates.

Such PPE may include: appropriate hearing protection, eye protection and full body clothing.

## Emergency and first aid provisions

Emergency and first aid provisions are to be determined to minimise the effect of incidents arising from work with compressed air. Emergency and first aid procedures should be developed that include:

- The provision of first aid facilities, kits and officers to appropriately deal with compressed air injuries, such as air and foreign particle injection.
- Provisions to immediately shut down air compressors in the event of an emergency.
- Contact details for external emergency services and the relevant on site personnel.
- Evacuation routes and emergency assembly points.

## Compressors

The following safety precautions are to be taken in regards to the operation of air compressors:

- Air compressors are to be operated and maintained in accordance with the original equipment manufacturer instructions.
- Ensure air compressors are positioned in a stable position on a level surface prior to starting (e.g. chock wheels).
- Ensure the air intake for the compressor is not exposed to atmospheric contaminants, exhaust fumes or excessive dust.
- Ensure petrol operated air compressors are used in a well ventilated location.
- Do not overload the air compressor. Always observe the maximum loading capacity of the compressor and attachments.

## Hoses and components

The following safety precautions are to be taken in regards to air hoses:

- Ensure all hoses and components are appropriately rated to handle the maximum operating pressure of the air compressor.
- Ensure that hoses are protected from mobile plant and vehicle traffic with suitable positioning or cover ramps.
- Always release the pressure in air hoses and tools prior to uncoupling.
- Never kink or squash a hose to permit it, or a tool attached to it, to be uncoupled.
- Always close the valve to which the hose is connected when not in use.
- All airlines are to be stored off the ground so that no dirt entry is possible at hose ends.
- Do not use compressed air hoses for other products such as oils or fuels.
- Always ensure that the output hose is secured to an implement prior to turning on air supply.
- Do not fit a tail-tail component to extend air hoses. Always use appropriate couplings.
- Bolted clamps, that are appropriately secured, shall always be used to secure hoses to hose fittings.

## Inspection and maintenance

Employers are required to establish an inspection and maintenance regime for all compressed air equipment. This regime shall be based on:

- The results of the risk assessment for the equipment.
- The relevant Australian Standards for each component.
- The age and condition of the equipment.

All inspection and maintenance activities are required to be documented (e.g. completed checklists, service reports) and any defects promptly taken out of service and repaired or replaced.

No maintenance work is to be undertaken on air compressors or compressed air tools unless the equipment has been completely de-energised and locked out by the maintenance personnel.

## References

- NSW OHS Act 2000 & OHS Regulation 2001.
- AS CA12:1970 Work in compressed air.
- AS/NZS 1270:2002 Acoustics – Hearing protectors.
- AS 1319:1994 Safety signs for the occupational environment.
- AS/NZS 1337:1992 Eye protectors for industrial applications.
- AS 1470 Health and safety at work – Principles and practice.
- AS/NZS 2161.1:2000 Occupational protective gloves – Selection, use and maintenance.
- AS/NZS 3788:2001 Pressure equipment – In-service inspection.
- RTA Risk Management Policy 2.0.