Cleaning with Compressed Air – Fact Sheet



IS IT A GOOD IDEA TO USE COMPRESSED AIR TO BLOW DIRT OFF CLOTHING OR WORK SURFACES?

No. Under no circumstances should anyone use compressed air to clean off clothing or any part of the body. Although many people know using compressed air to clean debris or clothes can be hazardous, it is still used because of old habits and the easy availability of compressed air in many workplaces. However, cleaning objects, machinery, bench tops, clothing and other things with compressed air is dangerous. Injuries can be caused by the air jet and by particles made airborne (re-enter the air). Many workplace injuries occur due to the misuse of compressed air.

Is cleaning with compressed air allowed by law?

In many Canadian jurisdictions, cleaning with compressed air is not allowed by law. Alberta, Newfoundland, Prince Edward Island, Quebec, and Saskatchewan specifically mention that compressed air shall not be used to clean clothes, or in other situations cleaning a person, machinery, work benches, etc. Reference to cleaning may also be included with specific mention to it being prohibited when there is a risk to the worker being injured or that the device must be specifically designed to safely clean a person or surface (federal regulations, Ontario, British Columbia, New Brunswick, Nova Scotia, North West Territories, Nunavut, and the Yukon).

In some cases, other legislation may apply. For example, cleaning with compressed air is prohibited in Manitoba and Ontario when working with asbestos.

Always check with your jurisdiction for more information.

What are the hazards of using compressed air?

First, compressed air is extremely forceful. Depending on its pressure, compressed air can dislodge particles. These particles are a danger since they can enter your eyes or abrade the skin. The possible damage would depend on the size, weight, shape, composition, and speed of the particles. The pressure used to remove the particles from machines and surfaces is also strong enough to blow

the filings, shavings, chips and particles of metal into the eyes, ears or skin of people. Compressed air can enter the body where the skin is not present (i.e., ear, nose, rectum or any scratch or puncture in the skin, however small) and can cause damage. There have also been reports of hearing damage caused by the pressure of compressed air and by its sound.

Second, the compressed air itself is also a serious hazard. On rare occasions, some of the compressed air can enter the blood stream through a break in the skin or a body opening. An air bubble in the blood stream is known medically as an embolism, a dangerous medical condition in which a blood vessel is blocked, in this case, by an air bubble. An embolism of an artery can cause coma, paralysis or death depending upon its size, duration and location. While air embolisms are usually associated with incorrect diving procedures, they are possible with compressed air due to high pressures. While this seems improbable, the consequences of even a small quantity of air or other gas in the blood can quickly be fatal.

Third, using air to clean forces the dirt and dust particles into the air, making these contaminants airborne and creating a respiratory hazard.

Unfortunately, horseplay has been a cause of some serious workplace accidents caused by individuals not aware of the hazards of compressed air, or proper work procedures.

What should I use instead of compressed air for cleaning purposes?

Use wet sweeping techniques, sweeping compounds, or vacuum cleaners equipped with special filters or other devices to prevent dust from being recirculated into the air.

Where compressed air is allowed for cleaning, how can I do it safely?

A “quiet” nozzle (i.e. one with low noise emission) should be selected.

The nozzle pressure must remain below 10 psi (69 or 70 kPa) and personal protection equipment (PPE) must be worn to protect the worker’s body, especially the eyes, against particles and dust under pressure.

Use effective guarding methods that prevent a chip or particle (of any size) from being blown into the eyes or unbroken skin of the operator or other workers nearby. You may also use barriers, baffles, or screens to protect other workers near the operator if there is a risk of exposure.

Note: Air pressure is legislated by New Brunswick (69 kPa), Yukon (69 kPa/10 psi), and where permitted under federal (69 kPa/10 psi), British Columbia (70 kPa/10 psi), North West Territories, and Nunavut (68.9 kPa/10 P.S.I.) legislation.

The Nova Scotia regulation states:

101. (2) Where compressed air is used to clean a surface or person, an employer shall ensure that the device that is used to deliver the air is

    1. commercially manufactured and approved in the manufacturer’s specifications for the purpose of cleaning a surface or person with compressed air; or
    2. certified by an engineer as adequate for the purpose of cleaning a surface

or person with compressed air.

Occupational Safety General Regulations N.S. Reg. 44/99 Section 101(2)

Ontario does not specify a pressure limit but does state:

66. A compressed air or other compressed gas blowing device shall not be used for blowing dust or other substances,

1. from clothing worn by a worker except where the device limits increase in pressure when the nozzle is blocked; or
2. in such a manner as to endanger the safety of any worker.

Industrial Establishments R.R.O. 1990, Reg. 851 Section 66

In addition, air guns should also be used with some local exhaust ventilation or facilities to control the generation of airborne particulates. When compressed air cleaning is unavoidable, hazards can be reduced by making adjustments to the air gun such as:

- chip guards or curtains that can deflect flying dust or debris,
- extension tubes that provide the worker a safer working distance, or
- air guns equipped with injection exhausts and particle collection bags.

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