Using Compressed Air for Cleaning Safety & Compliance Game Plan

Using air that's been compressed to a pressure of 275 kiloPascals (kPa) or more ("compressed air") makes it literally a breeze to blow dust and other debris from surfaces, machinery, and clothing. But it also creates potential health and safety hazards to workers in the area. Accordingly, the practice is either banned or subject to strict restrictions in most parts of the country. Here's a look at the OHS rules governing the use of compressed air for cleaning and a 6-step Game Plan to comply with them.

The Hazards of Compressed Air

With an air pressure of roughly 40 pounds per square inch (psi), the compressed air that's forceful enough to blow away debris is forceful enough to cause injury when it's exerted directly on a worker's body. But the real danger from use of compressed air comes from the dusts, chips, and other particles it blows into the air, which can break the skin and fly into a worker's eyes, ears, open wounds, or other body parts and do serious damage depending on the size, weight, shape, composition, and speed of the projectile.

The hazard is particularly great when the dust or debris is composed of a harmful substance that can contaminate the air

if it becomes airborne, such as asbestos, lead, or respirable crystalline silica (RCS) dust. In addition to creating the risk of fire and explosion, these airborne contaminants can cause significant respiratory damage if workers breathe them in. Using compressed air is also noisy with sound levels capable of reaching 120 decibels or more, well above permissible exposure limits of 87 dBA on average over an 8-hour period.

Take 6 Safety Measures When Using Compressed Air for Cleaning

OHS laws governing use of compressed air for cleaning vary across Canada. **Note:** Prince Edward Island is the only jurisdiction that doesn't specifically address the issue directly. Here are the 6 steps you should take no matter where or under whose jurisdiction you operate.

Step 1. Don't Use Compressed Air for Cleaning Asbestos or Other Hazardous Substances

The starting point is to ensure that no worker is required or permitted to use compressed air to clean surfaces, machinery, or even clothing and PPE containing asbestos, lead, RCS dust, or other hazardous substances that can endanger a worker's health or safety. Such would be the case where the compressed air cleaning operation would cause the substance to become present in the air in concentrations that:

- Are high enough to create the risk of fire or explosion; and/or
- Exceed the specific permissible exposure level (PEL) for that substance under OHS regulations.

In Alberta, it's also illegal to use compressed air to blow

dust or other substances from clothing where liquefied or compressed gas containers are used, handled, stored, and transported.

Step 2. Establish Safe Work Procedures for Use of Compressed Air for Cleaning

Except in Newfoundland, you're generally allowed to use compressed air for cleaning dust and debris that's not hazardous in composition, provided that you take specific measures to control the risks to workers' health and safety. The first requirement is to create, implement, and train workers in safe work procedures for carrying out these operations.

While the specifics will vary based on the equipment used, debris targeted, location where the operation is carried out, and other factors, the one rule that applies in just about all cases is that workers shouldn't use compressed air for cleaning if they or another worker would be directly exposed to the compressed air jet or material it expels or propels. The procedure should also require the jet operator to stop immediately if somebody comes into the line of fire or another hazard arises, such as risk of a fire or explosion.

Step 3. Require Workers to Use Proper PPE for Compressed Air Cleaning Operations

You must ensure that workers have and properly use PPE necessary to protect them from compressed air cleaning hazards, which may include:

- Safety glasses with side shields to prevent dust,

particles, and debris from flying into the worker's eyes;
- Face shields, which may be needed in combination with safety glasses;
- Respiratory protection if the operation exposes workers to respiratory hazards;
- Hearing protection unless you use quiet nozzles or other engineering controls to keep noise levels below 87 dBA;
- Gloves to protect the hands; and
- Steel-toed boots to protect the feet from injury, for example, if the worker accidentally knocks over the air compressor.

Step 4. Limit Maximum Air Pressure that Can Be Used for Compressed Air Cleaning

Several jurisdictions require employers to keep compressed air pressure in the pipeline from exceeding a specific maximum or use a safety nozzle achieving the same limiting effect.

Maximum Air Pressure Limits for Compressed Air Cleaning

69 kPa (10 psi)	**Column 270 kPa gauge (10 psig)**	**200 kPa**
Federal, New Brunswick*, Yukon	British Columbia	Québec (unless used inside a specially designed enclosure)

* In New Brunswick, the maximum applies only to compressed air cleaning of a person.

Step 5. Use Required Equipment for

Compressed Air Cleaning Operations

Several jurisdictions specify the kind of air compression equipment that must be used when using compressed air for cleaning:

- In New Brunswick, the blowpipe must be installed at the end of the hose and a control valve must be part of the blowpipe.
- In Saskatchewan, Northwest Territories, and Nunavut, an airless spray unit capable of operating at a pressure greater than 7 Mpa must have the jet gun, reservoir, and pump bonded to ground via a single continuous approved bonding conductor along with a gun that’s fitted with suitable tip and trigger guards.
- In Nova Scotia, the device used to deliver the air must be either: i. commercially manufactured and approved in the manufacturer’s specifications; or ii. certified by an engineer as adequate for the purpose of cleaning a surface or person with compressed air.

In general, air guns should also be used with some local exhaust ventilation or facilities to control the generation of airborne particulates and have certain safety devices like:

- Chip guards or curtains to deflect flying dust or debris;
- Extension tubes that enable workers to work at a safe working distance;
- Injection exhausts; and/or
- Particle collection bags.

Step 6. Perform Compressed Air Cleaning Operations in a Suitable

Location

In BC and Yukon, compressed air may not be used to blow dusts or other substances from workers' clothing unless the operation is carried out in a specially designated area. A designated area for using compressed air to clean clothing or equipment is also required in Québec if the pressure of the air used is 200 kPa or more. Even if it's not expressly required, performing compressed air cleaning in a specially designated area is advisable as a best practice. You should also use barriers, partitions, or screens to protect other workers in the vicinity, unless the designated area is physically isolated. Be sure to control potential ignition sources, including via the de-energization of machinery and equipment, if the dust or debris is composed of flammable or combustible materials.