



Spray Painting

Spray painting must be done in a booth while wearing personal protective equipment.

HAZARD

SAFE WORK GUIDELINES

► Carbon Monoxide

Details

Colourless and odourless gas that causes death when it is inhaled. Produced if the compressor that powers the compressed air spray gun overheats and burns, or if the air intake to the compressor is located near the exhaust from a vehicle.

Threat

Headache or faintness, then confusion, loss of consciousness and death

- Check the compressor regularly to ensure that it is in good repair and operating correctly
- Install a high-quality air filtration system in the garage
- Do not leave vehicles running without attaching an exhaust hose venting to the outside
- Install a high-quality carbon monoxide monitor with an audible and visual alarm near the air intake to warn you when concentrations are above 5 ppm
- Have breathing air quality analyzed regularly to ensure the air meets CSA Standard Z180.1. Contact the Canadian Standards Association at 1-800-463-6727 or www.csa.ca
- Recognize potential sources and symptoms of carbon monoxide poisoning

► Compressed Air

Details

Powers the spray gun used to atomize paint.

A blast of air at 40 psi (pounds per square inch) can cause blindness, deafness or both. Even a blast at 4 psi can be harmful.

Threat

Eye irritation or injury

Painful or fatal injury if it penetrates skin

Before You Start

- Change the compressor oil every 2 to 3 months
- Make sure there is an adequate supply of oil in the machine as well as in stock
- Inspect compressed air hoses regularly and replace any that are cracked, worn or frayed
- Wear safety glasses or a face shield

While You Are Working

- Do not point the nozzle at yourself or anyone else
- Use proper measures—not your hands—to seal leaks in the air lines or at joints

HAZARD

SAFE WORK GUIDELINES

► Compressed Air (*continued*)

After You Finish

- Turn off the air supply
- See a doctor about any injury caused by compressed air; the seriousness of the injury may not be obvious

► Flammable Liquids

Details

Found in all paints sprayed on vehicles and in paint thinners, reducers and cleaners.

Mixing vapours from these liquids with air and a source of ignition can produce an explosion and cause a fire.

Threat

Irritation to eyes

Irritation to the skin (dermatitis) and removal of the fats and oils from the skin, resulting in severely cracked, withered and wrinkled skin (known as de-fatting of the skin)

Severe burns from fire or explosion

Nervous system damage from solvent exposure

Note: Instead of flammable liquids, use cleaning materials that do not present a fire and health hazard when you are cleaning clothing, hands, equipment, floors and machinery

Before You Start

- Eliminate all sources of ignition—smoking; static electricity; compressors; nearby welding, cutting or grinding operations; electric or gas hot water or hot air heaters; and any other devices or tools that can create electrical sparks
- Read supplier labels and material safety data sheets to determine the flammability of the liquids you handle
- Store flammable liquids in closed containers; when they are not in use, place the containers in flammable storage cabinets that meet Ontario's *Fire Code* (Ontario Regulation 388/97 Part 4) or are approved by the Underwriters' Laboratories of Canada (ULC)
- Keep the fire control sprinkler heads clean and free of paint
- Make sure the spray paint equipment is properly grounded

While You Are Working

- Wear personal protective equipment including coveralls, gloves, splash goggles or a face shield, and a NIOSH-approved air-purifying respirator or a supplied air respirator appropriate for the task, as recommended in the material safety data sheet
- Keep only enough paint or solvent for the job at hand at your workstation
- Ground all containers when pouring flammable liquids
- Clean up all spills immediately
- Put used paint rags in covered metal containers and dispose of them safely every day

► Isocyanates

Details

Found in most two-pack primers, single-stage topcoats and clear coats. Occasionally used in base coats.

Exposure occurs primarily during spray painting, but contact with skin and eyes can occur while weighing and mixing paint.

- Consult the joint health and safety committee's isocyanates assessment for information about exposure in your workplace
- Use alternatives to isocyanate hardeners whenever possible
- Work only in a spray booth equipped with adequate mechanical ventilation
- Wear a NIOSH Type C supplied-air respirator with a full face-piece or hood operated in positive pressure mode
- Wear impermeable coveralls, solvent-resistant gloves and safety goggles—**do not** use leather gloves or shoes

Note: If isocyanates are spilled on your shoes, discard the shoes

HAZARD**SAFE WORK GUIDELINES****► Isocyanates (continued)****Threat**

Allergies

Asthma

Damage to lungs

Irritation to respiratory tract, skin, eyes

Symptoms may include sore eyes, runny nose, sore throat, coughing, wheezing, tight chest, fever and breathlessness

Note: Once you are sensitized to isocyanates, even limited exposure can cause severe breathing problems, like asthma.

- If isocyanates contact your skin or eyes, flush them with plenty of water

Regulation 842: Designated Substance–Isocyanates

► Paint Overspray**Details**

Occurs when applying paint to vehicles; consists of solvent, unreacted isocyanates and resins, and pigments. Pigments may contain heavy metals such as lead and chromium that can be inhaled and may cause an explosion.

Threat

Lightheadedness, staggering, headache, dizziness, nausea, nose, throat and lung irritation

Prolonged inhalation may lead to mucous membrane irritation, central nervous system depression and unconsciousness

Severe injury and burns if there is an explosion

- Wear a full-face NIOSH-approved air-purifying respirator
- Cover your hair and all exposed skin with a coverall that has a hood attached
- Spray paint only in a spray booth that meets Ministry of Labour guidelines in the Engineering Data Sheet No. 4-06-1, available from your local Ministry office (check the blue pages in your phone book for the office nearest you)
- Consider using water-based paints that contain fewer hazards
- Use high-volume low-pressure (HVLP) guns to improve transfer efficiency and reduce overspray
- Ensure that exhaust coming from the spray booth meets Ministry of Environment standards

► Phosphoric Acid**Details**

Occurs in small amounts in many etch primers that are sprayed on bare metal to improve adhesion of filling primers.

Threat

Burns to skin and eyes

- When mixing or handling etch primers, wear splash goggles or face shield, coveralls and nitrile gloves covered by a pair of heavy rubber gloves; make sure that the gloves are dry because acid reacts with water
- Follow the manufacturer's instructions for mixing and preparation
- Spray only in a spray booth that meets Ministry of Labour guidelines in the Engineering Data Sheet No. 4-06-1

► Working in a Fixed Position**Details**

Muscles tire quickly when you stay in a fixed position, placing them at higher risk of injury.

Threat

Muscle strain and associated tendon, nerve, disc or joint pain. Common areas at risk include your lower back, shoulder, elbow and wrist

Before You Start

- Whenever possible, keep fit: stretch and exercise your body regularly outside of work
- Use adjustable workstations and jibs to optimize the work height and angle (e.g., between your shoulder and knuckle height)

► Working in a Fixed Position (*continued*)

- Choose spray guns with the following specifications:
 - light weight—1.5 to 2.0 kg for one-handed control
 - grip and trigger accessible to either hand
 - trigger long enough to use two fingers
 - well-balanced
 - a pistol grip to ensure neutral wrist posture
 - handle 12.5–13 cm long with well-rounded edges and corners to prevent stress to palm tissue from the handle
 - air exhausts away from the hands to minimize cold air exposure

While You Are Working

- Keep the spray gun as close to your body as possible
- Avoid working with your arms outstretched
- Use two hands to support the spray gun if possible; otherwise, switch hands but use the weaker hand for only 5 minutes every 20–30 minutes
- If you are standing in one place or in a confined space, use a foot rest, ideally at 15–25 cm off the ground (e.g., foot stool or tool box)
- Take frequent, short breaks:
 - for short jobs: 15 second break for every 1–2 minutes of work
 - for long jobs: 5 minute break every 30–45 minutes using a completely different kind of tool, moving around or resting in a different position

After You Finish

- Change to a task that involves moving around or uses a different body part and no hand tools to improve blood flow