Different Fittings for Breathable Air Lines

It is recommended that breathable air hoses have a different fitting than other hoses. This simple approach can prevent a worker hooking up to a non-breathable air system. Just like gasoline and diesel have different nozzles so people pumping gas don't inadvertently fill their car with the wrong fuel.

The simple fact is that this does happen and it has been fatal.

If an inert gas (e.g., helium, argon, nitrogen) is inadvertently supplied to an air-line respirator rather than breathable air, the results can be fatal. Inert gases such as helium, argon, and nitrogen are widely used in industrial settings as fire suppression blankets for flammable work in confined spaces, to operate pneumatic equipment, and to prevent oxidation in industrial processes.

Victims wearing respirators connected to inert gas lines are in a zero percent oxygen atmosphere, and unconsciousness can occur in about 12 seconds and death in a matter of minutes.

Case Study

> An employee hooked the fresh air line of his supplied-air respirator into a plant's compressed air lines and began abrasive blasting. The plant operators, unaware that their plant air was being used as breathing air, shut down the fresh air compressor for routine, scheduled maintenance and pumped nitrogen into the system to maintain pressure and control the valves in the refinery. The employee was overcome by the nitrogen in the air lines and died of nitrogen asphyxia.

US regulations differ from Canadian requirements in that a unique fitting for breathable air is a regulatory requirement. OSHA regulation (29 CFR 1910.134(i)(8)) and the American National Standards Institute (ANSI) standard Z88.2, "Practices for Respiratory Protection," specify that respirator air-line couplings **must be incompatible** with outlets for other gas systems to prevent inadvertent servicing of air-line respirators with non-respirable gases or oxygen.

This issue can also be helped by clear labelling of piping and hoses. Many workplaces use a colour coding system and labelling to make it very clear which lines are breathable air and which are not.