

# Controlling Health Hazards associated With Welding Fumes

Georgia Tech Research Institute

[www.oshainfo.gatech.edu](http://www.oshainfo.gatech.edu)

## Health Hazards Associated with Exposure to Welding fumes

Welding fumes are a complex mixture of metals that vary in composition based on the type of filler metals and base metals being used, the welding rod or wire being used, the type of welding process, any coatings or paints left on the metals being welded, and the ventilation in the location where the welding is taking place.

Adverse health affects associated with welding fumes include short-term illnesses like metal fume fever and illnesses resulting from long-term exposure, including: lung cancer, sinus problems, asthma, and manganese-induced parkinsonism.

Coatings and paints left on the metal surface, residual solvents used to clean the metal surfaces, shielding gases, and gases produced from the metal oxides and welding arcs all are potential health threats ranging from irritation of the throat, eyes, ears, and nose to conditions that are immediately dangerous to life.

## Methods of Control:

- Choose the method of welding that will produce the least amount of fume
- Remove all paints and solvents prior to welding or torch cutting. This includes making sure residues from solvents used to clean the metal surface are removed.
- Assure that adequate ventilation is provided:
  - General mechanical ventilation
  - Localized exhaust ventilation remove fumes from the point source using either portable units, movable hoods, or down-draft units
  - Use air blowers to provide fresh air when welding in confined spaces
- For MIG welding operations, extraction welding guns allow contaminants to be removed very close to the source of generation and draw the contaminants through a hose into the exhaust system
- Provide respiratory protection and other personal protective equipment
- Train employees:
  - To keep the plume of welding fumes out of their breathing zone
  - How to properly use, store, and clean respiratory protection
  - How to use the ventilation controls provided
- Maintain and inspect all equipment, including making sure that filters for ventilation systems are changed on a regular basis
- Switch to low fume welding rods/electrodes



**For more information visit [www.osha.gov](http://www.osha.gov) or [www.oshainfo.gatech.edu](http://www.oshainfo.gatech.edu)**