3M Science. Applied to Life.™

Do you know what your are breathing?

Ask any experienced welder about the hazards of the job and eye protection usually comes top of their list. But at 3M we've never lost sight of the bigger picture. And nor should you. Here's why...

Like you we take eye and face protection extremely seriously, but we also know that comfort and optical clarity are other critical factors for the welders ability to use their personal protective equipment. Often illnesses due to welding fumes take many weeks, months and sometimes years to become apparent.

Under normal working conditions the respiratory rate is about 20 litres of air per minute. Over a working year (full-time welding), a welder breathes in about 2300 m^3 of air.

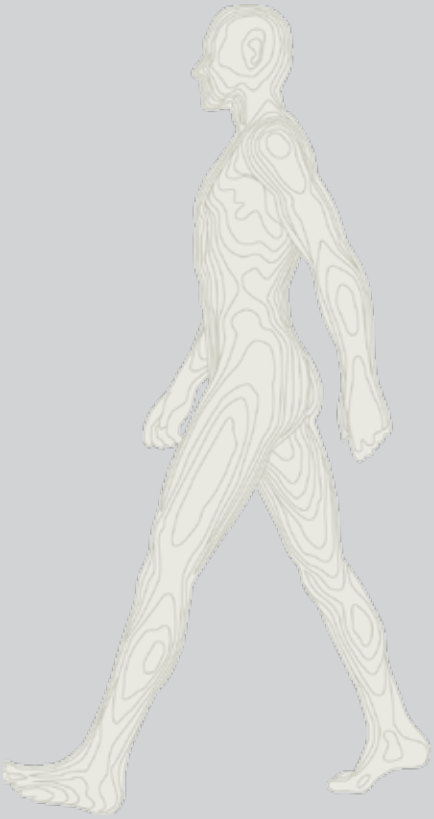
For example the Occupational Exposure Limit (OEL) for zinc oxide, which is 5 mg/m^3. Even if you're within this OEL, you inhale up to 11 grams of zinc oxide every year when not using personal respiratory protection.

Potential immediate health effects of certain welding fumes

- Eye and skin irritation
- Nausea
- Headache
- Dizziness
- Metal fume fever

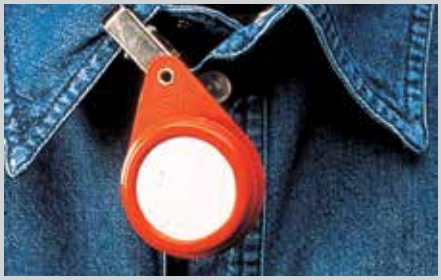
Potential chronic insidious, injuries on*

- Respiratory tract and lungs (asthma, bronchitis, COPD, lung cancer)
- The central nervous system (effects on dexterity, reaction time, memory, fatigue, depression)



It's critical to understand if exposure to airborne contaminants are putting you and your workers at risk. Safety authorities in most countries set safe levels for welding fumes which are called Ocupational Exposure Limits (OEL's). Ask your Safety Engineer to determine contaminant concentrations or contact a certified Industrial Hygenist.

Available tools: 3M™ EVM Environmental Monitors to measure hazards in real-time and 3M™ Organic Capour Monitor Badges that measure personal exposure to hazards.



*Source: Arbetsmiljöverket ISSN 1650-3171 Report 2013

Speedglas™

Reduction of exposure level and potential hazards

All welding fumes contains gas and/or particles. To reduce fume exposure levels within your facility there are a few general steps you can follow:

1. Can the work process be modified to reduce contaminants?
2. Can you use a welding technique that makes less fume?
3. Ventilation and other engineering controls should be used.
4. When step 1-3 are not feasible, or when they are not able to reduce the welders exposure below permissable levels, personal respiratory protection should be implemented.

Fume reduction at your workplace

PROTECTS EVERYONE IN THE WORKSHOP

PROTECTS EVERYONE NEAR THE WORKSTATION

PROTECTS THE WELDER

Personal respiratory equipment
For best protection and comfort 3M recommend use of personal respiratory protection, either alone or as a complement to the other solutions.

Local fume extractors
On-gun and local fume extractors remove much, bot not all, of the welding fumes right at the source, thereby reducing their spread to other areas.

General workplace ventilation
Well designed general ventilation will remove welding fumes that where not immediatelly captured at the workstation and exchange them with fresh-air.

Personal Safety Division
3M Svenska AB
SE-785 21 Gagnef, Sweden

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