

# The dangers of welding fume

## What is welding fume?

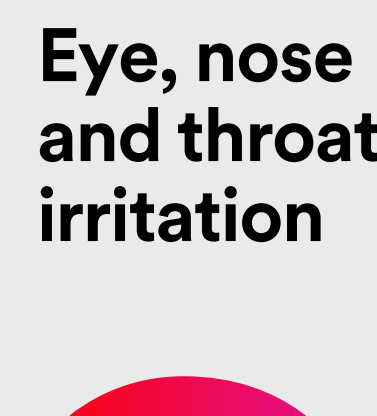
All welding fume contains particles as well as gases. Welding fume particles vary in size, from particles that are large like grains of sand through to tiny particles that cannot be seen by the naked eye and can easily be inhaled.

Welding fume has been reclassified as carcinogenic<sup>1</sup>, and exposure to welding fume and other gases associated with welding can cause a range of health issues.

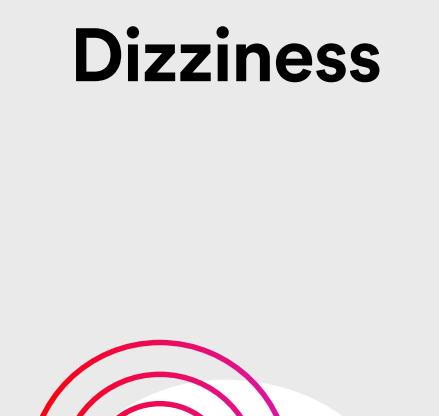
### Fast fact:

Poor respiratory protection is the fourth most common workplace violation.<sup>2</sup>

## Short-term health problems



**Eye, nose and throat irritation**

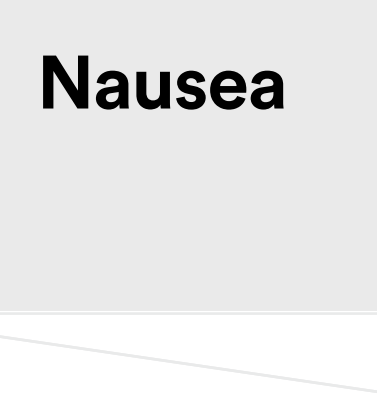


**Dizziness**

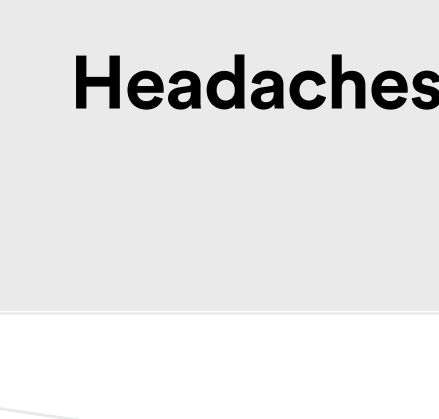


**Metal fume fever**

(high temperatures, chills, aches, vomiting, weakness and fatigue).



**Nausea**



**Headaches**

### Fast fact:

Symptoms of metal fume fever may be more noticeable on a Monday, after some days without exposure.<sup>3</sup>

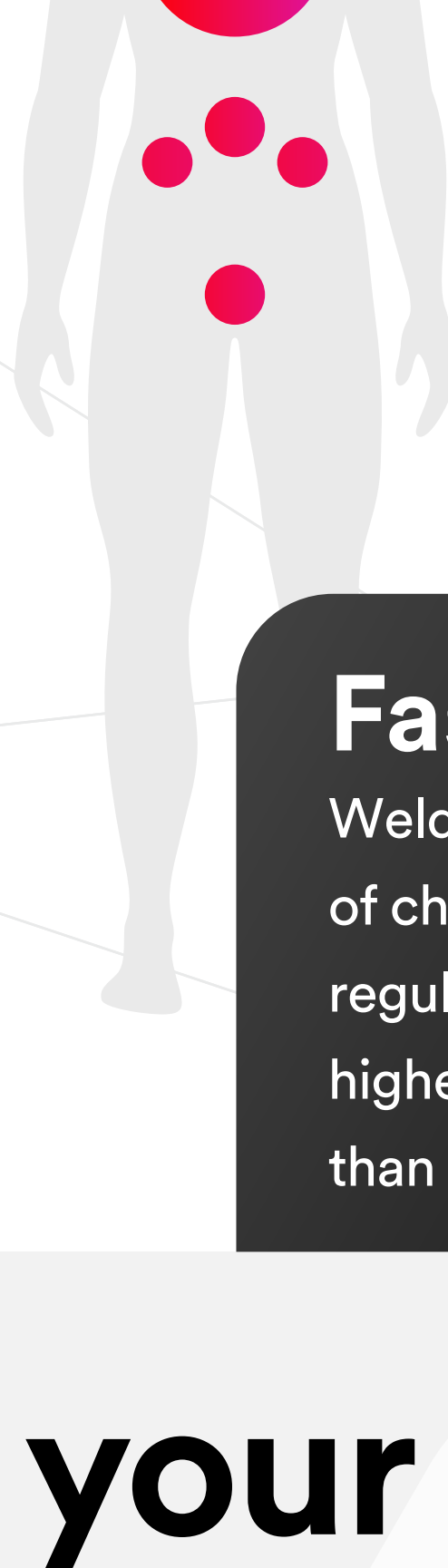
## Long-term health problems

Illnesses due to welding fume often take many years to develop.

**Lung function abnormalities**

including bronchial asthma, chronic obstructive pulmonary disease (COPD) and lung cancer

**Significant increase of heart attack and stroke**



**Larynx and urinary tract cancers**

**Stomach ulcers, kidney damage and nervous system damage**

### Fast fact:

Welders have the same risk of chronic bronchitis as a regular smoker<sup>4</sup> and a 40% higher risk of lung cancer than non-welders.<sup>1</sup>

## Assess your workers' risk

The type and quantity of welding fume, gases and vapours are determined by the material, welding process, amperage and the welding electrode used

Consult an expert to identify the hazards levels against country safety standards

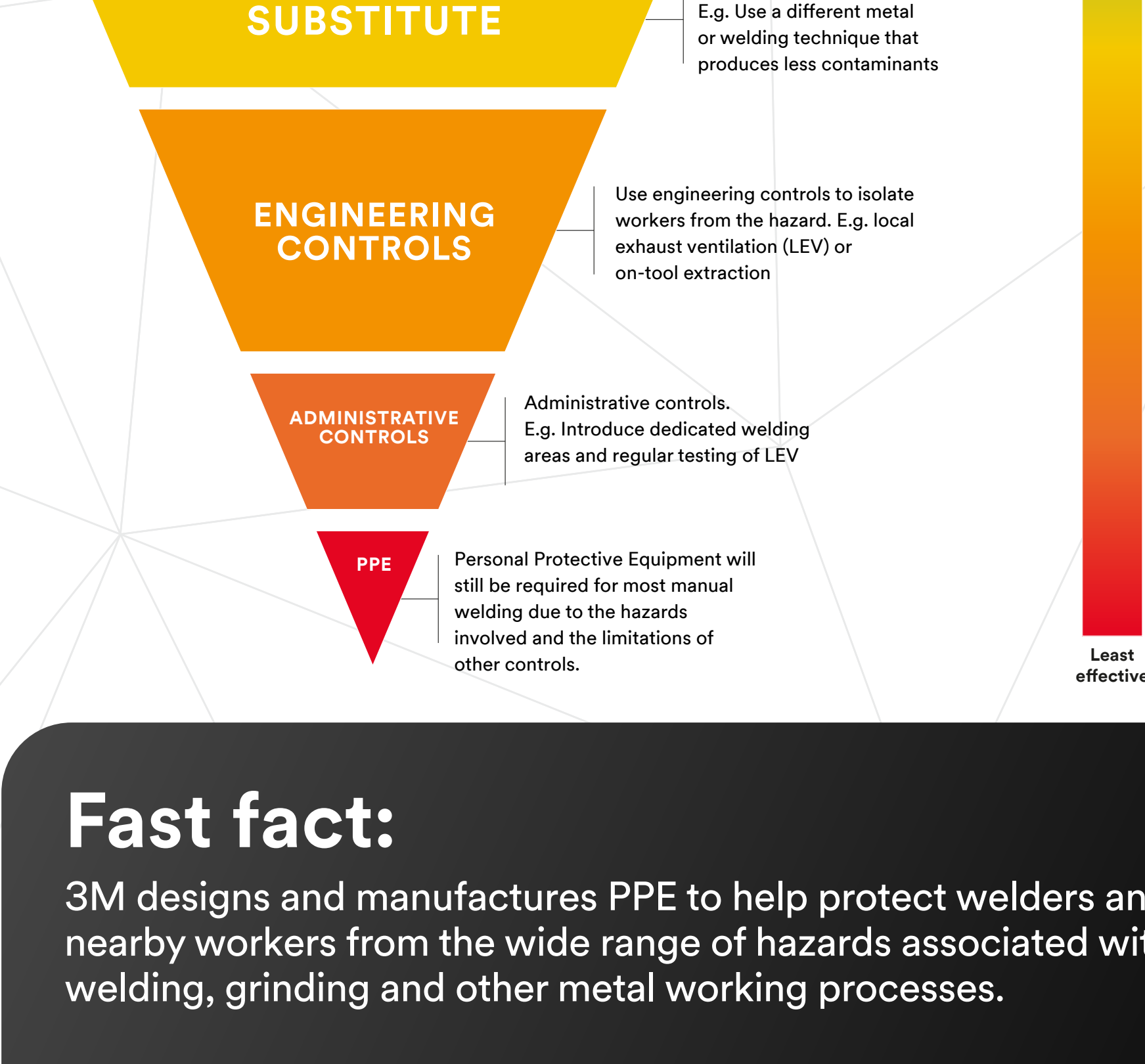
[Download our expert hazards guide](#)

### Fast fact:

A qualified health & safety professional or consultant can conduct area and personal exposure monitoring to determine type and concentration of contaminants.

## Before you choose your protective equipment

The Hierarchy of Controls can be used to guide you through the process of mitigating exposures to welding fume.<sup>5</sup> The measures towards the top of the list are normally considered to be the most preferable.



### Fast fact:

3M designs and manufactures PPE to help protect welders and nearby workers from the wide range of hazards associated with welding, grinding and other metal working processes.

## Choosing the right respirator

Select respiratory protection that is adequate and suitable for the worker and the task



**Disposable respirators – 3M™ Aura™ Particulate Respirators 9300+ Series**

- Original 3-panel design allows for greater facial movement
- Available in FFP1, FFP2 and FFP3 protection levels to provide protection against solid and liquid particles
- With valved and unvalved models, our respirators feature an innovative chin tab for easy adjustments and an embossed, sculpted upper panel to help reduce eyewear fogging
- Lightweight and designed to fit under virtually any welding helmet
- Maintenance-free (disposable)



**Reusable respirators – 3M™ Secure Click™ Reusable Respirator HF-800 Series**

- Helps provide protection against solid and liquid particles and/or gases and vapours, depending upon the filter or cartridge used. Half mask and P2 filters APF of 10, Half mask and P3 filters APF of 20
- 3M P3 with additional relief from nuisance odours caused by welding are suggested for typical welding application. Engineered to fit well with 3M™ Speedglas™ Welding Helmet
- Wide range of different filters and cartridges available, depending on your combination of contaminants: particulates, organic and inorganic vapours, acid gas and ammonia



**Powered Air Respirator system - 3M™ Speedglas™ Welding Helmet G5-01 with 3M™ Adflo™ Powered Air Respirator**

- APF of up to 40 (inward leakage according to TH3)
- Helps provide protection against solid and liquid particles and/or gases and vapours, depending upon the combination of filters used
- Slim design for extra mobility and comfortable work



**Supplied Air Respirator system - 3M™ Speedglas™ Welding Helmet G5-01 with 3M™ Versaflo™ Supplied Air Regulator V-500E**

- APF of 40 (3B)
- Can be used to protect against substances with poor warning properties (taste or smell)
- Belt-mounted regulator with user control over airflow

[Request a demo now](#)

### Fast fact:

40-50 UK welders are hospitalised every year with pneumonia caused by welding fume. Two of these welders die every year.<sup>3</sup>

<sup>1</sup> IARC2017

<sup>2</sup> Top 10 Most Frequently Cited Standards, OSHA, U.S. Department of Labor, for 2015.

<sup>3</sup> Source: www.hse.gov.uk/welding/illness.htm (02.03.2017)

<sup>4</sup> Incidence and prevalence of chronic bronchitis: Impact of smoking and welding, 2012

<sup>5</sup> Source: https://www.cdc.gov/niosh/topics/hierarchy/