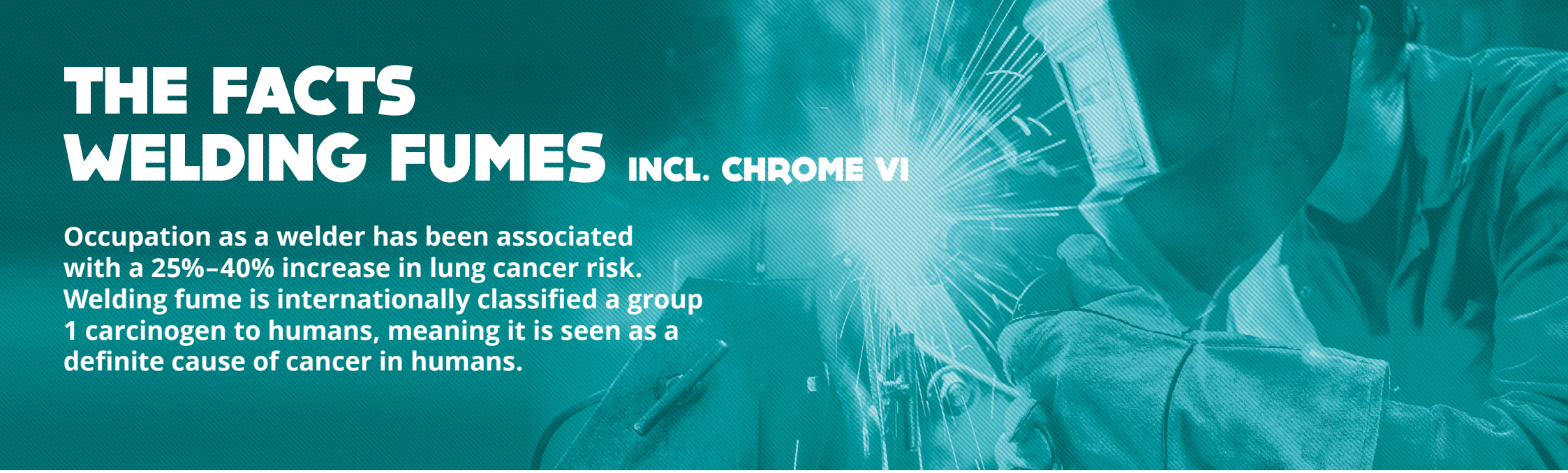
# THE FACTS
# WELDING FUMES INCL. CHROME VI



**Occupation as a welder has been associated with a 25%–40% increase in lung cancer risk. Welding fume is internationally classified a group 1 carcinogen to humans, meaning it is seen as a definite cause of cancer in humans.**

**Although primarily associated with stainless steel welding, this classification is not limited to stainless steel fume. It covers all welding fume.**

### Where risks occur

Exposure to welding fumes occurs in multiple sectors. For instance welders in the metal industry, shipyards, construction and transportation. Occupations are mainly welders and metal workers.

### How symptoms can affect you

Acute exposure to welding fume and gases can result in eye, nose and throat irritation, dizziness and nausea. Prolonged exposure to welding fume may cause lung damage and various types of cancer, including lung, larynx and urinary tract.

### More about the substance

The type of welding process used will impact on the nature and extent of dangerous substances produced in welding fumes. The fume emitted by welding and hot cutting processes is a varying mixture of toxic airborne gases and very fine particles which can be inhaled. The composition of welding fumes will depend on the substrate, the filler material and welding technique. Welding techniques that generate the highest amounts of carcinogenic substances are: MAG (flux-cored wire), flux-cored wire welding without shield gas and autogenous flame cutting.

Chromium is a component in stainless steel, nonferrous alloys, chromate coatings and some welding consumables. Chromium is converted to its hexavalent state, Chromium VI, during the welding process. Chromium VI fume is highly toxic and can damage the eyes, skin, nose, throat, and lungs and cause cancer.

### What you can do

Perform proper exposure measurements so it is known when actions should be taken. Investigate if workers report early symptoms.

The exact level of risk from the fume will depend on 3 factors: how toxic the fume is, how concentrated it is and how long you are breathing it. Best solution is to minimise the fume by re-designing the work and reconsidering the techniques and materials used, for instance the extracted welding torch. Secondly solutions could be general and local ventilation systems and correct positioning (standing upwind).

Welders should understand the hazards of the materials they are working with.

**SOLUTIONS AND GOOD PRACTICES? WWW.ROADMAPONCARCINOGENS.EU/WELDINGFUMES**

References: HSE, IARC, OSHA

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