

Survey finds most Australian welders exposed to high levels of dangerous fumes

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New Curtin University research has revealed at least 46,000 Australian welders are exposed to high levels of dangerous, potentially cancer-causing fumes at work—and little is being done to protect them.

The joint Curtin School of Population Health and University of Sydney study, titled "Occupational exposure to [welding](#) fume in Australia: An online survey," was published in the [Australian and New Zealand Journal of Public Health](#).

The research team surveyed 634 workers and employers involved in welding from across Australia and asked a series of questions about their work, including the tasks they undertook, their working environment, and the [safety measures](#) implemented in their workplace.

The survey revealed about 90% were being exposed to "welding fume," a mixture of very fine particles and gases produced when a metal is heated above its boiling point.

Welding fume is a known carcinogen in humans.

Of the participants found to be exposed to welding fumes, 76% were deemed to be exposed at a high level, while other carcinogenic metals were also often present—most commonly hexavalent chromium and nickel.

Study lead Dr. Renee Carey ,who was previously involved in a landmark study outlining the dangers of working with [engineered stone](#), said this new research showed many welders in Australia could be at risk of developing serious [health](#) problems.

"Data shows at least 60,000 people are employed as welders, however the number of people who complete welding tasks as part of their job would be far higher," Dr. Carey said.

"Welding fume exposure has been associated with various adverse health effects, including cancer, respiratory disease, neurological disorders and reproductive effects."

Study co-author Professor Tim Driscoll from the University of Sydney, said the exposure risk was exacerbated by the conditions in which most welders worked.

Two-thirds of respondents said they welded in restricted spaces and, more concerning, nearly half said they worked in confined spaces.

Almost 90% also reported leaning over the welding area while working, often putting their breathing zone directly above the fume source.

"Despite this, only 19% of study participants said their workplace had some form of mechanical ventilation, such as a welding booth or exhaust hoods," Professor Driscoll said.

"Given that many Australian workplaces are apparently without effective ventilation, it is even more concerning that nearly two-thirds of workers in non-ventilated areas reported they do not use an air-supplied welding helmet."

Public Health Association Chief Executive Terry Slevin said the study revealed serious health risks which must be reduced.

"We have seen strong action to reduce the health problems linked to asbestos and silica; this is another example where Australia's health and safety legislation must be put to work to protect our tens of thousands of welders," Adjunct Professor Slevin said.

"This study demands every professional welder in Australia be supplied with upgraded protective equipment to make their work as safe as humanly possible.

"We have the technology—now we need to ensure it is mandatory to use it in our workplaces."

The study also looked at the actual levels of exposure to welding fume and the use of control measures in workplaces. This will be the subject of a forthcoming report.

More information: Occupational exposure to welding fume in Australia: An online survey, *Australian and New Zealand Journal of Public Health* (2024). [DOI: 10.1016/j.anzjph.2024.100165](https://doi.org/10.1016/j.anzjph.2024.100165)

Provided by Curtin University

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