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Recent changes in the legislative reclassification of welding fumes has further emphasised the need for the employer to provide a safe working environment



Employers are responsible for providing a safe and healthy workplace for their employees. Arc welding is a safe occupation when sufficient measures are taken to protect the welder from potential hazards.

Welding fume is produced when a metal is heated above its boiling point, this metal cools and condenses into fume; fine particles that can be breathed in.

The operation of welding fume control equipment is affected by various factors including proper use and positioning of the equipment, maintenance of the equipment, and the specific welding procedure and application.

While some welding fumes are easy to see, many are invisible. “If welding fumes are not properly identified, controlled and managed, the health of the welder and others in the workplace may be impacted,” Paul Howe, Automation Specialist at Lincoln Electric explains.

According to Paul, while welding is a potentially hazardous activity there are many precautions that organisations can take to ensure the safety of their welders and workplace at large.

The industry is provided with safety guidelines to follow to minimise risk, these include appropriate PPE, exhaust, surface preparation, isolation of welding activity and choosing welding processes and consumables that are less hazardous whenever possible.

“WHS and OHS legislation states that all employers or persons managing welding activity must ensure that the workplace is safe, and that safe work practices are observed. Under this act all individuals should expect workplaces to take reasonable care of their wellbeing in the workplace,” Paul says.

However, there are a number of factors to consider when it comes to welding fumes. The hazards vary depending on the working environment, type of metal and flux, and the chemical nature of paints or cleaners on weld surfaces.

“The characteristics of the fume involved is highly dependent on the process and the materials being welded,” Paul says.

More than a helmet

While a helmet does protect the welder, it isn’t enough for the entire workplace, says Paul.

“Of course, primarily a welding helmet protects the welder comprehensively, particularly if the size or nature of the job makes other measures difficult or impossible to implement. With just a helmet used for protection, what you are missing is the fact that welding fume is generated and it has to go somewhere. While the welder is protected, that fume can impact others in the workshop,” Paul says.

For Paul, while a helmet is a good solution for the individual, more needs to be done to comprehensively protect the entire workforce and environment.

For more information, visit:
<http://www.lincolnelectricsolutions.com.au>

Substitution, isolation and ventilation: how to better manage welding fume health risks

Lincoln Electric has an extensive range of weld fume control solutions, as well as the global expertise needed to help their clients work out the best way to protect their workers. They work with their customers to exercise the substitution, isolation and ventilation method, as Paul explains.

“Substitution is the aspect of replacing the process or modifying the consumable to a better situation in terms of the hazards involved. What we would look to do first is to substitute the process or the material that is causing the hazard. This is always what we are aiming for but of course, in most cases, it is difficult to completely substitute a material or process,” Paul says.

Lincoln Electric work with their customers to investigate if there can be any change or substitution to any aspects of the weld process to decrease the amount or type of fume generated, Paul says. “It’s about eliminating risk rather than controlling it,” he says.

The next process that Lincoln Electric would go through is isolation, according to Paul this

technique is used if you cannot substitute the process. “If you can’t get rid of what is causing the fume, then you isolate the process. You make sure that the hazard does not impact the general workshop.” he says.

In addition to isolation, ventilation can be used to manage and redirect the welding fumes. “Ventilation is collecting the fume, and filtering and exhausting it so that it does not affect workers in the vicinity. The aim at this stage is to capture the fume at the source, which is the welding arc” Paul says.

For Paul, managing the risk of welding fumes is an ongoing process. “The best approach is to look at the entire process, make a list of every material used and every process and investigate ways that any hazards or risks can be eliminated. If you can’t eliminate it then you should be able to minimise it. After this it is important to have an ongoing programme and process to ensure that the measures that you put in place to control the risk and minimise the hazard are continually followed.

“An important factor for an effective long-term solution, is that the equipment implemented needs to be is easy to use for the welder. For example if a fume extraction arm does not retain the





posture the welder positions it in, and gradually creeps out of position. The welder will eventually need to either stop work to reposition the arm, or continue with insufficient extraction with safety compromised. Our LFA series arms are designed to be easy to manipulate and eliminate any creep once positioned, making safe and efficient operation for the welder easy and seamless. Our Downdraft table range removes the need for any input from the welder from a welding fume perspective. The part to be welded is simply placed on the table and once welding starts fume is automatically drawn down and away for the breathing zone of the welder” he says.

For more information, visit:
<http://bit.ly/fumecontrol>

A better environment equals a better weld

Lincoln Electric has a comprehensive range of innovative equipment and best practices to enable organisations to better manage and protect their workers from welding fumes.

“From PPE, to more advanced engineered systems for overall workshop ventilation, we work with our customers to reduce risk and protect their workers,” Paul says.

Lincoln Electric’s highly effective solutions include portable units, downdraft tables, extraction arms, extraction hoods, Powered Air Purifying Respirator helmets and welding booths.

“We also offer fume control systems for automation based systems such as robotic systems, of course in this case there is no welder involved but it is still important to control the fume before it is released into the general workshop,” Paul says.

For more information, visit: <http://bit.ly/modhoods> or <http://bit.ly/mobilefume>

Lincoln Electric works closely with its customers to assess the type of fume control system required. “We consider the welding process used, the type of welding consumable and the size of the workshop – all of these factors need to be considered before establishing a suitable solution,” Paul says.

Additionally, Lincoln Electric works with its customers to ensure that they are using their equipment correctly as well as servicing regularly to ensure the correct and safest application.

Established in Cleveland, Ohio in 1895 and thereafter in 1938 in Australia, with 60 manufacturing locations, 36 technical application facilities and 11,000 employees globally. Lincoln Electric is the world leader in the design, development, and manufacture of arc welding and cutting solutions.

“We don’t just supply our customers with equipment but also share our expertise in how best to use our products to execute the function that the customer needs. Creating a safer and better environment for all,” Paul says.