




Title:	Welding Fume Management	
Priority	Amber – Minor Non-Conformance	
Legislation:	CoSHH and HSE Bulletin STSU1	
Brief Description:	HSE have reviewed risks posed by mild steel welding. Welding fume has now been reclassified as a human carcinogen and the required controls have been reviewed	
Equipment Affected:	Welding, cutting, heating and weld repairs of mild steel - all hire fleet and work equipment	
<p>Mild steel welding fume has been reclassified as a human carcinogen and therefore there is no known safe level of exposure and so exposure should be ALARP – As Low as Reasonably Practicable.</p> <p>Basic Requirement</p> <ul style="list-style-type: none"> • Use of LEV (Local Exhaust Ventilation System) is required to capture fume at source. • LEVs should be tested and maintained including a Thorough Examination and Test (TEt) – see HAE Technical Bulletin 20 • HAE / EHA Members that have addressed the HAE Code of Practice ‘Managing Exposure to Construction Dusts in the Workplace’ will already have a suitable M or H Classification dust extractor in the workplace. These are suitable for capture of welding fume if configured with a suitable fume trumpet – see image 1 – low cost approach and ideal for small scale welding tasks / repairs • Mobile LEVs are common in UK specialist hire fleets from a number of manufacturers including Nederman (Filtercart) and Lincoln Electric – see image 2 – these suit plant tasks where the welding is not completed in fixed locations • Dwindraught benches (e.g. Air Bench / Armorgard Xtractabench / Addex) may be suitable for bench work as LEVs • RPE (Respiratory Protective Equipment) should be used where the use of LEVs is not sufficient to contain the exposure i.e. if the ventilation system does not capture fume successfully – powered respirators built into automatic welding masks are available – see image 3 		
1 – Fume Trumpet suitable for small scale welding tasks	2 – Mobile Welding LEV Suits plant repairs	3 – RPE – Powered Respirator
		
Recommended Actions:	<ul style="list-style-type: none"> • Review current practices and complete a CoSHH assessment for welding tasks with reference to HAE Code of Practice, this bulletin and HSE Bulletin STSU1 • If welding is an occasional task and small scale, provision of the Fume Trumpet alone may suffice • RPE should be treated as the last resort if LEVs are not sufficient to contain exposure • Maintain safety equipment and ensure TEt of LEV at least every 14 months • Train your team via toolbox talk regarding this topic / bulletin • Review implementation / monitor performance regularly 	
Circulation:	Management / Workshop Teams	

Change in Enforcement Expectations for Mild Steel Welding Fume

Health and Safety Executive - Safety alert

Health and Safety Executive - Safety alert	
Department Name:	All HSE
Bulletin No:	STSU1 – 2019
Issue Date:	February 2019
Target Audience:	All workers, employers, self-employed, contractors' and any others who undertake welding activities, including mild steel, in any industry.
Key Issues:	<ul style="list-style-type: none"> • There is new scientific evidence that exposure to all welding fume, including mild steel welding fume, can cause lung cancer. • There is also limited evidence linked to kidney cancer. • There is a change in HSE enforcement expectations in relation to the control of exposure of welding fume, including that from mild steel welding. • All businesses undertaking welding activities should ensure effective engineering controls are provided and correctly used to control fume arising from those welding activities. • Where engineering controls are not adequate to control all fume exposure, adequate and suitable respiratory protective equipment (RPE) is also required to control risk from the residual fume.

Introduction:

There is new scientific evidence from the International Agency for Research on Cancer that exposure to mild steel welding fume can cause lung cancer and possibly kidney cancer in humans. The Workplace Health Expert Committee has endorsed the reclassification of mild steel welding fume as a human carcinogen.

Consequences:

With immediate effect, there is a strengthening of HSE's enforcement expectation for all welding fume, including mild steel welding; because general ventilation does not achieve the necessary control.

Outcome:

Control of the cancer risk will require suitable engineering controls for all welding activities indoors e.g. Local Exhaust Ventilation (LEV). Extraction will also control exposure to manganese, which is present in mild steel welding fume, which can cause neurological effects similar to Parkinson's disease.

Where LEV alone does not adequately control exposure, it should be supplemented by adequate and suitable respiratory protective equipment (RPE) to protect against the residual fume.

Appropriate RPE should be provided for welding outdoors. You should ensure welders are suitably instructed and trained in the use of these controls.

Regardless of duration, HSE will no longer accept any welding undertaken without any suitable exposure control measures in place, as there is no known level of safe exposure.

Risk assessments should reflect the change in the expected control measures.






Action required

1. Make sure exposure to any welding fume released is adequately controlled using engineering controls (typically LEV).
2. Make sure suitable controls are provided for all welding activities, irrelevant of duration. This includes welding outdoors.
3. Where engineering controls alone cannot control exposure, then adequate and suitable RPE should be provided to control risk from any residual fume.
4. Make sure all engineering controls are correctly used, suitably maintained and are subject to thorough examination and test where required.
5. Make sure any RPE is subject to an [RPE programme](#)^[1]. An RPE programme encapsulates all the elements of RPE use you need to ensure that your RPE is effective in protecting the wearer.

Relevant legal documents:

- Health and Safety at Work etc. Act 1974
- Control of Substances Hazardous to Health Regulations 2002

References:

- [Controlling airborne contaminants at work: A guide to local exhaust ventilation \(LEV\) HSG258](#) ^[2]
- [HSE Local Exhaust Ventilation webpages](#)^[3]
- [Respiratory Protective Equipment: A practical guide HSG53](#) ^[4]
- [HSE Respiratory Protective Equipment webpages](#)^[5]
- [IARC Monographs on the Evaluation of Carcinogenic Risks to Humans Volume 118](#) ^[6]
- [The Lancet article on IARC Monograph](#) ^[7]

Link URLs in this page

1. RPE programme
<http://www.hse.gov.uk/respiratory-protective-equipment/faq.htm>
2. Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) HSG258
<http://www.hse.gov.uk/pubns/priced/hsg258.pdf>
3. HSE Local Exhaust Ventilation webpages
<http://www.hse.gov.uk/lev/>
4. Respiratory Protective Equipment: A practical guide HSG53
<http://www.hse.gov.uk/pubns/priced/hsg53.pdf>
5. HSE Respiratory Protective Equipment webpages
<http://www.hse.gov.uk/respiratory-protective-equipment/>
6. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans Volume 118
<http://publications.iarc.fr/569>
7. The Lancet article on IARC Monograph
<https://www.thelancet.com/pdfs/journals/lanonc/PIIS1470-2045%2817%2930255-3.pdf>

Title:	Welding Fume Management	Bulletin Number:	44-2019	Creation Date:	14/04/19
Authors:	TfH Ltd	Reviewed by:		Revision:	V1.1