

Health and Safety  
Executive



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**Manufacturing Sector**

## **WELDING FUME UPDATE**



# Proactive Inspection Programme 2019/20

## Welding Changes

# Proactive Inspection Programme - 2019/20

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Manufacturing Workplan 2019/20 now published on website:

<http://www.hse.gov.uk/foi/internalops/og/og-00109.pdf>

- Operational Guidance covers 11 key sectors
- OLDs – Asthmagens, Carcinogens and RCS
- MEC and MPMC
- Prevention of Catastrophic Events

# Proactive Inspection Programme - 2019/20

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We also link to HSEs overall Strategy to address the most common causes of safety-related deaths and serious injuries in the Sector.

- The movement and storage of heavy loads
- Maintenance activities: including issues of access (fall from height) and machinery intervention

Although these safety priorities are not a specific focus of this inspection programme.

# Proactive Inspection Programme - 2019/20

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## Inspection programme

- 1.1. What are we inspecting and why?
- 1.2. What is the extent of the problem?
- 1.3. What must be covered at the inspections?
- 1.4. What sectors and topics are we inspecting and when?
- 1.5. Application of the Enforcement Management Model (EMM)
- 1.6. Impact evaluation inspections

# Proactive Inspection Programme - 2019/20

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<b>Sector</b>	<b>Health topic(s)</b>	<b>When</b>
Fabricated metals	Welding fume, MWF	Q4
Food manufacture	Flour dust and MSDs (see separate OG for MSDs)	Q2
Mineral products	RCS	Q4
Molten metals	RCS and other substances	Q3
Rubber	Rubber fume	Q3
Woodworking	Wood dust	Q1

# Change to Enforcement Expectations for Welding of Mild Steel

# Change to Enforcement Expectations for Welding of Mild Steel

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## Background

- Change in welding enforcement expectation based on IARC Research concluded in July 2018.
- Aluminium was included in the scope of the research on cancer undertaken by IARC but this part was not agreed with by HSE and therefore the changes identified in the Safety Alert are based on those carrying out mild-steel welding.



# Change to Enforcement Expectations for Welding of Mild Steel

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- Evidence shows cause of lung cancer and limited evidence for kidney cancer
- HSE Enforcement Expectations changed to reflect this evidence

# Change to Enforcement Expectations for Welding of Mild Steel

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## Action Taken

- HSE took the IARC evidence to WHEC for independent opinion – who agreed with IARC
- Presented a paper to the Regulatory Policy Committee based on proposed changes to enforcement expectations
- Full agreement of proposal - enforcement change required with immediate effect

# Change to Enforcement Expectations for Welding of Mild Steel

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## Action Taken

- Safety Alert issued – on webpages, shared amongst Industry contacts and Trade Associations
- Alert shared via eBulletins, LinkedIn, Trade Press
- In the process of updating HSE webpages to reflect changes

# Change to Enforcement Expectations for Mild Steel Welding

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## Key Changes

- Exposure control required for all types of mild steel welding activity – including TIG, generally LEV
- Follow the Principles of Good Control Practice Sch2A
- RPE required where there is visible residual fume (or ozone smell with TIG)
- RPE required for welding outdoors

# Change to Enforcement Expectations for Mild Steel Welding

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## Key Changes

- Controls required irrelevant of duration – we do not know at what level harm can be caused
- Also risks from exposure to manganese – linked to neurological effects similar to Parkinsons'

# Change to Enforcement Expectations for Mild Steel Welding

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## Action required

- Make sure exposure to any welding fume released is adequately controlled using engineering controls (typically LEV) where reasonably practicable.
- Make sure suitable controls are provided for all welding activities, irrelevant of duration. This includes welding outdoors.

# Change to Enforcement Expectations for Mild Steel Welding

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## Action required

- Where engineering controls alone cannot control exposure, then adequate and suitable RPE should be provided to control risk from any residual fume.
- Make sure all engineering controls are correctly used, suitably maintained and are subject to thorough examination and test where required.

# Change to Enforcement Expectations for Mild Steel Welding

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- Make sure any RPE is subject to an RPE programme. An RPE programme encapsulates all the elements of RPE use you need to ensure that your RPE is effective in protecting the wearer.



# Change to Enforcement Expectations for Mild Steel Welding

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- No WEL for welding fume, removed in c.2005
- WELs for constituent metals components
  - Chromium
  - Nickel
  - Manganese etc.

# Change to Enforcement Expectations for Mild Steel Welding

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## Cutting Activities

- IARC research specifically relates to welding and therefore so does HSE's change in enforcement expectations
- Assess and control as appropriate
  - Similar fume produced
  - Often higher volumes
- Has been discussion with Construction colleagues

# Change to Enforcement Expectations for Mild Steel Welding

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More information available in the Safety Alert

<http://www.hse.gov.uk/safetybulletins/mild-steel-welding-fume.htm>

# Welding



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## Aluminium Welding

- With regard to the welding processes of Aluminium, the established enforcement expectation from HSE is:
- MMA – Local Exhaust Ventilation (LEV) for indoor work; no controls for outdoor work
- MIG/MAG – LEV for indoors

# Welding



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## Aluminium Welding

- TIG - General ventilation (GV) for indoor work, LEV for poorly ventilated areas or if significant amount of visible fume
- Resistance/Spot - General ventilation for indoor work
- There is also the matter of surface debris which can produce non-metallic fume

# Welding

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## Aluminium Welding

- Need to consider the risks from Ozone;
  - a very shiny surface adds reflected uV and can increase ozone production,
  - the amount of ozone produced is related to the amount/volume of available air.
- Rarely is Aluminium pure, it may be an alloy with other metals present in smaller amounts that you would need to be aware of

## Other Welding....



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- Enforcement change purely for Mild Steel Welding
  - Should have been in place for other metals anyway
    - Stainless, Galvanised, Exotic metals.....
  - Still need to follow basic requirements of COSHH
    - Assess risk
    - Control Exposure where you can't eliminate
  - If you produce a fume hazardous to health through your process you need to control the risk from exposure

# Any Questions?

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