Risk Assessment - Use of lead in GWR Workshops

Reference No: STE-45041-14
Version No: 1
Assessment Approver: Kevin 'Kev' Jarvis

Lead is used in the manufacture and refilling of fusible plugs for steam locomotives. It is purchased as a bar and then melted.
This activity is carried out 2 or 3 times a year for a period of 2 hours and is carried out by a maximum of 3 workers. This ensures that exposure to lead fumes is kept to an absolute minimum. This activity MUST be carried out in a location using fume extraction to minimise or eliminate the presence of lead fumes. It is not possible to use a substitute material.

Department: Steam Loco
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Lead Assessor: Kevin Jarvis
Team: Neil Scully

Melting lead for use in fusible plugs

Gloucestershire Warwickshire Steam Railway Plc
Risk Assessment for Use of lead in GWR Workshops - Steam Loco

Type	Hazard Cause	Persons Affected	Control Measures	L S T Overall	Additional Control Measures	L S T Overall	Owner/Action
Health and Safety	Injury to a person Hot splashes or fume inhalation	Volunteers, Staff & Contractors	1) CRITICAL - Engineering: Local Fume Extraction (LEV) equipment to be used in workshop work area such as extraction hoods or confined booths etc - Effective 2) CRITICAL - Engineering: The lead should be pure with a specification of 99.97% and kept clean with no contaminants - Effective 3) CRITICAL - Engineering: Lead melts at 327 degrees C and so great care should be taken when handling - Effective 4) CRITICAL - Engineering: No other flammable materials or gases should be present when the lead is being melted - Effective 5) CRITICAL - Engineering: Any waste or unwanted lead should be disposed of as hazardous waste - Effective 6) CRITICAL - Engineering: All of the old lead on plugs to be reused must be removed before new lead is added - Effective 7) CRITICAL - Engineering: The length of time to expose to fume must be minimised to as little as possible. - Improvable 8) CRITICAL - Engineering: The quantity to lead to be melted must be kept to the absolute minimum required. - Improvable 9) CRITICAL - Engineering: The temperature of the molten lead must not be allowed to exceed 500 degrees C as per the regulations so as not to result in significant exposure - Effective 10) CRITICAL - Engineering: Lead 'dust' must not be created and allowed to enter the atmosphere - Effective 11) CRITICAL - Administrative: Workers to be suitably trained and competent - Effective 12) CRITICAL - Administrative: The content of the Control of Lead at Work Regulations to be understood and implemented - Effective 13) CRITICAL - Administrative: Those not involved in the work activity must be kept well away from any potential exposure to burns or fumes. - Effective 14) CRITICAL - Administrative: Young persons or a woman of reproductive capacity are not allowed to carry out these work activities. - Effective 15) CRITICAL - Administrative: The control measures and PPE stated in the COSHH assessment must be followed - Effective 16) CRITICAL - Administrative: The worker should make every effort to keep their face as far away as is possible from the molten lead and practicable when carrying out this activity - Improvable 17) CRITICAL - Administrative: Lead bar must be stored in a locked COSHH cabinet - Effective 18) CRITICAL - Administrative: No food or drink is to be present or consumed in the work area and workers should wash their hands thoroughly on completion of the task - Effective 19) CRITICAL - Administrative: The worker must have access to sufficient washing and welfare facilities - Effective 20) CRITICAL - PPE: Gloves and overalls to be worn when handling solid lead - Effective 21) CRITICAL - PPE: Gloves, overalls, goggles and/or visor to be worn when lead is being melted or is molten - Effective CONTINUES ON NEXT PAGE	1 x 3 = 3 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	1) Administrative: If medical assessment of a worker is carried out and a blood concentration of >35 micrograms/dl or urine concentration of 40 micrograms Pb/g then medical surveillance will need to be implemented - Effective 2) Administrative: If the frequency of such work increases or the individual exposure of a particular worker increases then consideration of an air quality survey should be given - Effective 3) PPE: Toxic fumes will be emitted when the lead is melting so consideration should be given to the wearing of respiratory PPE if the area is not well ventilated - Effective	2 x 3 = 6 Medium - Risk to be minimised and controlled so far as is reasonably practical.	n/a
			22) CRITICAL - PPE: Contaminated PPE or clothing should be washed or disposed of immediately - Improvable				

COSHH Assessments

The following COSHH assessments are applicable to this risk assessment:

- COSHH-45006-95 - Lead Bar

Reference Documents

• Control of Lead at Work Regulations (2002) - Third Edition -
• HRA Guidance Note on Fusible Plugs -

Ends

Appendix



Reference: UI-45042-502
Fusible Plugs -



Reference: UI-45042-217
Lead Bar -