

Overview

This standard is about the safe setting up, testing and use of oxyacetylene in automotive applications.

Performance criteria

- You must be able to:*
- P1 select and use suitable personal protective equipment throughout all activities
 - P2 work safely at all times, complying with health and safety, and other relevant regulations and guidelines
 - P3 confirm that the oxy-fuel assembly is correctly **set up** prior to use and ready for the heating activities to be carried out
 - P4 manipulate the heating equipment safely and correctly in line with operational procedures
 - P5 use cutting equipment to make straight through section cuts
 - P6 carry out the necessary checks to the vehicle and surrounding areas to ensure correct operation and safety
 - P7 deal promptly and effectively with problems within your control and report those that cannot be solved to an appropriate person
 - P8 safely ignite and shut down the equipment to a safe condition on completion of the heating/cutting activities
 - P9 safely replace empty gas cylinders observing the necessary health and safety requirements

Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

K1 the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection

K2 safe working practices and procedures for using thermal equipment in line with British Compressed Gas Association (BCGA) codes of practice

K3 your workplace procedures for:

K3.1 the referral of problems

K3.2 record keeping

K3.3 personal protection

K4 the specific safety precautions to be taken when working with thermal cutting equipment in a fabrication environment

K5 how to select and use the appropriate personal protective clothing and equipment that needs to be worn when working with fabrications and thermal cutting equipment

K6 the correct methods of manual handling relating to moving or lifting heavy materials and components

K7 the importance of an auditable checklist of the oxy acetylene plant to ensure safe working practices

K8 the hazards associated with thermal cutting and how they can be minimised

K9 the extent of your own authority and to whom you should report if you have problems that you cannot resolve

Equipment

K10 how to **set up** the thermal cutting equipment

K11 the gases used in thermal cutting; gas identification and colour codes; their particular characteristics and safety procedures

Thermal cutting using oxyacetylene

K12 the thermal cutting process

K13 **preparations** prior to cutting

K14 flame control and the effects of mixtures and pressures associated with thermal cutting)

K15 the correct procedure for igniting and extinguishing the flame, and the importance of following the procedure

K16 procedures to be followed for cutting specific materials, and why these procedures must always be adhered to

K17 the problems that can occur with thermal cutting, and how they can be avoided; causes of distortion during thermal cutting and methods of controlling distortion

K18 the effects of oil, grease, scale or dirt on the cutting process

K19 the causes of cutting defects, how to recognise them and methods of correction and prevention

Scope/range

1. Equipment **set up** includes the following checks:
 - 1.1. regulators, hoses and valves are securely connected and free from leaks and damage
 - 1.2. the correct gas nozzle is fitted to the cutting torch
 - 1.3. that a flashback arrestor is fitted to gas equipment
 - 1.4. gas pressures are set and maintained as instructed
 - 1.5. the correct procedure is used for lighting, adjusting and extinguishing the cutting flame
 - 1.6. hoses are safely routed and protected at all times
 - 1.7. gas cylinders are handled and stored safely and correctly

2. Pre-cutting **preparations** include:
 - 2.1. checking connections for leaks
 - 2.2. setting gas pressures
 - 2.3. setting up the material/workpiece
 - 2.4. checking cleanliness of materials used

Glossary

This section contains examples and explanations of some of the terms used but does not form part of the standard.

BCGA code of practice

To include setting up procedures, permit-to-work procedures and emergency shutdown procedures

Hazards

To include naked flames, fumes and gases, explosive gas mixtures, oxygen enrichment, spatter, hot metal, elevated working, enclosed spaces, noise

Personal protective clothing and equipment

To include: respiratory protection, leather aprons, gauntlets, eye protection, safety helmets, LEV/Ventilation etc.

Safety precautions

To include general workshop and site safety, fire and explosion prevention, protecting other workers, safety in enclosed/confined spaces; fume control; accident procedure; statutory requirements, risk assessment procedures and relevant requirements of HASAWA, COSHH and Work Equipment Regulations; safe disposal of waste materials and Noise at Work Regulations 1989

Set up thermal cutting equipment

To include connection of hoses, regulators and flashback arrestors, selection of cutting torch and nozzle size in relationship to material thickness and operations performed

Thermal cutting process

To include basic principles of thermal cutting and related equipment; the various techniques and their limitation; care of the equipment to ensure that it is safe and ready to use

Set up, test and use oxyacetylene in automotive applications

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