Unite Diesel Exhaust Emissions Briefing Note

Introduction

Exposure to diesel exhaust emissions (DEEs), commonly known as diesel fumes, is an increasing workplace health and safety issue and a public health issue which potentially affects us all. Large populations - men, women and children - breathe in diesel exhaust in the course of their everyday life and in their communities. Motor vehicle exhausts, diesel exhaust from trains and ships and from power generators are other sources of exposure.

Though increasing environmental concerns have resulted in regulatory action, including tighter emissions standards, in parts of the world including the USA and Europe, considerable hazards to health still remain and this is likely to continue.

In June 2012 the International Agency for Research into Cancer classified DEEs as a Group 1 Carcinogen – carcinogenic to humans. As a result the Unite policy conference held later that month passed an emergency motion calling on Unite to campaign to highlight the dangers of exposure to diesel fumes for workers in the transport sector and the wider public.

This Unite briefing focuses on raising awareness in the workplace, with a view to preventing the ill-health effects of exposure to diesel fumes.

Workplace exposures to diesel fumes

Many thousands of people die every year in this country and across the world from cancers and respiratory diseases caused by negligent exposures to hazardous substances. This is because their employers have failed to take appropriate steps to protect their workers under health and safety legislation.

Bus, car and lorry maintenance engineers, professional bus drivers and lorry drivers, fork lift truck drivers and other warehouse workers, tractor drivers, miners and construction workers are just some examples of occupations that are exposed to diesel exhaust in the course of their work.

What are diesel fumes?

Diesel engine exhaust emissions are a complex mixture of gases, vapours, liquid aerosols and substances made up of particles, including known carcinogenic substances. They contain the products of combustion including:

- Carbon (soot)
- Nitrogen
- Water
- Carbon monoxide
- Aldehydes
- Oxides of nitrogen
- Oxides of sulphur
- Polycyclic aromatic hydrocarbons

The composition of diesel fumes may vary according to:

- the quality of diesel fuel used
- the type of engine
Die fuel pump setting
• the workload demand on the engine
• the engine temperature
• whether the engine has been regularly maintained.

Diesel fumes and your health

Diesel fumes have the potential to cause a range of health problems including irritation to the eyes and to the respiratory tract.


Exposure to diesel exhaust has been recognised as a probable cause of cancer in humans since 1988, when it was graded by the World Health Organisation (WHO) as a Group 2A carcinogen.

In June 2012 the World Health Organisation’s International Agency for Research into Cancer (IARC) announced that, further to considering the up to date evidence now available, they had upgraded the classification to Group 1 carcinogen: definitely carcinogenic to humans.

IARC also found that there is more limited evidence that exposure to diesel exhaust may cause bladder cancer.

What symptoms should I look out for?

Exposure to diesel fumes can cause irritation to your eyes or respiratory tract. If you move away from the source of exposure these effects should generally disappear.

Prolonged exposure to diesel fumes, in particular to blue or black smoke, could lead to coughing, breathlessness and chestiness.

Members who have symptoms should consult their GP for advice if they have concerns.

What should my employer be doing?

Diesel fumes contain substances hazardous to health. This means that under the Control of Substances Hazardous to Health Regulations 2002 (as amended) – COSHH - your employer must take action as follows:

1. Make a suitable and sufficient assessment of the risks to your health if you are exposed to diesel fumes

2. Take steps to (preferably) prevent or, if this is not reasonably practicable, adequately control your exposure at work.

3. Where exposure cannot be prevented your employer must consider control measures – a combination of which may include:

   • workplace extraction fans
   • tailpipe exhaust extraction systems
   • the use of filters attached to tailpipes
   • catalytic converters

In addition, general measures in workplaces may include:
• turning off engines when not required
• keeping doors and windows open where practicable
• installing air vents in the walls and ceiling
• job rotation
• providing suitable personal protective equipment (PPE) for example, suitable gloves should be worn when handling hot and cold diesel fuel, and respiratory protective equipment (RPE) may need to be used – but see below.

**Note:** The use of personal protective equipment (PPE) and respiratory protective equipment (RPE) should always be the last resort

Your employer should only provide respiratory protection equipment as a last resort when other means of control are not suitable. Your employer should involve Unite safety representatives and the workers concerned in discussions on this issue.

**Employers must also:**

- Ensure any engineering controls used are properly maintained and checked regularly
- Where necessary, monitor employees’ exposure to diesel fumes
- Provide information for employees about the risks of exposure to diesel fumes
- Provide information and training on the safe use of the control measures and any PPE being used.

**Monitoring exposure to diesel exhaust fumes**

There is no suitable marker of exposure to diesel fume that can be used in all occupations where exposure can occur.

No workplace exposure limit (WEL) has been set for DEEs and the IARC classification has not altered the COSHH classification.

Monitoring of carbon dioxide (CO2) together with other factors such as the presence of soot can be used to assess the risks of diesel fume exposure in a workplace. Levels of CO2 above 1000 ppm 8–hour TWA in the workplace may indicate faulty, poorly maintained or inadequately designed control systems in particular local exhaust ventilation or roof extraction systems.

**Competent advice on monitoring**

If your employer needs advice on monitoring and on the substances to monitor they can contact members of a professional body such as the British Occupational Hygiene Society (BOHS). BOHS is the professional body representing the scientific discipline and profession of occupational hygiene in the United Kingdom.
What to look out for at work

1. The presence of soot on the walls or on other surfaces in your workplace indicates that diesel fumes are not being adequately controlled.

2. The colour of the smoke. Smoke is the product of combustion. Vehicles at your workplace may produce three types of smoke. Two of these will indicate engine problems.

   - **Blue smoke** indicates a poorly serviced and/or tuned engine
   - **Black smoke** indicates a mechanical fault with the engine
   - **White smoke** is produced when the engine is started from cold – it disappears when the engine warms up.

Tell your employer if workplace vehicles are producing blue or black smoke so that prompt action can be taken to correct any problem.

Action checklists for Unite members/safety representatives

1. **Diesel fumes**

   Ask your employer for information on the hazards associated with diesel fumes

   Avoid exposure where possible

   Ensure you are consulted on risk assessments and proposed measures to prevent/control exposure and training

   Ensure your training covers how to use the control measures and how to detect any faults

   Make full use of any control measures provided

   Report any faults in the control measures (eg poor extraction fans, defective PPE) immediately to your employer – and encourage your members to do so too.

   Keep doors and windows open to remove any diesel fumes where possible

   Turn off engines when not required.

   If you need to wear personal protective equipment of any kind, including respiratory protective equipment PPE or RPE make sure your training covers how to wear it correctly.

2. **Diesel fuel**

   If you may be exposed to diesel fuel at work you will need to protect your skin.

   Ask for disposable gloves if your work involves potential exposure to diesel fuel. These should be of suitable material such as nitrile, as skin contact with cold diesel fuel may cause dermatitis.

3. **Personal hygiene**

   Do not eat or smoke in areas where there is likely to be exposure.
Wash your hands and face before drinking, eating or leaving work.
Change your clothes if possible before leaving work
Avoid skin contact with cold diesel fuel and hot fuel or oil.

Further information

HSE guidance

The HSE has produced two guidance leaflets. They are free to download from the HSE website www.hse.gov.uk

Diesel Engine Exhaust Emissions – INDG286 – basic leaflet

Control of diesel engine exhaust emissions in the workplace - HSG187

This more detailed booklet provides information on what employers should be doing to comply with health and safety law and practical steps which can be taken and advice for workers.

HSG 187 provides specific advice covering some types of workplaces where the risk of exposure is highest including:

- Garages and testing stations
- Bus garages
- Warehouses
- Railways, railway repairs and rail tunnels
- Ro-ro ferries
- Toll booths and car parks
- Fire stations

Unite Safety Reps should obtain a copy of this booklet and use it to negotiate health and safety improvements at work.


British Occupational Hygiene Society
http://www.bohs.org/

Unite health and safety information
Unite health and safety guide and other resource – see Unite’s website

http://www.unitetheunion.org/unite-at-work/informationresources/