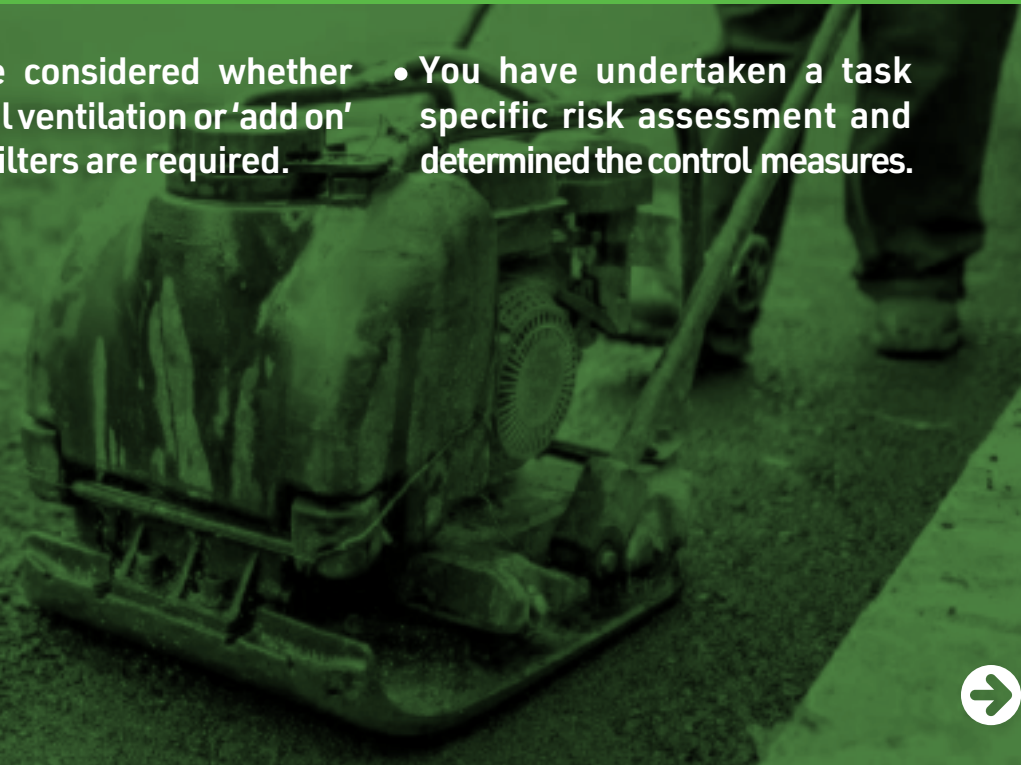


IMPORTANT NOTE TO CONSTRUCTION MANAGERS

Before delivering this toolbox talk ensure that:

- You have considered all other types of engines that do not produce diesel fumes.
- You have considered whether additional ventilation or 'add on' exhaust filters are required.
- You have undertaken a task specific risk assessment and determined the control measures.



Managers Toolkit 

Let's Talk:
**DIESEL ENGINE
EXHAUST EMISSIONS**



What's the issue with these pictures?



Breathing in diesel fume can harm your health. The emissions from diesel exhausts contain a cocktail of gases, vapours, mists and particles. Some parts which make up the fumes are fairly harmless, such as water, but other parts are hazardous.

Examples of these dangerous parts include, for example, oxides of **nitrogen**, **sulphur dioxide** (although since 2006 most of the petroleum-based diesel fuel available in Europe has been of the ultra-low-sulfur type) particulates such as elemental carbon and **soot** (which contains complex and **toxic particles** known as **polycyclic aromatic hydrocarbons (PAHs)**). The precise mixture depends on the type of engine, the fuel and whether the engine is starting up cold or running at normal temperature.



What's the issue with these pictures?



Two types of ill health effects are caused by exhaust emissions:

- **Irritation effects:** These come on quite quickly and may cause coughing or watering eyes. Workers with pre-existing respiratory conditions, such as **chronic obstructive pulmonary disease (COPD) or asthma**, may be particularly affected by **lung irritation**.
- **Long-term lung damage:** Awareness of the long-term effects of diesel engine exhaust emissions has increased in recent years. Exposure, usually over many years, can cause respiratory ill health including **cancer**.

Effects will depend on the amount of diesel engine exhaust emissions in the air and the length of exposure.



What we can do to protect you?



Image © and courtesy of RVT Group.

There are two main ways we can protect you. We can:

- Reduce the amount of diesel engine exhaust emissions.
- Ensure good ventilation.

The best way to reduce diesel fume is to avoid the use of diesel engines and use vehicles or equipment with another type of engine. Petrol engines are not necessarily a good choice as their fumes can also be hazardous (especially carbon monoxide). Many companies are now using battery powered, electric, compressed air & LPG liquefied petroleum gas (LPG) or electric trucks, particularly for activity inside buildings. Most LPG vehicles can operate on both LPG and petrol. So conversion from a petrol to LPG fuelled vehicle may be considered and should be carried out by a person competent to do so. However the nature of the work sometimes means that these types of engines are not suitable. We will consider this when reviewing the work that you are doing.

We can reduce diesel engine fumes by making sure that diesel engines are well maintained and also use add on exhaust filters where possible. We will also switch off engines and ask you to do the same when they are not required instead of leaving vehicles running.



What we can do to protect you?



Image © and courtesy of RVT Group.

Good ventilation is important: Running a diesel engine outdoors, where there is good natural ventilation, is safer than using the engine indoors. However, diesel fumes can build up when diesel engines are used in poorly ventilated spaces such as inside buildings, under canopies or during below ground construction.

Whenever these situations are likely to arise, additional control measures such as building in air vents and extractor systems or using exhaust filters may be required, alongside other controls such as switching off engines when they are not in use.



What do you need to do?



Image © and courtesy of RVT Group.

Be aware of diesel engines when they are in use, especially where ventilation is poor and follow your safe system of work.

If any of the following are evident, inform your supervisor:

- Look out for diesel engines blowing out smoke. Blue smoke can indicate a poor serviced engine.
- White smoke may indicate condensation or a coolant leak.
- Watch out for a fume haze in the atmosphere.
- Look out for heavy soot deposits. Black smoke indicates soot and a mechanical problem.

Complaints from workers being affected by

- fumes, such as irritation of the eyes or lungs, is a sign of the risk of harm.

If you are the operator of the diesel powered trucks or equipment:

- Make sure your engine is well maintained and not giving out visible fumes.
- Be very careful about when you use your engine, especially in poorly ventilated areas.
- Always switch off the engine when it is not in use.



DIESEL FUME - A RECAP

1

Who might be exposed to diesel fumes on a construction site?

- Anyone working in an area where diesel engines are used could be exposed to fumes, such as from generators, diesel fuel powered tools, or diesel engines of mobile plant.

2

What are the effects of breathing in Diesel Engine Exhaust Emissions?

- Short-term effects include coughing, watering eyes and lung irritation.
- Long-term effects include respiratory ill health, including cancer.

3

What can lead to high fume exposure?

- Badly maintained engines.
- Poor ventilation.
- Prolonged work tasks in close proximity to diesel engines causing extended durations of exposure.



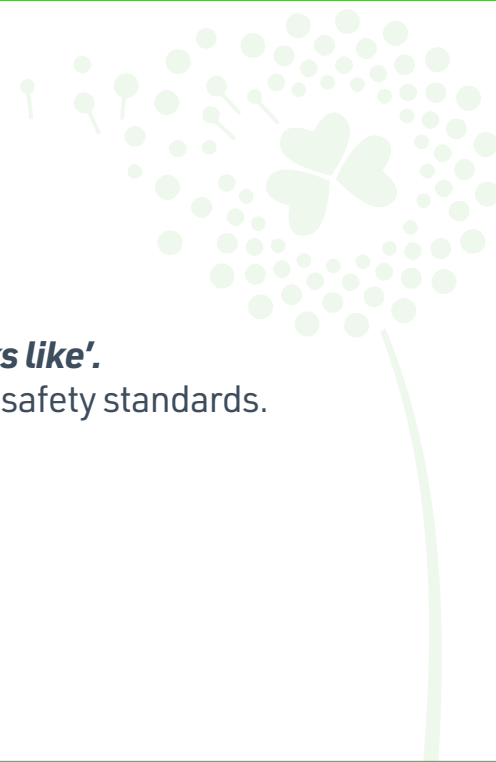
Managers Toolkit 

Visual Standards: DIESEL ENGINE EXHAUST EMISSIONS



So what does good practice look like?

Visual standards demonstrate ***'what good looks like'***.
They are intended to reinforce expectations of health and safety standards.



Visual Standard: Diesel Engine Exhaust Emissions



Image © and courtesy of RVT Group.

- Diesel engines are well maintained.
- There are good standards of ventilation.
- Diesel engines are switched off when they are not in use.
- Alternative power sources are used where possible.
- Use diesel exhaust fume filters to minimise exposure.





Managers Toolkit



CURRENT TITLES IN THE TOOLBOX TALKS SERIES

| | |
|---------------------------------------|----------------------------|
| Diesel Fume | Removal of Lead |
| Dust Control in Hard Demolition | Lead-Based Paint |
| Dust Control in Soft Strip Demolition | Silica |
| Housekeeping | Water Suppression on Tools |
| Painting with Brushes and Rollers | Welding Fume |
| Painting with Brushes and Rollers | Wood Dust |